



# City of Sandy

## Agenda

### City Council Meeting

Meeting Date: Monday, April 18, 2022

Meeting Time: 7:00 PM

Page

#### **1. CITY COUNCIL REGULAR MEETING**

This meeting will be conducted in a hybrid in-person / online format. The Council will be present in-person in the Council Chambers and members of the public are welcome to attend in-person as well. Members of the public also have the choice to view and participate in the meeting online via Zoom.

##### To attend the meeting in-person

Come to Sandy City Hall (lower parking lot entrance).  
39250 Pioneer Blvd., Sandy, OR 97055

##### To attend the meeting online via Zoom

Please use this link: <https://us02web.zoom.us/j/87530901837>

Or by phone: (253) 215-8782; Meeting ID: 875 3090 1837

Please also note the public comment signup process below.

#### **2. PLEDGE OF ALLEGIANCE**

#### **3. ROLL CALL**

#### **4. CHANGES TO THE AGENDA**

#### **5. PUBLIC COMMENT**

NOTE: the Council will take comments on the Deer Meadows appeal and the CM/GC contracting method during public hearings later in the agenda.

The Council welcomes your comments on other matters at this time.

##### If you are attending the meeting in-person

Please submit your comment signup form to the City Recorder before the regular meeting begins at 7:00 p.m. Forms are available on the table next to the Council Chambers door.

##### If you are attending the meeting via Zoom

Please complete the [online comment signup webform](#) by 3:00 p.m. on the day of the meeting.

The Mayor will call on each person when it is their turn to speak for up to three minutes.

## 6. RESPONSE TO PREVIOUS PUBLIC COMMENTS

## 7. CONSENT AGENDA

- 7.1. **City Council Minutes** 4 - 9  
[City Council - 04 Apr 2022 - Minutes - Pdf](#)
- 7.2. **Authorization of Application for Grant at Sandy Bluff Park** 10 - 16  
Resolution 2022-03  
[Resolution Authorizing Application for Grant at Sandy Bluff Park - Pdf](#)

## 8. OLD BUSINESS

- 8.1. **PUBLIC HEARING (continued)** 17 - 1111  
Deer Meadows Subdivision Appeal  
[Deer Meadows Subdivision Appeal \(April 18 hearing\) - Pdf](#)  
[Staff Presentation Slides](#)

## 9. NEW BUSINESS

- 9.1. **PUBLIC HEARING: Approval of Findings for CM/GC Procurement Method** 1112 - 1128  
Collection System Basins #6 and #7  
Resolution 2022-05  
[Findings for Modified Construction Manager / General Contractor \(CM/GC\) Procurement Method: Collection System Basins #6 and #7 - Pdf](#)
- 9.2. **Owner's Representative Wastewater Program Support: Contract Amendment #2** 1129 - 1142  
[Leeway Engineering Owner's Representative Wastewater Program Support: Contract Amendment #2 - Pdf](#)
- 9.3. **Audit Corrective Plan of Action** 1143 - 1146  
Resolution 2022-04  
[Corrective Plan of Action - Pdf](#)

## 10. REPORT FROM THE CITY MANAGER

## 11. COMMITTEE /COUNCIL REPORTS

## 12. STAFF UPDATES



12.1. [Monthly Reports](#)

**13. ADJOURN**



**MINUTES**  
**City Council Meeting**  
**Monday, April 4, 2022 7:00 PM**

**COUNCIL PRESENT:** Stan Pulliam, Mayor; Jeremy Pietzold, Council President; Laurie Smallwood, Councilor; Richard Sheldon, Councilor; Kathleen Walker, Councilor; Carl Exner, Councilor; and Don Hokanson, Councilor

**COUNCIL ABSENT:**

**STAFF PRESENT:** Jordan Wheeler, City Manager; Jeff Aprati, City Recorder; Tyler Deems, Deputy City Manager / Finance Director; Greg Brewster, IT/SandyNet Director; Jenny Coker, Public Works Director; Ernie Roberts, Police Chief; and Chris Crean, City Attorney

**MEDIA PRESENT:** Sandy Post

1. **CITY COUNCIL REGULAR MEETING**
2. **Pledge of Allegiance**
3. **Roll Call**
4. **Changes to the Agenda**  
(none)
5. **Public Comment**  
(none)
6. **Response to Previous Public Comments**
7. **Proclamations**
  - 7.1. **Arbor Month 2022**  
  
**Mayor Pulliam** read a proclamation for Arbor Month 2022. The proclamation text was included in the agenda packet.
8. **Consent Agenda**
  - 8.1. **City Council Minutes**  
March 5, 2022

March 7, 2022

**Moved by Jeremy Pietzold, seconded by Kathleen Walker**

***Approve the Consent Agenda.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**9. PRESENTATIONS**

9.1. **Government Relations Update**

Pac/West Lobby Group

(this presentation did not occur)

**10. Old Business**

10.1. **SandyNet ARPA Project Approvals**

Staff Report - 0552

The **SandyNet Director** summarized the staff report, which was included in the agenda packet.

Council discussion ensued on the following topics:

- Supply chain and inflation concerns
- Cost variability
- Importance of avoiding any cost overruns
- Whether more than the proposed \$449,000 should be allocated to the project to ensure as many properties as possible can be served
- Whether additional ARPA funds from the first tranche can be allocated
- The process for obtaining approval from property owners
- The prudence of spending a large amount on extending fiber to the wastewater treatment plant
  - Security and service considerations related to using SandyNet rather than another provider
  - Whether a comparison quote should be obtained
- Importance of prioritizing areas that have no other high speed internet options
- Issues extending fiber to particularly challenging properties

**Moved by Kathleen Walker, seconded by Laurie Smallwood**

***Authorize the City Manager to enter into an agreement with Henkel's and McCoy for design and construction of broadband to the Wastewater Treatment Plant, in an amount not to exceed \$350,000; and authorize the City Manager to enter into an agreement with Henkel's and McCoy for design and construction of broadband to remaining underserved areas in Sandy, in an amount not to exceed \$484,000.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**11. New Business**

**11.1. CCTV Package for Wastewater Collection System I&I Improvements - Basins 6 & 7**

Staff Report - 0554

The **Public Works Director** summarized the staff report, which was included in the agenda packet.

In response to questions from the Council, staff provided clarification on the City's legal ability to select the second lowest bid in this case.

**Moved by Kathleen Walker, seconded by Carl Exner**

***Authorize the City Manager to enter into an agreement with JNM Services in the amount of \$111,276.00, to perform CCTV services for Basins 6 & 7 of the wastewater collection system.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**11.2. Wastewater System Collection System I&I Improvements - Emergency Stormwater Pipeline Repair**

Staff Report - 0553

The **Public Works Director** summarized the staff report, which was included in the agenda packet.

Council discussion ensued on the following topics:

- Incurring debt within the Stormwater utility, versus utilizing ARPA funding or contingency
- The urgency of the needed repairs
- Appropriateness of using contingency for this project
- Need for a future discussion on raising the stormwater utility fee and establishing a capital improvement program

**Moved by Richard Sheldon, seconded by Don Hokanson**

***Authorize the City Manager to enter into an agreement with Oxbow Construction for Tupper Road Storm Sewer Rehabilitation in the amount of \$151,959.60.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood, Richard Sheldon, Kathleen Walker, Carl Exner, and Don Hokanson

**12. Report from the City Manager**

- Noted the thanks expressed by former Troutdale Mayor Jim Kight to the Sandy Police Department
- Asked whether the same panel would be used for new Parks and Trails Advisory Board applicant interviews; the Council agreed the panel would include **Councilors Smallwood, Walker, and Exner**
- Reminded Councilors of the invitation to be interviewed for Comprehensive Plan video content
- Noted the upcoming SEI filing deadline
- Noted the upcoming forum on homelessness on April 28th

**13. Committee /Council Reports**

**Councilor Hokanson**

- Reminder on providing vision 'tag-line' input

**Councilor Exner**

- Praise for cleanup of tree at Meinig Park
- Concern regarding the composition of the Community Advisory Committee
- Recently participated in a police ridealong
- Mention of homelessness challenges

**Councilor Walker**

- Thanks for Mike Walker's retirement party
- Praise for Community Center programming
- Impacts of wastewater system challenges on feasibility of development and on long term planning efforts

**Councilor Sheldon**

- Possibility of using ARPA funds for employee recognition, in light of recent inflation

**Councilor Smallwood**

- Parks and Trails Advisory Board recently reviewed recommendations from the Pool Exploratory Task Force
- Parks and Recreation recruitments are proceeding; programming is increasing
- First meeting of the Community Advisory Committee went well; shares concern regarding its composition

**Council President Pietzold**

- Sidewalk construction is proceeding on Hwy 26
- Homelessness concerns on Hoffman Ave
- Economic Development Strategic Plan will begin soon

**Mayor Pulliam**

- Notes on recent C-4 meeting
- Notes on County consideration of restricting fireworks
- Recognition of Muna Rustam's recent outstanding employee award

**14. Staff updates**

14.1. [Monthly Reports](#)

**15. Adjourn**

**16. City Council Executive Session**

The City Council met in executive session pursuant to ORS 192.660(2)(f) and (2)(h).

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Mayor, Stan Pulliam

City Council  
April 4, 2022

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City Recorder, Jeff Aprati

Draft



## Staff Report

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**Meeting Date:** April 18, 2022

**From** Rochelle Anderholm-Parsch, Parks and Recreation Director

**SUBJECT:** Resolution Authorizing Application for Grant at Sandy Bluff Park

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**DECISION TO BE MADE:**

Whether to authorize the City of Sandy Parks and Recreation Department to apply for a Local Government Grant from the Oregon Parks and Recreation Department to improve and increase capacity at Sandy Bluff Park.

**PURPOSE / OBJECTIVE:**

The Parks Department asks that the Council support the Department's efforts to apply for a grant for park improvements at Sandy Bluff Park via a 'Resolution Authorizing Application for Grant,' which is part of the grant application requirement.

**BACKGROUND / CONTEXT:**

The Sandy Bluff Park dog park improvements and the construction of a shelter(s) is considered a goal and Department priority established during the Feb. 9, 2022, Parks Board meeting. As such, the Parks and Recreation Department plans to pursue a grant through the Oregon Parks and Recreation Department (OPRD) called the Local Government Grant Program (LGGP). During the monthly Parks and Trails Advisory Board meeting on April 13, 2022, the Parks Board will review the Sandy Bluff Dog Park improvements and shelter(s) location concept plan. They will provide comments and supply a letter of support.

This project would authorize the City of Sandy to request a Local Government Grant not to exceed \$68,0000 and utilize up to \$62,460 in Park System Development Charges (SDC's). The grant match would include \$20,000 of existing funds raised in past Corn Cross events and use in-kind labor and equipment matches. The project would construct a shelter at the Sandy Bluff Dog Park and a larger shelter at the Sandy Bluff Park playground that could be rented out for cost recovery. The project would also construct a barrier free entrance on the west side of the small dog park, stairs to the small and large dog park on the east end, and a packed gravel trail around the interior perimeter of the dog park.

**KEY CONSIDERATIONS / ANALYSIS:**

The Parks Board and the Department consider this project a goal and priority in fiscal year 2022-2023. The Sandy Bluff Park does not have shelters for shade or rain protection. The dog park is very popular since it is the only official dog park located between Mt. Hood and Gresham. Users have asked for shelter while their dogs play.



Playground users would also benefit from a shelter and the city could rent out the shelter for cost recovery. The sunken topography in the dog park makes it difficult to walk around the interior perimeter. A compacted gravel trail around the interior perimeter of the dog park would improve access and eliminate costly fence line vegetation removal, while allowing users to walk while their dogs play. Stairs are needed for both the large and small dog park at the steeply inclined and muddy east entrance. Barrier free access is needed to connect limited mobility users to dog park area.

This project would have five components:

1. Build a 14 x 20-foot Sandy Style shelter at the dog park.
2. Enlarge, re-fence, and slightly reconfigure the small dog park to allow barrier free access from the west.
3. Construct a compacted gravel trail around the interior perimeter of the large dog park.
4. Install stairs to the small and large dog park entrances on the east end of the park.
5. Construct a 16 x 30-foot Sandy Style shelter adjacent to the Sandy Bluff Playground.

**RECOMMENDATION:**

Staff recommends that the Council authorize the Parks and Recreation Department to apply for the Local Government Grant Program through the Oregon Parks and Recreation Department via a "Resolution Authorizing Application for Grant."

**BUDGETARY IMPACT:**

The Grant application is due May 1, 2022. Award status will be announced in September 2022. We will utilize plans similar to Bornstedt Park shelters and other City funded outdoor dining structures. Contracts for the project would be awarded by May 2023. We would contract the fencing and barrier free access points with a local vendor. If the grant is awarded, the anticipated completion date would be Summer 2023. These projects are on the Parks and Trails Master Plan CIP List and SDC's can fund up to 60% of the total cost for this expanded capacity project. Only 41% is planned to be paid with SDC's.

Total estimated project costs (including 30% contingency) is \$153,846.

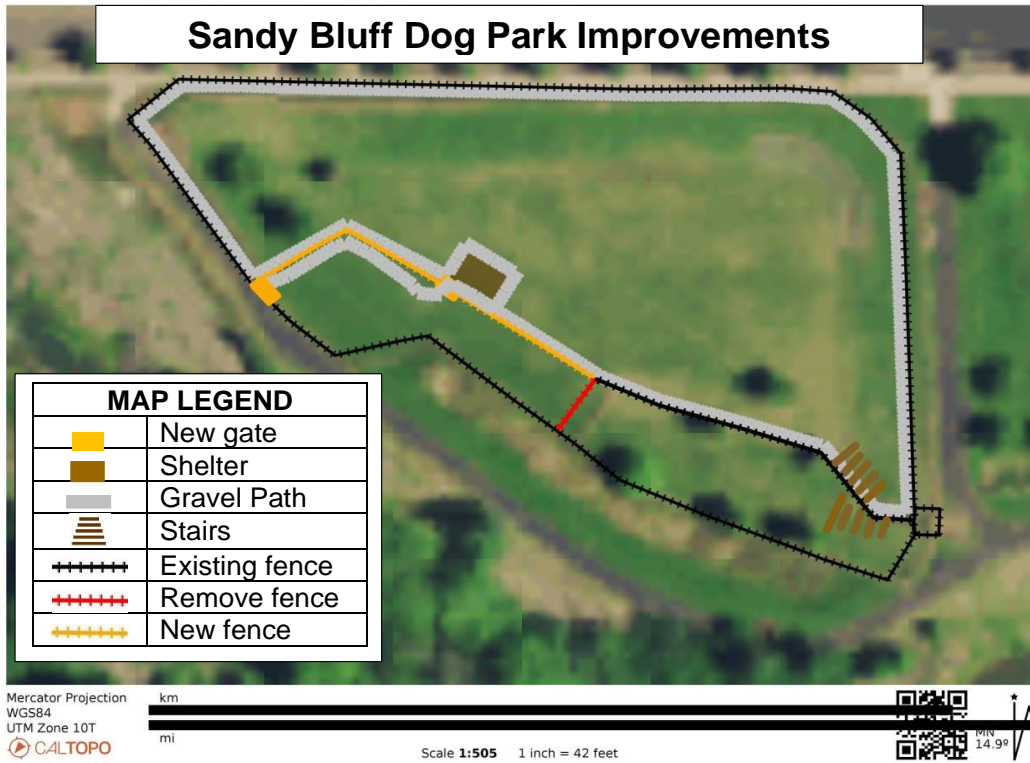
**SUGGESTED MOTION LANGUAGE:**

"I move to approve Resolution 2022-03."

**LIST OF ATTACHMENTS/EXHIBITS:**

- ATTACHMENT A: Pictures, Concept Plan and Estimated Budget
- Resolution 2022-03

**Attachment A:  
Pictures, Concept Plan and Estimated Budget**





**Attachment B: Pictures of Comparable structures, existing issues and proposed fixes.**



Comparable shelter in Bornstedt Park (16'x38')  
Sandy Bluff Playground would be 16'x 30'.

Smaller playground shelter in Bornstedt Park  
(12'x 20') Dog park shelter would be 14'x 20'.



Need for stairs on east end of small dog park.

Need for stairs on east end of large dog park.



Fence & barrier free trail, west end of small dog park, with approximate shelter location & perimeter trail in large dog park.

Location of proposed packed gravel trail along perimeter fence line.

### BUDGET FOR SANDY BLUFF PARK IMPROVEMENT GRANT

Improvement	Estimated Cost	Funding Source				Estimated Revenue
		Grant Request	SDCs	Existing Donations	In kind Services	
<b>Playground Shelter 16'x30'</b>	\$50,000	\$30,000	\$20,000	-	-	\$50,000
<b>Dog Park Shelter 14'x20'</b>	\$30,000	\$20,000	-	\$10,000	-	\$30,000
<b>Trail around dog park (materials)</b>	\$10,000	\$6,000		\$4,000		\$10,000
<b>Fencing and Gates</b>	\$6,000	\$4,000		\$2,000		\$6,000
<b>Wood and packed gravel steps</b>	\$2,000			\$2,000		\$2,000
<b>Six metal barrier free picnic tables</b>	\$6,000	\$3,800	\$2,200			\$6,000
<b>Labor - Trail Construction</b>	\$7,000	\$4,200	\$800	\$2,000		\$7,000
<b>Equipment Rental and Operator</b>	\$4,760		\$4,760			\$4,760
<b>Volunteer Project Manager</b>	\$3,386				\$3,386	\$3,386
<b>30% contingency</b>	\$34,700		\$34,700			\$34,700
<b>TOTAL</b>	<b>\$153,846</b>	<b>\$68,000</b>	<b>\$62,460</b>	<b>\$20,000</b>	<b>\$3,386</b>	<b>\$153,846</b>
<b>Total Match (40%+ Required) = 56%</b>	<b>\$85,846</b>					



NO. 2022-03

**A RESOLUTION TO APPLY FOR A LOCAL GOVERNMENT GRANT FROM THE OREGON PARKS AND RECREATION DEPARTMENT FOR DEVELOPMENT AT SANDY BLUFF PARK AND DOG PARK**

**Whereas**, the Oregon Parks and Recreation Department is accepting applications for the Local Government Grant Program; and

**Whereas**, the City of Sandy Parks and Recreation Department desires to participate in this grant program to the greatest extent possible as a means of providing needed park and recreation acquisitions, improvements, and enhancements; and

**Whereas**, Parks and Trails Advisory Board and staff have identified park improvements at Sandy Bluff Park and Dog Park as a high priority need in the City of Sandy; and

**Whereas**, the project will include multiple components; the construction of two shelters, enlarge, re-fence, and slightly reconfigure the dog park to allow for barrier free access, construct a compacted gravel trail around the interior perimeter of the dog park; and

**Whereas**, the City of Sandy Parks and Recreation Department has available local matching funds to fulfill its share of obligation related to this grant application should the grant funds be awarded; and

**Whereas**, the City of Sandy Parks and Recreation Department will provide adequate funding for on-going operations and maintenance of this park and recreation facility should the grant funds be awarded;

**NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Sandy**

This resolution is adopted by the Common Council of the City of Sandy and approved by the Mayor this 18 day of April 2022

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Stan Pulliam, Mayor

ATTEST:

#2022-03

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Jeff Aprati, City Recorder

#2022-03



## Staff Report

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**Meeting Date:** April 18, 2022

**From** Kelly O'Neill Jr., Development Services Director

**SUBJECT:** Deer Meadows Subdivision Appeal (April 18 hearing)

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**DECISION TO BE MADE:**

Deny or Approve a subdivision request.

**BACKGROUND / CONTEXT:**

The Planning Commission denied the Deer Meadows subdivision proposal with a vote of 5:0 on November 8, 2021. The final order (i.e., written decision) was signed by Chairman Crosby and issued on November 18, 2021. The applicant filed an appeal of the Planning Commission decision on November 30, 2021 within 12 days of the Planning Commission decision as required by Section 17.28.10.

The appeal hearing was originally scheduled for January 18, 2022, but after publication of the staff report on January 11, the applicant asked to move the hearing date. The City of Sandy granted this request and postponed the hearing to February 22, 2022. With postponement of the hearing, staff sent a revised neighborhood notice on January 12, 2022 and completed a revised legal notice in the Sandy Post for February 9, 2022.

At the hearing on February 22, 2022, the applicant asked for a continuance to April 18, 2022. The primary reason for the continuance request was so that the applicant could modify the proposal and then allow staff to modify the staff report for Council's review. The City Council granted the continuance to April 18, 2022. The applicant submitted additional material on March 14, 2022. The [attached staff report](#) is reflective of the modifications as submitted by the applicant, except as otherwise noted.

**APPLICANT'S PROPOSAL:**

The applicant, Roll Tide Properties Corp., seeks approval for a ~~3230~~ lot subdivision at 40808 and 41010 Highway 26. The development proposal includes two partial street extensions and the creation of two new streets. The applicant proposes ~~3028~~ lots of Low Density Residential (R-1) that would contain single family homes or duplexes, one small lot (~~9,023~~ 10,036 square feet) of Medium Density Residential (R-2) that would like contain multi-family, and one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3) that would likely contain multi-family. The proposed ~~3028~~ lots with R-1 zoning range in size from 5,500 square feet to ~~32,189~~ 13,193 square feet. The applicant proposes to retain 48 existing trees and proposes to remove the remainder of the trees from the site. A majority of the trees proposed for retention are located in the proposed parkland tract. Note: The applicant's



revised proposal is for a 30-lot subdivision. Two lots were removed to accommodate proposed parkland.

The exact number of multifamily units was not determined at the time of the subdivision request as the applicant wants to process the multi-family development in a subsequent design review application. However, the applicant claims the number of multifamily dwelling units on the R-2 zoned land will be between 38 dwelling units and 66 dwelling units. The C-3 zoned land would likely contain a mix of commercial and residential development, and the exact number of multifamily dwelling units is unknown at this time.

**REASONS FOR DENIAL:**

The Planning Commission **denied** the subdivision request due to the following issues:

1. The application does not meet subdivision criteria 17.100.60(E)(1).
2. The application does not meet subdivision criteria 17.100.60(E)(3).
3. The application does not meet the parkland dedication requirements in Chapter 17.86.

In addition, staff recommends the City Council **deny** the subdivision request due to the following issues:

1. The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).
2. The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.
3. The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.
4. This subdivision proposal includes 0.93 acres of parkland as required by Chapter 17.86. However, only 0.12 acres (5,292 square feet) of the proposed parkland dedication abuts Deer Pointe Park, which means the proposal would only expand Deer Pointe Park to 1.52 acres which is inconsistent with the Parks and Trails Master Plan that was adopted in 1997.

Additions to the staff report: red underline

Deletions from the staff report: ~~blue strikethrough~~

**RECOMMENDATION:**

Pursuant to the subdivision criteria in Section 17.100.60 (E) and all other applicable criteria and requirements in the Sandy Development Code as outlined in the attached staff report, the Planning Commission and staff recommend that the City Council **deny** the subdivision request.

**BUDGETARY IMPACT:**

If the subdivision is approved as proposed by the applicant the City of Sandy will bear the full financial burden for the following:



- Connecting a future street to Highway 26 to accommodate the planned transportation route of Dubarko Road;
- Highway 26 frontage improvements (i.e., sidewalk, curb, lighting, street trees, etc.) along the site frontage of Highway 26; and,
- Maintaining two parks instead of one parkland area.

**SUGGESTED MOTION LANGUAGE:**

I move that the City Council deny the Deer Meadows Subdivision for the reasons outlined in the staff report.

**LIST OF ATTACHMENTS/EXHIBITS:**

**DUE TO LARGE FILE SIZE, EXHIBITS A through FFF are not directly included in the packet, and are located on the City website here:**

<https://www.ci.sandy.or.us/development-services/project/deer-meadows-subdivision-appeal>

Additional Documents from the Applicant:

GGG. Letter from Tracy Brown on behalf of the applicant (March 14, 2022)

HHH. Letter from Garrett Stephenson on behalf of the applicant (February 22, 2022)

III. Cul-de-sac Diagram

JJJ. Revised Plat with Parkland Dedication

KKK. Letter from Applicant's Attorney - 4.15.2022

LLL. Revised On-Street Parking Plan - 4.15.2022

MMM. Parks and Trails Advisory Board Recommendation - 4.15.2022

**CITY COUNCIL STAFF REPORT  
TYPE IV APPEAL**

This proposal was originally reviewed concurrently as a Type III subdivision with tree removal. The Planning Commission denied the request. This review before the City Council is an appeal filed by the applicant. The following exhibits and findings of fact explain the proposal and support the Planning Commission decision and the staff recommendation.

**DATE:** ~~April 18, 2022~~ January 11, 2022

**FILE NO.:** 21-061 AP (appeal to File No. 21-014 SUB/TREE)

**PROJECT NAME:** Deer Meadows Subdivision

**APPLICANT/OWNER:** Roll Tide Properties, Corp.

**PHYSICAL ADDRESS:** 40808 and 41010 Highway 26

**LEGAL DESCRIPTION:** T2 R5E Section 18CD, Tax Lots 900 and 1000

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## EXHIBITS

### **Applicant's Original Submittals:**

- A. Land Use Application
- B. Project Narrative (dated June 17, 2021)
- C. Civil Plan Set
  - Sheet C1 - Cover Sheet and Future Street Plan
  - Sheet C2 - Preliminary Plat Map
  - Sheet C3 - Existing Conditions and Tree Retention Plan
  - Sheet C4 - Tree Tables
  - Sheet C5 - Master Street and Utility Plan
  - Sheet C6 - Preliminary Street Tree and Parking Plan
  - Sheet C7 - Preliminary Grading and Erosion Control Plan
  - Sheet C8 - Slope Analysis
- D. Preliminary Stormwater Report
- E. Traffic Impact Study (dated June 14, 2021)
- F. Arborist Report
- G. Wetland Determination
- H. DSL Offsite Determination
- I. Geotechnical and Slope Stability Investigation
- J. Geotechnical Supplemental Review Letter
- K. Letter from Michael Robinson (dated March 31, 2021)
- L. Letter from Michael Robinson (dated June 11, 2021)

### **Agency Comments:**

- M. Fire Marshal (dated August 10, 2021)
- N. ODOT (dated September 1, 2021)
- O. Parks and Trails Advisory Board (dated September 1, 2021)
- P. City Transportation Engineer (dated August 30, 2021)
- Q. City Transit Director (dated August 30, 2021)
- R. City Public Works Director (dated September 2, 2021)

### **Public Comments:**

- S. Gary and Val Roche (received August 16, 2021)
- T. Dave and Nancy Allan (received August 23, 2021)
- U. Ashley Yukich (received August 23, 2021)
- V. Marilyn Euteneier (September 8, 2021)
- W. Scott Ruehrdanz (September 13, 2021)

### **Documents Received after publication of the Planning Commission Staff Report:**

- X. Letter from Michael Robinson (September 23, 2021)
- Y. Letter from Michael Robinson (September 24, 2021)
- Z. Letter from All County Surveyors and Planners (dated September 16, 2021)
- AA. Parks and Trails Advisory Board Minutes
- BB. Letter from Dave Carter (received September 27, 2021)

- CC. Revised TIS from Ard Engineering (September 27, 2021)
- DD. Letter from Vincent and Lynn Mandina (received September 27, 2021)
- EE. Ard Engineering Response Memo (September 27, 2021)
- FF. Presentation from Development Services Director
- GG. Presentation from Tracy Brown Consulting

**Materials received during Open Record Period #1:**

- HH. Email from Michael Robinson (October 6, 2021)
- II. 120-day extension letter from Michael Robinson (October 6, 2021)
- JJ. Revised memo from the City Transportation Engineer (October 6, 2021)
- KK. Staff email exchange with DLCD (October 7, 2021)
- LL. Letter from Michael Robinson (October 11, 2021)
- MM. Home Builders Association Letter (October 11, 2021)
- NN. Letter from Michael Robinson (October 11, 2021)

**Materials received during Open Record Period #2:**

- OO. Email from Christy Veselik (October 16, 2021)
- PP. Letter from Michael Robinson (October 18, 2021)

**Materials received during Open Record Period #3:**

- QQ. Letter from Michael Robinson (October 25, 2021)
- RR. Letter from City Attorney David Doughman (November 1, 2021)

**Staff Documents Reviewed by the Planning Commission:**

- SS. September 27, 2021 Staff Report
- TT. November 8, 2021 Staff Report
- UU. November 18, 2021 Final Order for File No. 21-014 SUB/TREE

**Appeal Documents:**

- VV. 120-day extension email from Michael Robinson (November 24, 2021)
- WW. Appeal documents from the applicant (received November 30, 2021)
- XX. Letter from City Attorney regarding scope of work (December 21, 2021)
- YY. Letter from Michael Robinson regarding scope of work (January 3, 2022)
- ZZ. 120-day extension email from Michael Robinson (January 11, 2022)

**Additional Public Comments:**

- AAA. Letter from David and Nancy Allan (January 11, 2022)
- BBB. Letter from Dave Carter (January 19, 2022)
- CCC. Letter from David and Nancy Allan (January 20, 2022)
- DDD. Letter from Scott Ruehrdanz (February 4, 2022)

**Additional Document from the Applicant:**

- EEE. Letter from Garrett Stephenson on behalf of the applicant (February 22, 2022)

**Additional Public Comment:**

- FFF. Marilyn Euteneier (February 24, 2022)

**Additional Documents from the Applicant:**

- GGG. Letter from Tracy Brown on behalf of the applicant (March 14, 2022)
- HHH. Letter from Garrett Stephenson on behalf of the applicant (February 22, 2022)
- III. Cul-de-sac Diagram
- JJJ. Revised Plat with Parkland Dedication

## FINDINGS OF FACT

### GENERAL FINDINGS

1. The Planning Commission denied the Deer Meadows subdivision proposal with a vote of 5:0 on November 8, 2021. The final order (i.e., written decision) was signed by Chairman Crosby and issued on November 18, 2021.
2. The applicant filed an appeal of the Planning Commission decision on November 30, 2021 within 12 days of the Planning Commission decision as required by Section 17.28.10.
3. The appeal hearing was originally scheduled for January 18, 2022, but after publication of the staff report on January 11, the applicant asked to move the hearing date. The City of Sandy granted this request and postponed the hearing to February 22, 2022. With postponement of the hearing, staff sent a revised neighborhood notice on January 12, 2022 and completed a revised legal notice in the Sandy Post for February 9, 2022.
4. At the hearing on February 22, 2022, the applicant asked for a continuance to April 18, 2022. The primary reason for the continuance request was so that the applicant could modify the proposal and then allow staff to modify the staff report for Council's review. The City Council granted the continuance to April 18, 2022.
5. The applicant submitted additional material on March 14, 2022. This staff report is reflective of the modifications as submitted by the applicant, except as otherwise noted.
6. These findings are based on the applicant's submittals and other evidence and testimony presented to the Planning Commission. In a letter dated June 11, 2021, the applicant agreed to toll the 120-day clock until July 27, 2021. The original 120-day clock deadline was November 24, 2021.
7. On September 27, 2021 the Planning Commission held a public hearing on the Deer Meadows Subdivision and decided to create an open record period prior to deliberating on the subdivision request at a special meeting scheduled for November 8, 2021. The first open record period closed on Monday, October 11 at 4 pm. During the first open record period, anyone could submit additional written information for the Planning Commission to consider. The second open record period closed on Monday, October 18 at 4 pm. During the second open record period, parties could only submit information that rebutted or responded to information that was submitted during the first open record period. The third open record period closed on Monday, October 25 at 4 pm. This third open record period was reserved solely for the applicant to submit their final written argument.
8. With the creation of the open record period the applicant agreed to extend the 120-day clock by an additional 42 days. The 120-day clock deadline was then extended to January 5, 2022.
9. On November 24, 2021 the applicant requested to extend the 120-day clock deadline by an additional 27 days to February 1, 2022.

10. The subject site is approximately 15.91 acres. The site is located at 40808 and 41010 Highway 26.
11. The parcel has a Comprehensive Plan Map designation of Village and a Zoning Map designation of R-1, Low Density Residential; R-2, Medium Density Residential; and C-3, Village Commercial.
12. The applicant, Roll Tide Properties Corp., seeks approval for a ~~32~~ 30-lot subdivision at 40808 and 41010 Highway 26. The development proposal includes two partial street extensions and the creation of two new streets. The applicant proposes ~~39~~ 28 lots of Low Density Residential (R-1) that would contain single family homes or duplexes, one small lot (~~9,023~~ 10,036 square feet) of Medium Density Residential (R-2) that would like contain multi-family, and one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3) that would likely contain multi-family. The proposed ~~36~~ 28 lots with R-1 zoning range in size from 5,500 square feet to ~~32,489~~ 13,193 square feet. The applicant proposes to retain 48 existing trees and proposes to remove the remainder of the trees from the site. A majority of the trees proposed for retention are located in the proposed parkland tract. Note: The applicant's revised proposal is for a 30-lot subdivision. Two lots were removed to accommodate proposed parkland.
13. The exact number of multifamily units was not determined at the time of the subdivision request as the applicant wants to process the multi-family development in a subsequent design review application. However, the applicant claims the number of multifamily dwelling units on the R-2 zoned land will be between 38 dwelling units and 66 dwelling units. The C-3 zoned land would likely contain a mix of commercial and residential development, and the exact number of multifamily dwelling units is unknown at this time.
14. Due to the interest in the previous proposal at the subject site, the Development Services Director elevated the Deer Meadows subdivision application to a Type III decision to be heard and considered by the Planning Commission.
15. Throughout the project narrative (Exhibit B) the applicant failed to submit required information. Instead, on 14 occasions in the narrative the applicant stated that the development code is subjective (i.e., not clear and objective) and because the subdivision is a housing application the alleged subjective development code language is not applicable. Staff explained at the Planning Commission meetings that they did not agree with the applicant's interpretation of what constitutes and does not constitute subjectivity.
16. The applicant previously proposed a development at the site that was denied by the City Council (File No. 19-050 CPA/ZC/SUB/SAP/TREE Bull Run Terrace). This application (File 21-014 SUB/TREE) was substantively different from that prior proposal. The applicant did not propose a Comprehensive Plan amendment or Zone Change amendment with this application. The applicant chose not to expand Deer Pointe Park or connect Dubarko Road to Highway 26. The existing parks master plan details the Deer Pointe neighborhood to have a Community Park. The existing transportation system plan classifies Dubarko Road as a



minor arterial and shows it extending through the subject property and connecting to Highway 26.

17. The City of Sandy provided the following notices for this appeal:
  - A. Notification of the appeal was mailed to affected property owners within 500 feet of the subject property on December 30, 2021.
  - B. A legal notice was published in the Sandy Post on January 5, 2022.
  
18. The City of Sandy provided the following notices with File No. 21-014 SUB/TREE:
  - A. A transmittal was sent to agencies asking for comment on August 2, 2021.
  - B. Notification of the proposed application was mailed to affected property owners within 300 feet of the subject property on August 10, 2021.
  - C. A supplemental notice regarding the Planning Commission meeting was mailed to affected property owners within 300 feet of the subject property on August 24, 2021.
  - D. A legal notice was published in the Sandy Post on September 15, 2021.

## **PLANNING COMMISSION BASIS FOR DENIAL**

NOTE: Since this section of the staff report summarizes the Planning Commission's basis for denial nothing has been modified in this section to reflect the submission materials from the applicant that were submitted to the City of Sandy on March 14, 2022.

### **BASIS FOR DENIAL 1: The application does not meet subdivision criteria 17.100.60(E)(1)**

19. Section 17.100.60(E)(1) requires subdivisions to be consistent with the density, setback, and dimensional standards of the base zoning district, unless modified by a Planned Development approval as this particular application was submitted prior to the repeal of Planned Developments. Each base zoning district requires that residential development comply with Chapter 17.82. First, the Preliminary Plat Map (Exhibit C, Sheet C2) details setbacks for Lots 2, and 27-31 showing the front setback facing the local street or public access lane, instead of the Transit Street as required by Chapter 17.82. Second, Sheet C2 does not identify that lots abutting Highway 26 shall face Highway 26 as required by Chapter 17.82, nor does the plan set detail frontage improvements along Highway 26 as required by Chapter 17.86. Third, by not proposing the extension of Dubarko Road to connect with Highway 26, the lots that would otherwise abut Dubarko Road do not have the required frontage to Dubarko Road as required by Chapter 17.82. Fourth, by not proposing Dubarko Road or parkland dedication, some of the proposed lots are in the required right-of-way for Dubarko Road and also located across required parkland. Therefore, this proposal does not meet approval criteria 17.100.60 (E)(1).

### **BASIS FOR DENIAL 2: The application does not meet subdivision criteria 17.100.60(E)(3)**

20. Section 17.100.60(E)(3) requires the proposed street pattern to be connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy. The proposed street pattern is not consistent with the Comprehensive Plan and the city's standards, including connecting Dubarko Road to Highway 26.

21. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan.' The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.

22. On pages 9, 10, and 14 of the project narrative (Exhibit B) the applicant references the City's TSP and states that the TSP identifies Dubarko Road as a minor arterial. On page 32 of the project narrative (Exhibit B) the applicant claims that subdivision approval criteria 17.100.60 (E)(3) is not clear and objective and therefore the subdivision does not need to meet the Comprehensive Plan or official street plan for the City of Sandy. The applicant also asserts that if the official street plan is in the TSP, it is not sufficiently incorporated into the development code for the purposes of limited land use decisions. However, in the narrative for Bull Run Terrace (File No. 19-050) for the same subject site the same applicant stated, "*As illustrated on the submitted Future Street Plan (Sheet C1), the proposed street system is*

*consistent with the City's Transportation System Plan and Comprehensive Plan.*" So, with the Bull Run Terrace land use application the applicant conceded that the street system had to be consistent with the City's Transportation System Plan and Comprehensive Plan to meet criteria 17.100.60 (E)(3). The applicant's inconsistent understanding of what is the official street plan (i.e., the City's TSP) is illogical and conflicting even in the applicant's project narrative. Additionally, in a previous TIS from Ard Engineering (dated September 28, 2020) on page 24 the applicant's traffic engineer referenced the requirement for the Dubarko Road connection by stating, "it is the completion of the city's planned connection of Dubarko Road to Highway 26." Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP. By not providing the connection of Dubarko Road to Highway 26 in the proposal the subdivision request does not meet approval criteria 17.100.60 (E)(3).

**BASIS FOR DENIAL 3: The application does not meet the parkland dedication requirements in Chapter 17.86**

23. The applicant did not propose any parkland dedication as required by Chapter 17.86 of the Sandy Development Code. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The Parks and Trails Advisory Board (Board) met on August 11, 2021. The Board recommended that conditions of approval were included that required dedication of land for expansion of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and in the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. Because the Deer Meadows subdivision did not propose parkland dedication abutting Deer Pointe Park, the proposed subdivision is inconsistent with the 1997 Parks Master Plan.
  
24. Section 17.86.10 contains a clear and objective formula for determining the amount of land required to be dedicated. The formula is  $\text{acres} = \text{proposed units} \times (\text{persons/unit}) \times 0.0043$ . For the 30 single family homes,  $\text{acres} = 30 \times 3 \times 0.0043 = 0.39$  acres. For the maximum development of 66 multifamily units,  $\text{acres} = 66 \times 2 \times 0.0043 = 0.57$  acres. Combined, this totals 0.96 acres. The dedication of 0.96 acres was required to meet the clear and objective criteria in Chapter 17.86. NOTE: The number of dwelling units on the subject site does not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to parkland dedication are based on unreliable assumptions.

### **LAND DIVISION CRITERIA – Chapter 17.100**

25. This land use application is for the subdivision of land and therefore is reviewed in compliance with Chapter 17.100.
26. Submittal of preliminary utility plans and street plans is solely to satisfy the requirements of Section 17.100.60. **Preliminary plat approval does not connote utility or public improvement plan approval which will be reviewed and approved separately upon submittal of public improvement construction plans.**
27. On page 1 of the project narrative (Exhibit B) the applicant states that in accordance with ORS 197.307 (4) a local government may apply only clear and objective standards, conditions, and procedures regulating the creation of needed housing. The analysis of land division criteria as follows has been conducted through review of clear and objective standards. Staff's assessment of this subdivision proposal meets ORS 197.307 (4).
28. Section 17.100.60(E)(1) requires subdivisions to be consistent with the density, setback, and dimensional standards of the base zoning district, unless modified by a Planned Development approval. Each base zoning district requires that residential development comply with Chapter 17.82. First, Preliminary Plat Map (Exhibit C, Sheet C2) details setbacks for Lots 2, and 27-31 showing the front setback facing the local street or public access lane, instead of the Transit Street as required by Chapter 17.82. The modified subdivision plan (Exhibit JJJ) has modified Lots 27-31 to be numbered Lots 25-29, but Sheet C2 was not modified by the applicant so staff cannot make a different conclusion than was made in the staff report published for the hearing on February 22, 2022. Second, Sheet C2 does not identify that lots abutting Highway 26 shall face Highway 26 as required by Chapter 17.82, nor does the plan set detail frontage improvements along Highway 26 as required by Chapter 17.86. Third, by not proposing the extension of Dubarko Road to connect with Highway 26 the lots that would otherwise abut Dubarko Road do not have the required frontage to Dubarko Road as required by Chapter 17.82. In addition, Lot 12 does not have the minimum 20 feet of street frontage required by Section 17.36.30(C). With revisions to the subdivision layout the lots have been renumbered. All proposed lots have at least 20 feet of street frontage as required by Section 17.36.30(C). Fourth, by not proposing Dubarko Road or parkland dedication, some of the proposed lots are in the required right-of-way for Dubarko Road and also located across required parkland. Therefore, this proposal does not meet approval criteria 17.100.60 (E)(1). Note: At the request of staff, the applicant removed the proposed public access lane and is instead proposing an alley.
29. Section 17.100.60(E)(2) requires subdivisions to be consistent with the design standards set forth in this chapter. The proposal is not consistent with Section 17.100.70, Section 17.100.100 (A)(E) or (F). The proposal does not meet approval criteria 17.100.60 (E)(2) as explained in A. through E., below:
- A. In accordance with Section 17.100.70 the design standards in Chapter 17.100 are not met as the proposed subdivision does not follow the City of Sandy Transportation System Plan by providing the connection of Dubarko Road to Highway 26.

- B. In accordance with Section 17.100.100 (A) the proposed subdivision does not meet the Street Connectivity Principle. By not connecting Dubarko Road to Highway 26 the subdivision does not provide safe and convenient options for cars, bikes, and pedestrians; does not create a logical, recognizable pattern of circulation; and does not spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened.
  - C. In accordance with Section 17.100.100 (E), by not connecting Dubarko Road to Highway 26 the proposed subdivision does not provide a future street plan that promotes a logical, connected pattern of streets.
  - D. In accordance with Section 17.100.100 (F) the proposed subdivision does not include the continuation of Dubarko Road and proposes two cul-de-sacs and one dead-end public access lane, all of which do not provide connectivity to other streets within the development and to existing and planned streets outside the development. Note: At the request of staff, the applicant removed the proposed public access lane and is instead proposing an alley.
  - E. The applicant did not submit any information on block lengths or information regarding single tier vs double tier blocks. Instead, the applicant stated the block length standards in Section 17.100.120 are subjective (i.e., not clear and objective) and because the subdivision constitutes a needed housing application the block length standards are not applicable. The applicant failed to submit information into the record regarding block lengths and therefore staff does not have enough information to determine block lengths.
30. Section 17.100.60(E)(3) requires the proposed street pattern to be connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy. The proposed street pattern is not consistent with the Comprehensive Plan and the city's standards, including connecting Dubarko Road to Highway 26. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan'. The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26. On pages 9, 10, and 14 of the project narrative (Exhibit B) the applicant references the City's TSP and states that the TSP identifies Dubarko Road as a minor arterial. On page 32 of the project narrative (Exhibit B) the applicant claims that subdivision approval criteria 17.100.60 (E)(3) is not clear and objective and therefore the subdivision does not need to meet the Comprehensive Plan or official street plan for the City of Sandy. The applicant also asserts that if the official street plan is in the TSP, it is not sufficiently incorporated into the development code for the purposes of limited land use decisions. However, in the narrative for Bull Run Terrace (File No. 19-050) for the same subject site the same applicant stated, "*As illustrated on the submitted Future Street Plan (Sheet C1), the proposed street system is consistent with the City's Transportation System Plan and Comprehensive Plan.*" So, with the Bull Run Terrace land use application the applicant conceded that the street system had to be consistent with the City's Transportation

System Plan and Comprehensive Plan to meet criteria 17.100.60 (E)(3). The applicant's inconsistent understanding of what is the official street plan (i.e., the City's TSP) is illogical and inconsistent even in the applicant's project narrative. Additionally, in a previous TIS from Ard Engineering (dated September 28, 2020) on page 24 the applicant's traffic engineer references the requirement for the Dubarko Road connection by stating, "it is the completion of the city's planned connection of Dubarko Road to Highway 26." Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP. By not providing the connection of Dubarko Road to Highway 26 in the proposal the subdivision request does not meet approval criteria 17.100.60 (E)(3).

31. Section 17.100.60(E)(4) requires that traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions. The applicant's project narrative (Exhibit B) and the applicant's Traffic Impact Study (Exhibit E) do not evaluate ADT on local streets. The applicant's project narrative on page 32 states, "As detailed in the submitted Traffic Study traffic volumes on local streets are not projected to exceed ADT standards. This criterion is met." Staff cannot find an evaluation of ADT standards in the submitted TIS. Based on incomplete ADT analysis of the surrounding local streets the subdivision request does not meet approval criteria 17.100.60 (E)(4).
32. Section 17.100.60(E)(5) requires that adequate public facilities are available or can be provided to serve the proposed subdivision. City water, sewer and stormwater are available or will be constructed by the applicant to serve the subdivision. However, the proposal does not meet approval criteria 17.100.60 (E)(5) as explained in A through C, below:
  - A. Dubarko Road. As thoroughly explained in this staff report the proposal does not propose the continuation of Dubarko Road to connect with Highway 26. This is inconsistent with the 2011 TSP and will create a safety concern by increasing trips to other streets in Sandy that are not designed to accommodate additional traffic without the connection of Dubarko Road to Highway 26. As stated by the City of Sandy Transportation Engineer (Exhibit P), the Deer Meadows subdivision application should be denied based on the inadequacy of the TIS and because the applicant does not propose the connection of Dubarko Road to Highway 26. By not providing the Dubarko Road connection to Highway 26 the subdivision fails to incorporate a key project from the 2011 TSP and therefore fails to provide adequate public facilities for transportation. Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP.
  - B. Parkland Dedication. Pursuant to 17.86.10 of the Development Code, new residential subdivisions "shall be required to provide parkland to serve existing and future residents of those developments." As thoroughly explained in this staff report the proposal ~~does not~~ includes dedication of ~~0.96~~ 0.93 acres of parkland as the Code requires. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and the Location and Development Polices section of the Plan states that community parks should be 20 acres or more. ~~Because the~~ The Deer Meadows subdivision ~~does not~~

proposes only 0.12 acres (5,292 square feet) of parkland dedication abutting Deer Pointe Park, therefore the proposed parkland dedication related to the Deer Meadows subdivision is inconsistent with the 1997 Parks Master Plan. Staff recognizes that outside of the City of Sandy purchasing land, there are practical and legal impediments to requiring an applicant to dedicate enough acreage to accommodate a 20-acre community park. Staff finds that a neighborhood park would be a more reasonable solution. Based on the 1997 Parks Master Plan, a neighborhood park is two to seven acres. The existing land the City owns for Deer Pointe Park is 1.40 acres. However, only 0.12 acres (5,292 square feet) of the proposed parkland dedication abuts Deer Pointe Park, which means the proposal would only expand Deer Pointe Park to 1.52 acres ~~When coupled with the 0.96 acres required by this application, the result would be an approximately 2.4-acre neighborhood park.~~

- C. Highway 26 frontage improvements. As explained by the Public Works Director (Exhibit R) the site plan does not depict frontage improvements (curbs, sidewalks, street lighting, street trees, storm drainage, etc.) on the Highway 26 frontage of the site. Frontage improvements along Highway 26 are required by Section 17.84.50(F)(1) and Section 17.84.30(A). Section 17.84.50(F)(1) states, “Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.”
33. Section 17.100.60(E)(6) requires all proposed improvements to meet City standards. A detailed review of proposed improvements is contained throughout this staff report. Staff has identified a few aspects of the proposed subdivision improvements requiring additional information or modification by the applicant. Some of the required improvements could be satisfied with conditions of approval, but several of the required improvements can only be satisfied by a substantial modification to the subdivision proposal. The proposed subdivision lacks the following substantial improvements: 1) Dubarko Road connecting to Highway 26; 2) Highway 26 frontage improvements; and 3) Parkland dedication. The proposal does not meet approval criteria 17.100.60 (E)(6).
34. Section 17.100.60(E)(7) strives to ensure that a phasing plan, if requested, can be carried out in a manner that meets the objectives of the above criteria and provides necessary public improvements for each phase as it develops. The applicant is not requesting a phased development. That said, the applicant is proposing that the design of the multifamily dwellings and commercial land occurs at a future date. The proposal meets approval criteria 17.100.60 (E)(7).

**DENSITY CALCULATIONS – Chapter 17.30**

35. The total gross acreage for the entire property is 15.91 acres. After removal of the proposed right-of-way and proposed stormwater tract, the net site area (NSA) for the subject property ~~is was originally~~ reduced to 13.22 net acres with three zoning districts. The ~~original proposed~~ area zoned as R-1 ~~is was~~ 5.64 net acres, the area zoned as R-2 ~~is was~~ 4.74 net acres, and the area zoned as C-3 ~~is was~~ 2.84 net acres.

NOTE: The density calculations on the subject site do not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26, ~~or the parkland dedication,~~ therefore the calculations related to density are based on unreliable assumptions.

36. ~~The revised plat details 28 lots in the area zoned R-1 with a total area of 4.72 net acres, 2 lots in the area zoned R-2 with a total area of 4.74 acres, and 1 lot in the area zoned C-3 that is split zoned with R-2 with a total area of 2.84 acres. This is how staff completed the revised calculations:~~

<u>R1</u>		<u>R3</u>	
<u>Lot 1</u>	<u>8,131</u>	<u>Lot 29</u>	<u>10,036</u>
<u>Lot 2</u>	<u>6,926</u>	<u>Lot 30</u>	<u>196,646</u>
<u>Lot 3</u>	<u>13,193</u>	<u>Total sq ft</u>	<u>206,682</u>
<u>Lot 4</u>	<u>8,919</u>	<u>Acres</u>	<u>4.74</u>
<u>Lot 5</u>	<u>5,587</u>	<u>Min</u>	<u>38</u>
<u>Lot 6</u>	<u>5,500</u>	<u>Max</u>	<u>66</u>
<u>Lot 7</u>	<u>5,500</u>		
<u>Lot 8</u>	<u>6,096</u>	<u>C3</u>	
<u>Lot 9</u>	<u>9,716</u>	<u>Lot 30</u>	<u>123,763</u>
<u>Lot 10</u>	<u>8,514</u>	<u>Total sq ft</u>	<u>123,763</u>
<u>Lot 11</u>	<u>10,467</u>	<u>Acres</u>	<u>2.84</u>
<u>Lot 12</u>	<u>11,021</u>	<u>Min</u>	<u>unknown</u>
<u>Lot 13</u>	<u>8,944</u>	<u>Max</u>	<u>unknown</u>
<u>Lot 14</u>	<u>6,792</u>		
<u>Lot 15</u>	<u>7,654</u>		
<u>Lot 16</u>	<u>5,916</u>		
<u>Lot 17</u>	<u>5,500</u>		
<u>Lot 18</u>	<u>5,500</u>		
<u>Lot 19</u>	<u>5,500</u>		
<u>Lot 20</u>	<u>5,500</u>		
<u>Lot 21</u>	<u>5,500</u>		
<u>Lot 22</u>	<u>11,229</u>		



<u>Lot 23</u>	<u>6,414</u>		
<u>Lot 24</u>	<u>5,904</u>		
<u>Lot 25</u>	<u>7,426</u>		
<u>Lot 26</u>	<u>5,644</u>		
<u>Lot 27</u>	<u>6,126</u>		
<u>Lot 28</u>	<u>6,415</u>		
<u>Total sq ft</u>	<u>205,534</u>		
<u>Acres</u>	<u>4.72</u>		
<u>Min</u>	<u>24</u>		
<u>Max</u>	<u>38</u>		

37. For the area zoned R-1, a minimum of 5 and a maximum of 8 units per acre are allowed. The minimum density for the subject area is ~~5.64~~ 4.72 net acres x 5 units/net acre = ~~28.2~~ 23.6 rounded ~~down~~ up to ~~28~~ 24 units. The maximum density for the subject area is ~~5.64~~ 4.72 net acres x 8 units/net acre = ~~45.12~~ 37.76 rounded ~~down~~ up to ~~45~~ 38 units. The applicant identifies ~~30~~ 28 lots, within the density range.
38. For the area zoned R-2, a minimum of 8 and a maximum of 14 units per acre are allowed. The minimum density for the subject area is 4.74 net acres x 8 units/net acre = 37.92 rounded up to 38 units. The maximum density for the subject area is 4.74 net acres x 14 units/net acre = 66.36 rounded down to 66 units. The applicant has not identified the exact number of units which will be built in the subject area. In the project narrative (Exhibit B) on page 5 the applicant states that the exact number of multi-family dwelling units will be determined with a future land use application. **Multi-family housing development on this site shall be reviewed in a future design review process.**
39. For the area zoned C-3, the Sandy Development Code does not define a minimum or maximum density, but does prescribe use requirements, height requirements, minimum setbacks, landscaping percentage requirements, and parking requirements. The combination of these requirements will dictate the maximum number of residential multi-family housing units. The property zoned C-3 will also need to contain a commercial use. **This will be reviewed in a future design review process.**

## **ZONING DISTRICTS – Chapters 17.36, 17.38, and 17.46**

### Chapter 17.36 – Low Density Residential (R-1)

40. The applicant proposes constructing ~~30~~ **28** single-family dwellings or duplexes as permitted in this zoning district. Section 17.36.30 contains the design standards for this zone. As shown on Sheet C2 of the plan set (Exhibit C), all lots in the proposed subdivision contain at least 5,500 square feet and contain an average lot width of at least 50 feet as required. ~~All lots have at least 20 feet of street frontage with the exception of Lot 12, which does not have any street frontage as proposed.~~ With revisions to the subdivision layout the lots have been renumbered. All proposed lots have at least 20 feet of street frontage as required by Section 17.36.30(C).
41. Section 17.36.40(A) requires that water service be connected to all dwellings in the proposed subdivision. Section 17.36.40(B) requires that all proposed dwelling units be connected to sanitary service if currently within 200 feet from the site, which it is. Section 17.36.40(C) requires that the location of any real improvements to the property must provide for a future street network to be developed. Section 17.36.40(D) requires that all dwelling units must have frontage or approved access to public streets. The applicant proposes to meet all these requirements.
42. Section 17.36.50(B) requires that lots with 40 feet or less of street frontage shall be accessed by a rear alley or shared private driveway. ~~Lots 9-16~~ The cul-de-sac diagram (Exhibit III) identifies that Lots 7-15 are proposed to access the cul-de-sac at the east terminus of Fawn Street and that Lots 9-15 all have less than 40 feet of lot frontage along Fawn Street, therefore, all ~~7~~ **8** of these lots shall include shared driveways. Lot 15 shall be widened to have at least 40 feet of lot frontage, and that Lots 9/10, Lots 11/12, and Lots 13/14 all include shared driveways as depicted on the cul-de-sac diagram (Exhibit III). ~~Lots 20 and 21 share a private drive, Tract A, that accesses Street A, therefore these two lots shall include a shared driveway. Lots 9-16, 20, and 21 shall have shared driveways. Lots 22 and 23 also have less than 40 feet of street frontage on Street A. Lots 22 and 23 shall share driveway access with other adjacent lots.~~

### Chapter 17.38 – Medium Density Residential (R-2)

43. The R-2 zoning district allows for all residential use types, including but not limited to single family dwellings, duplexes, row houses, and multifamily dwelling units. The applicant is proposing three lots, Lots ~~27, 31, and 32,~~ **25, 29, and 30**, to include R-2 zoned land. Both lots ~~27 and 32~~ **25 and 30** are proposed as split zoned lots. Lot ~~27~~ **25** is split zoned between R-1 and R-2 zoned land, while Lot ~~32~~ **30** is split zoned between R-2 and C-3 zoned land. Lot ~~31~~ **29** is proposed to be entirely zoned R-2. Staff anticipates that Lot ~~31~~ **29** will likely contain a single-family home or duplex, and Lot ~~32~~ **30** will likely contain multi-family dwellings. As noted above, the applicant will be allowed to develop between 38 and 66 dwelling units on the R-2 zoned land, unless additional public land dedications are required. The R-2 zone does not include a minimum lot area. **The future design review application will include a review of development standards and requirements.**

Chapter 17.46 – Village Commercial (C-3)

44. While the C-3 zoning district will have to contain some commercial development there is a decent chance the C-3 land will also contain residential dwelling units. The exact number of potential residential units is not known at this time. If residential units are proposed on the C-3 land the dwelling units will be assessed in a future design review. **Any future development on the land zoned C-3 will require a design review in accordance with the development standards found in Section 17.46.30 and the Sandy Municipal Code.**

**ADDITIONAL SETBACKS AND SPECIAL SETBACKS – Chapters 17.80 and 17.82**

45. Chapter 17.80 requires all residential structures to be setback at least 20 feet to collector and arterial streets. Highway 26 is classified as an arterial, Dubarko Road is classified as a minor arterial, and Street B is classified as a collector. **All structures on lots abutting Highway 26, Dubarko Road, and Street B shall be setback at least 20 feet.**
46. Section 17.82.20(A) requires that all residential dwellings shall have their primary entrances oriented toward a transit street rather than a parking area, or if not adjacent to a transit street, toward a public right-of-way or private walkway which leads to a transit street. Highway 26, Dubarko Road, and Street B are all transit streets. **All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street. This means for example that Lot ~~30~~ 28 shall be oriented to Dubarko Road.**
47. The applicant references ORS to claim that Chapter 17.82 is not clear and objective and therefore the design standards in Chapter 17.82 do not have to be followed, but the project narrative goes on to state that Lots 2, and 27-31 can be designed in compliance with the standards of Chapter 17.82. NOTE: This subject narrative was not modified with the new submissions on March 14, 2022, so the lot numbers in the previous sentence have not been modified. Section 17.82.20(B) requires that dwellings shall have a primary entrance connecting directly between the street and building interior and outlines requirements for the pedestrian route. Section 17.82.20(C) requires that primary dwelling entrances shall be architecturally emphasized and visible from the street and shall include a covered porch at least 5 feet in depth. **The adherence to Chapter 17.82 for residential design standards shall be required.**
48. Section 17.82.20(D) requires that if the site has frontage on more than one transit street, the dwelling shall provide one main entrance oriented to a transit street or to a corner where two transit streets intersect. **If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street. This means for example that Lot ~~30~~ 28 shall be oriented to Dubarko Road. The orientation of the future multi-family units that have frontage on both Highway 26 and Dubarko Road will be determined in a future design review process.**

## **TRANSPORTATION – Chapters 17.84 and 17.100**

49. This finding analyzes the Traffic Impact Study (Exhibit E).

- A. The applicant submitted a Traffic Impact Study (Exhibit E) from Ard Engineering, dated June 14, 2021. The study did identify some required mitigation. According to the Traffic Impact Study (TIS), the proposed residential development (not including the commercial lot) would generate up to 79 site trips during the morning peak hour, 99 trips during the evening peak hour, and 1,180 daily site trips.
- B. The TSP states that Highway 211 at Dubarko Road has a high historical crash rate. Ard Engineering also states that no operational mitigations are necessary or recommended in conjunction with the proposed subdivision.
- C. The City Transportation Engineer (Exhibit P) states that the development plan ignores the TSP and does not propose extending Dubarko Road, currently a stub street, to connect with Highway 26 opposite SE Vista Loop (West) as specified in the TSP. The City Transportation Engineer also includes the following concerns:
  - i. The TIS addresses some of the city’s requirements but does not provide an adequate basis to evaluate impacts of the proposed development. Key deficiencies include a failure to provide for the extension of Dubarko Road to connect with Highway 26 as specified in the TSP and a failure to account for development of or access to the commercially zoned land (approximately 3 acres) that comprises a portion of Lot 32 in the proposed development.
  - ii. The engineer’s use of pre-COVID-19 counts is understandable, but new analyses needed to address the full impact of the development should be based on new traffic counts.
  - iii. The applicant appears to be assuming that the commercially zoned portion of Lot 32 would have direct driveway access to Highway 26, though this appears to conflict with ODOT access control policies. Alternatively, the applicant may be assuming some type of cross-easements or shared driveway connections involving the residentially zoned portion of Lot 32 would be acceptable. Neither option appears viable.
  - iv. Since the TIS did not examine the impact of development of the commercially zoned portion of the site, it is not clear that LOS D would be achieved with full development of the subject property. It appears that only a little more development in Sandy would push the Dubarko Road and Highway 211 intersection to LOS E and cause the need for mitigation.
  - v. The proposed elimination of Dubarko Road results in localized impacts in the immediate vicinity that will result in different travel patterns than anticipated in the TSP.
  - vi. The applicant’s traffic engineer failed to explain how the site would be developed to serve all uses in the absence of the Dubarko Road extension identified in the TSP. The City Traffic Engineer recommends delaying any approvals until access issues are resolved and street connectivity meets the TSP.

50. The City Transportation Engineer (John Replinger) recommends denial of the application based on the inadequacy of the TIS. Mr. Replinger states that the applicant has two paths to approval. The first involves submitting a new application that provides for the extension of Dubarko Road to Highway 26 as specified in the TSP. The second involves seeking a TSP

amendment with an alternative arterial and collector street network that allows the regional needs to be met without the section of Dubarko Road that is proposed to be eliminated.

51. This finding analyzes the necessity for Dubarko Road to intersect with Highway 26.
- A. The proposed street pattern in Deer Meadows is not consistent with the Comprehensive Plan and the city's street plan, including connecting Dubarko Road to Highway 26. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan'. The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.
  - B. The proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP.
  - C. ODOT (Exhibit N) recommends that the City require the applicant to construct Dubarko Road as shown in the adopted Transportation System Plan (TSP). Consistent with OAR 660-012-0045, completing this connection would implement the adopted road network in the TSP. The extension of this arterial would provide increased connectivity for the proposed development as well as for other residents of the City. This would help reduce motor vehicle congestion and provide more options for those walking, biking, and using transit. Planning within the City of Sandy has assumed the Dubarko Road connection for over a decade. For example, the Sandy Area Metro Transit Master Plan identifies this connection as a way to provide increased service on the east side of Sandy and to more efficiently serve residents along Vista Loop Road.
  - D. Dubarko Road shall continue in a northeast direction to connect with Highway 26. Dubarko Road shall include features consistent with the minor arterial street section in the 2011 Sandy TSP. The widening of Dubarko Road to accommodate the street section in the TSP is eligible for Transportation System Development Charge credits. The difference in cost between the required minor arterial improvements and a standard local street section is eligible for credits.
  - E. The extension of Dubarko Road is classified as a minor arterial street and shall meet the standards of Section 17.84.50(B) which states that arterial streets should generally be spaced in one-mile intervals and traffic signals should generally not be spaced closer than 1,500 ft for reasonable traffic progression.
  - F. Per the 2020 Transit Master Plan, the extension of Dubarko Road to intersect with Highway 26 is a future transit route.
52. Street B (defined as 'New Road' in the TSP) is classified as a collector street and does not need to adhere to the standards in Section 17.84.50(B).
53. The applicant's project narrative (Exhibit B) and the applicant's Traffic Impact Study (Exhibit E) do not evaluate ADT on local streets. The applicant's project narrative on page 32 states, "As detailed in the submitted Traffic Study traffic volumes on local streets are not projects to exceed ADT standards. This criterion is met." Staff cannot find an evaluation of ADT standards in the submitted TIS. As explained earlier in this staff report, based on

incomplete ADT analysis of the surrounding local streets the subdivision request does not meet approval criteria 17.100.60 (E)(4).

54. Section 17.84.50(E) requires that public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property. The proposed street layout results in one temporary dead-end street (Street B) that will be stubbed to the southern property line of the subject property. The proposal also includes two cul-de-sacs and one public access lane. Note: At the request of staff, the applicant removed the proposed public access lane and is instead proposing an alley. The proposed subdivision does not propose the extension of Dubarko Road which is inconsistent with the City of Sandy 2011 TSP and thus fails to install the public street extension of Dubarko Road concurrent with development of the site. The proposed subdivision does not meet the standards of Section 17.84.50 (E).
55. The proposed development includes the need to name Street A, and Street B, and ~~Street C~~. Street A and Street B are one continuous street running north to south and therefore should be one street name. **The street shall be related to the deer theme in the development to the west and shall be an ‘avenue’ as it runs north/south. Staff recommends the name Velvet Avenue.** ~~The public access lane, Street C shall be related to the deer theme in the development to the west and shall be a ‘street’ as it runs east/west.~~ Note: At the request of staff, the applicant removed the proposed public access lane and is instead proposing an alley.
56. Proposed streets do not meet the requirements of 17.84.50(H) as public street improvements (i.e., Dubarko Road) do not provide for the logical extension of an existing street network. The proposed streets also do not meet Section 17.100.100(E) as the subdivision proposal does not promote a logical, connected pattern of streets. The future street plan (Exhibit C, Sheet C1) does not adhere to the adopted 2011 TSP. Both Dubarko Road and Street B are identified in the TSP; however, the applicant is not proposing the connection of Dubarko Road to Highway 26. Therefore, the future street plan is incomplete and inconsistent with the TSP which is adopted by the City of Sandy and recognized by the State of Oregon as the official street plan for the city of Sandy.
57. Dubarko Road and Street “C” create “T” intersections at their connection to Street “A” and Street “B” respectively. The Code at 17.84.50(E)(2) states that adjacent “T” intersections “shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.” The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) was previously identified as having is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3). With revisions to the subdivision layout Street C has been modified to an alley, and therefore the requirement to provide 150 feet between the two nearest edges of the right-of-way is no longer applicable as an alley is not classified as a street.
58. Based on the submitted site plan it does not appear that that the minimum 100 feet of tangent alignment required in Section 17.84.50(J)(5)(a) is provided at the intersection of Street “B” (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and

Street “B”. The revised subdivision layout (Exhibit JJJ) includes a note that ‘at time of final engineering design and final plat a 100 foot long tangent centerline alignment will be created in accordance with 17.84.50(J)(5)(a)’.

59. While Section 17.100.100(C) calls for a rectangular grid pattern the proposed street layout is not a rectangular grid pattern as it incorporates cul-de-sacs and does not include the required extension of Dubarko Road to Highway 26. Staff finds that the proposed street layout does not represent a logical street pattern.
60. The applicant did not submit any information on block lengths or information regarding single tier vs double tier blocks. Instead, the applicant stated the block length standards in Section 17.100.120 are subjective (i.e., not clear and objective) and because the subdivision constitutes a needed housing application the block length standards are not applicable. The applicant failed to submit information into the record regarding block lengths and therefore staff does not have enough information to determine block lengths.



### **PEDESTRIAN IMPROVEMENTS – Chapters 17.84 and 17.100**

61. Section 17.84.20(A)(1) requires that all improvements shall be installed concurrently with development or be financially guaranteed. **All lots in the proposed subdivision will be required to install public and franchise utility improvements or financially guarantee these improvements prior to final plat approval.**
62. Section 17.84.30(A)(1) requires that all proposed sidewalks on the local streets will be five feet wide as required by the development code and separated from curbs by a tree planting area that is a minimum of five feet in width.
63. As required by Section 17.84.30(A)(2), six-foot sidewalks shall be constructed along Highway 26, Dubarko Road, and Street B. These frontages shall include planter strips as required. ODOT (Exhibit N) recommends that the City require frontage improvements consistent with City, ODOT, and ADA standards. The applicant does not propose to install frontage improvements along Highway 26 and therefore does not meet the requirements of Section 17.84.30(A)(4).
64. As required by Section 17.84.30(B), safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall be provided in conjunction with new development within and between new subdivisions. Subsection 17.84.30(B)(2) goes on to elaborate that right-of-way connecting cul-de-sacs passing through unusually long or oddly shaped blocks shall be a minimum of 15 feet wide with eight (8) feet of pavement. The applicant proposes two cul-de-sacs ~~but does not propose~~ **and with revisions to the subdivision layout (Exhibit JJJ) the applicant proposes** a pedestrian connection to ~~streets~~ **parkland** beyond the cul-de-sacs. **However, the pedestrian connections do not include connection to streets, in this case to Highway 26,** as required by Section 17.84.30. Furthermore, the Street A cul-de-sac is in the parkland expansion area for Deer Pointe Park.
65. In relation to Sections 17.84.30(B), 17.84.30(C), 17.84.30(D), and 17.84.30(E), no pedestrian or bicycle facilities other than sidewalks have been identified or proposed in the subdivision. The plan set (Exhibit C, Sheet C5) does not identify bicycle lanes on Dubarko Road or Street B. **The applicant shall revise the plan set to include bicycle lanes on Dubarko Road and Street B.**
66. Section 17.84.40(A) requires the developer to construct adequate public transit facilities. Per the 2020 Transit Master Plan, the extension of Dubarko Road to intersect with Highway 26 is a future transit route. With extension of Dubarko Road to intersect with Highway 26 two transit amenities are required along the completed extension of Dubarko Road. **The applicant shall install two concrete bus shelter pads and green benches (Fairweather model PL-3, powder coated RAL6028). The required pad size is 7 feet by 9 feet 6 inches and the amenities should be located adjacent to Lot 1 and Lot 5.**

## **PARKING, LOADING, AND ACCESS REQUIREMENTS – Chapter 17.98**

67. Section 17.98.10(M) requires that the developer provide a Residential Parking Analysis Plan. This plan identifying the location of parking for the 30 R-1 zoned lots is included in Exhibit C, Sheet C6. A revised on-street parking plan was not submitted with the revised subdivision plan.
68. Section 17.98.20(A) requires that each single-family dwelling unit or duplex is required to provide at least two off-street parking spaces. **Compliance with this requirement will be evaluated during building plan review. Parking for the proposed multi-family units will be evaluated as part of a future design review application.**
69. Section 17.98.60 has specifications for parking lot design and size of parking spaces. Lot ~~32~~ 30 is proposed to gain access from an arterial or collector street and therefore is required to comply with Section 17.98.80.
70. Section 17.98.100 has specifications for driveways. The minimum driveway width for a single-family dwelling is 10 feet. The Public Works driveway approach standard detail specifies a maximum of 24 feet wide for a residential driveway approach. Additionally, all driveways shall meet vertical clearance, slope, and vision clearance requirements. Staff has concerns with the following lots:
- A. The driveway on Lot 3 and its proximity to the intersection of Dubarko Road as it's within 150 feet of the intersection of Dubarko Road and Highway 26. **Driveway access for Lot 3 shall be reviewed and approved by the City Public Works Director and City Engineer prior to issuance of a building permit.**
  - B. There is no driveway identified for Lot ~~32~~ 30. **Driveway access for Lot ~~32~~ 30 shall be reviewed and approved by the City Public Works Director and City Engineer concurrently with land use review of Lot ~~32~~ 30.**
71. The Public Works Director (Exhibit R) stated that no dimensional information is detailed in the plan set about driveway widths. ~~The location, number, and width of all driveway approaches in cul-de-sacs shall not exceed the dimensional standards in Section 17.98.100. It was previously determined by staff that the~~ The applicant's statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops" ~~was is~~ not sufficient. However, with submission of the cul-de-sac exhibit (Exhibit III) the applicant has shown that the driveways consume less than 50 percent of the cul-de-sac bulb, with the driveways in the Street A cul-de-sac at 29.03 percent and the driveways in the Street B cul-de-sac at 38.20 percent.
72. Section 17.98.110 outlines the requirements for vision clearance. **The requirements of this section will be considered in placing landscaping in these areas with construction of homes and will be evaluated with a future design review application for the multi-family units.**
73. Section 17.98.130 requires that all parking and vehicular maneuvering areas shall be paved with asphalt or concrete. As required by Section 17.98.130, **all parking, driveway, and**

**maneuvering areas shall be constructed of asphalt, concrete, or other approved material.**

74. Section 17.98.200 contains requirements for providing on-street parking spaces for new residential development. Per 17.98.200, one on-street parking space at least 22 feet in length has been identified within 300 feet of each of the 30 lots zoned as R-1 as required. Exhibit C, Sheet C6 shows that 47 on-street parking spaces have been identified in compliance with this standard. No parking courts are proposed by the applicant. A revised on-street parking plan was not submitted with the revised subdivision plan.

NOTE: The locations of the lots on the subject site do not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26, ~~or the parkland dedication,~~ therefore the distances and locations of on-street parking spaces is based on unreliable assumptions.

### **UTILITIES – Chapters 17.84 and 17.100**

75. Section 17.84.60 outlines the requirements of public facility extensions. The applicant submitted a utility plan (Exhibit C, Sheet C5) which shows the location of proposed public water, sanitary sewer, and stormwater drainage facilities. **Broadband fiber service shall be detailed with construction plans.**
76. Franchise utilities will be provided to all lots within the proposed subdivision as required in Section 17.84.80. The location of these utilities will be identified on construction plans and installed or guaranteed prior to final plat approval. The applicant does not anticipate extending franchise utilities beyond the site. All franchise utilities other than streetlights will be installed underground. The developer will make all necessary arrangements with franchise utility providers. **The developer shall install underground conduit for street lighting.**
77. Section 17.84.90 outlines requirements for land for public purposes. The application includes dedication of right-of-way and land for a stormwater detention pond. The proposal does not include land dedicated for parkland as required by the Sandy Development Code nor does the proposal include land dedicated for the continuation of Dubarko Road to intersect with Highway 26. Eight-foot-wide public utility easements will be required along all lots adjacent to street rights-of-way, including Highway 26, for future franchise utility installations. **All easements and dedications shall be identified on the final plat.**
78. As required by 17.100.130, eight-foot-wide public utility easements (PUE) are required along all property lines abutting a public right-of-way. The applicant did not propose a PUE along Highway 26. **The applicant shall add a PUE along all lots abutting Highway 26.**
79. Chapter 15.30 contains the City of Sandy’s Dark Sky Ordinance. A lighting plan will be coordinated with PGE and the City as part of the construction plan process and prior to installation of any fixtures as required by Section 17.100.210. The applicant will need to install street lights along all street frontages wherever street lighting is determined necessary. **The locations of these fixtures shall be reviewed in detail with construction plans. Full cut-off lighting shall be required. Lights shall not exceed 4,125 Kelvins or 591 nanometers to minimize negative impacts on wildlife and human health.**
80. Section 17.84.100 outlines the requirements for mail delivery facilities. **The location and type of mail delivery facilities shall be coordinated with the City Engineer and the Post Office as part of the construction plan process.**
81. The applicant shall install all water lines and fire hydrants in compliance with the applicable standards in Section 17.100.230, which lists requirements for water facilities. According to the Public Works Director the existing 8-inch diameter water line resides in an easement granted to the City of Sandy recorded at 2004-110340. **The applicant shall replace the existing waterline with an 8-inch diameter water line at a depth approved by the City Engineer.** There will be no compensation or credits for replacement of the existing water line. This pipe is a standard pressure line and will be used to provide domestic water service to the development. The City’s water master plan shows an 18-inch diameter water line in Dubarko Road south of Highway 26. **The applicant shall install an 18-inch water line in**

**Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26.** Due to the elevation of the site relative to the existing water reservoirs on Vista Loop Drive this line will be a low-pressure, high-volume line and will be used for fire protection. The cost difference between a standard diameter water line and the required 18-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017. ~~The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.~~ The revised subdivision plan (Exhibit JJJ) details that the existing 8-inch diameter water line will be replaced with a new 18-inch diameter water line.

82. Section 17.84.60D states, "As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies)." ~~The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site. The existing 12-inch water line in Highway 26 shall be extended to the eastern boundary of the site per the requirements of Sections 17.84.60 (C) and (D).~~ The revised subdivision plan (Exhibit JJJ) details a proposed 12-inch diameter water main in the Highway 26 right-of-way from the location of the new 18-inch diameter water line to the eastern boundary of the site per Section 17.84.60(C) and (D). The extension of the waterline is eligible for SDC credits for the difference in cost between the minimum required 8-inch diameter line and a 12-inch diameter line.
83. The applicant intends to install sanitary sewer lines in compliance with applicable standards in Section 17.100.240. The sanitary sewer plans will be reviewed by the City Engineer and Public Works Director. **Preliminary plat approval does not connote utility or public improvement plan approval which will be reviewed and approved separately upon submittal of public improvement construction plans.**
84. Section 17.100.250(A) details requirements for stormwater detention and treatment. A public stormwater quality and detention facility is proposed as Tract C to be located at the northwest corner of the proposed development. ~~The proposed 10-foot wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).~~ The revised subdivision plan (Exhibit JJJ) details two public storm easements each at 15 feet in width as required by Section 17.84.90(A)(2). **All site runoff shall be detained such that post-development runoff does not exceed the predevelopment runoff rate for the 2, 5, 10 and 25 year storm events. Stormwater quality treatment shall be provided for all site drainage per the standards in the City of Portland Stormwater Management Manual (COP SWMM).**

85. Section 17.100.260 states that all subdivisions shall be required to install underground utilities. **The applicant shall install utilities underground with individual service to each lot.**

## **PARKLAND DEDICATION – Chapter 17.86**

86. The applicant is ~~not proposing any~~ proposing 1.08 acres (47,186 square feet) of parkland dedication with the revised plat (Exhibit JJJ) in two separate tracts, as required by Chapter 17.86. However, the revised plat (Exhibit JJJ) has the following note: “Parkland dedication shown at +/- 1 acre. Minimum required at time of final plat to be 0.93 acres (40,511). Adjustments to lot lines will be made at time of final plat to provide 0.93 acres or more.” This is confusing and difficult for staff to determine the proposed dedication. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and in the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. ~~Because the~~ The Deer Meadows subdivision does not propose only 0.12 acres (5,292 square feet) of parkland dedication abutting Deer Pointe Park, therefore the proposed parkland dedication related to the Deer Meadows subdivision is inconsistent with the 1997 Parks Master Plan.
87. Section 17.86.10 contains a clear and objective formula for determining the amount of land required to be dedicated. The formula is acres = proposed units x (persons/unit) x 0.0043. For the ~~30~~ 28 single family homes, acres = ~~30~~ 28 x 3 x 0.0043 = ~~0.39~~ 0.36 acres. For the maximum development of 66 multifamily units, acres = 66 x 2 x 0.0043 = 0.57 acres. Combined, this totals ~~0.96~~ 0.93 acres. The proposed dedication of ~~0.96~~ 0.93 acres, only includes 0.12 acres (5,292 square feet) abutting Deer Pointe Park, which means the proposal would only expand ~~could expand the~~ Deer Pointe Park to ~~2.36~~ 1.52 acres. Deer Pointe Park is currently 1.40 acres, if the parkland dedication abuts Deer Pointe Park. However, if the applicant does not propose abutting parkland, then the additional 0.96 acres would not be contiguous to the existing parkland.
- NOTE: The number of dwelling units on the subject site does not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to parkland dedication are based on unreliable assumptions.
88. The Parks and Trails Advisory Board (Board) met on August 11, 2021. The Board recommended that conditions of approval include the dedication of land for expansion of Deer Pointe Park (Exhibit O). The vision for this currently undeveloped park parcel has always included adjacent parkland dedication from the subject property. Additionally, a conceptual design has been prepared and has been through an initial public comment period as part of the updated Parks and Trails Master Plan. The Board will meet on April 13, 2022, to discuss the proposal detailed with the revised plat (Exhibit JJJ), but their recommendation is not included in this staff report as it was published prior to April 13.
89. The parks dedication requirement, and therefore any fee in-lieu payment under Section 17.86.40, is based on the impact from the number of people anticipated to live in the units in the subdivision, and a duplex includes two dwelling units, each of which can be occupied by a family (or a number of unrelated persons). Accordingly, each unit of a duplex is treated the same as a separate single-family dwelling for purposes of calculating the amount of land dedicated under Section 17.86.10 or a fee in-lieu payment under Section 17.86.40. However,

the City of Sandy is not aware of any duplexes being proposed at this time. Also, the City is not aware of how many multifamily units will be proposed on the land zoned as C-3. **If any lot includes a duplex or additional multifamily dwelling units are proposed on the C-3 zoned land the applicant shall be required to pay a fee in-lieu of parkland dedication in accordance with Section 17.86.40.**

90. Section 17.86.20 has a requirement that all homes must front on the parkland. The purpose of having homes front the parkland is to provide eyes on the park and increase safety for park users. The revised plat (Exhibit JJJ) appears to meet this requirement, at least for Deer Pointe Park, as Lots 16 – 24 have lot frontages that faces Street A and therefore Deer Pointe Park. However, it is not apparent nor was it detailed by the applicant that the proposed parkland in Tract C would meet this requirement. Since the applicant is not proposing parkland dedication there is nothing in the applicant’s submission detailing that any houses will face Deer Pointe Park.
91. Section 17.86.30 lists the requirements of the developer prior to acceptance of required parkland dedications. The applicant’s letter (Exhibit GGG) states: “As noted with submittal of the original Bull Run Terrace application, the applicant continues to extend their offer to assist the city with constructing park improvements in exchange for SDC credits with the current applicant. This arrangement should prove to be the most cost effective way for the city to complete park improvements on both the existing unimproved Deer Pointe Park and the proposed Deer Meadows Park.” While staff appreciates and agrees with this statement, it is somewhat misleading as Section 17.86.30 (A)(1) requires the developer to clear, fill, and/or grade all land to the satisfaction of the City. Grading and filling on proposed Tract C will be difficult with tree retention as proposed on the parkland. The applicant did not submit a Phase I Environmental Site Assessment, but if the City Council decides to accept the proposed parkland the assessment could be completed prior to final plat and conveyance of the land to City ownership. Since the applicant is not proposing parkland dedication this section was not reviewed for compliance.



## **URBAN FORESTRY – 17.102**

92. Section 17.102.20 contains information on the applicability of Urban Forestry regulations. An Arborist Report is included as Exhibit F. The arborist inventoried all trees eleven inches and greater diameter at breast height (DBH) as required in 17.102.50. The inventory of trees proposed to be retained is included in Exhibit C, Sheet C3 and the proposed retention trees are shown in Exhibit C, Sheet C4. With revisions to the proposed subdivision layout (Exhibit JJJ) the majority of the trees proposed for retention are located in the proposed parkland tract.
93. The property contains 15.91 acres requiring retention of 48 trees, 11 inches and greater DBH (15.91 x 3 = 47.73). The applicant is proposing to retain all 48 trees on Lots 13, 14, and 21 the proposed parkland tract and Lot 13. One tree proposed for retention is a Grand fir and the other 47 trees are all Douglas fir. The trees range in size from 11 inches DBH to 30 inches DBH, and are in good condition as identified by the arborist.
94. Most of the proposed retention trees are located along Highway 26 ~~on Lot 13~~ in the proposed parkland Tract C, which is proposed to be zoned R-1, Low Density Residential. As indicated on the Preliminary Revised Plat (~~Exhibit C, Sheet C2~~ Exhibit JJJ), the applicant is proposing to place a conservation easement over an area that encompasses the remaining retention trees on Lots 13, 14, and 21 Lot 13 totaling ~~21,939~~ 2,420 square feet. Staff believes there could be a future conflict between retention trees in this conservation easement and development of Lot 13.
95. The Arborist Report (Exhibit F) provides recommendations for protection of retained trees including identification of the recommended tree protection zone for these trees. The requirements of 17.102.50(B) shall be complied with prior to any grading or tree removal on the site. **The applicant shall install tree protection fencing at the critical root zone of 1 foot per 1-inch DBH to protect the 48 retention trees on the subject property as well as all trees on adjacent properties and shall not relocate or remove the fencing prior to certificates of occupancy. The tree protection fencing shall be 6-foot-tall chain link or no-jump horse fencing and the applicant shall affix a laminated sign (minimum 8.5 inches by 11 inches) to the tree protection fencing indicating that the area behind the fence is a tree retention area and that the fence shall not be removed or relocated. No construction activity shall occur within the tree protection zone, including, but not limited to, dumping or storage of materials such as building supplies, soil, waste items, equipment, or parked vehicles. The applicant shall request an inspection of tree protection measures prior to any tree removal, grading, or other construction activity on the site. Up to 25 percent of the area between the minimum root protection zone of 0.5 feet per 1-inch DBH and the critical root zone of 1 foot per 1-inch DBH may be able to be impacted without compromising the tree, provided the work is monitored by a qualified arborist. The applicant shall retain an arborist on site to monitor any construction activity within the critical root protection zones of the retention trees or trees on adjacent properties that have critical root protection zones that would be impacted by development activity on the subject property.**
96. The Tree Preservation Plan (Exhibit C, Sheet C3) details several trees being removed right next to the trees proposed for retention. **The trees proposed for removal that are adjacent**

**to retention trees shall be removed in a way that does not harm or damage adjacent trees.** The Arborist Report (Exhibit F) from Teragan and Associates, Inc. includes recommendations for tree removal. The arborist also identifies options for stumps, including retention or careful surface grinding. Staff recommends that the applicant not fully remove all the trees adjacent to the retention trees but rather leave snags. **Tree removal and/or snag creation shall be completed without the use of heavy equipment in the tree protection zone; trunks and branches of adjacent trees shall not be contacted during tree removal or snag creation. The applicant shall submit a post-construction report prepared by the project arborist or other TRAQ qualified arborist to ensure none of the retention trees were damaged during construction.**

97. **To ensure protection of the required retention trees, the applicant shall record a tree protection covenant specifying protection of trees on the subject property and limiting removal without submittal of an Arborist's Report and City approval.**

## **LANDSCAPING AND SCREENING – Chapter 17.92**

98. Section 17.92.10 contains general provisions for landscaping. As required by Section 17.92.10 (C), trees over 25-inches circumference measured at a height of 4.5 feet above grade are considered significant and should be preserved to the greatest extent practicable and integrated into the design of a development. A 25-inch circumference tree measured at 4.5 feet above grade has roughly an eight-inch diameter at breast height (DBH). Based on the Planning Commission interpretation from May 15, 2019, Subsection 17.92.10(C) does not apply to residential subdivisions. Tree protection fencing and tree retention is discussed in more detail in the Urban Forestry, Chapter 17.102 section of this document. **Per Section 17.92.10(L), all landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing.**
99. Section 17.92.20 lists the requirements for minimum landscaping improvements. **The details of this section will be considered with submittal of a design review application for the proposed multi-family units and commercial property.**
100. Section 17.92.30 specifies that street trees shall be chosen from the City-approved list. As required by Section 17.92.30, the development of the subdivision requires medium trees spaced 30 feet on center along all street frontages. Planter strips will be provided along all frontages as required in Section 17.100.290. The current street tree plan (Exhibit C, Sheet C6) does not show the distance between trees, but most trees measure approximately 30 feet on center. The applicant does not detail street trees ~~along Street C, nor~~ along Highway 26. **The applicant shall update the Street Tree Plan to detail trees at 30 feet on center along Street C and Highway 26. The ~~trees along street C can be behind back of sidewalk, but~~ the street trees along Highway 26 shall be in a planter strip per Section 17.100.290.**

The applicant is proposing to mass grade the buildable portion of the site. This will remove topsoil and heavily compact the soil. To maximize the success of the required street trees, **the applicant shall aerate and amend the soil in the planter strips to a depth of 3 feet prior to planting street trees. The applicant shall either amend and aerate the planter strip soil at the subdivision stage and install fencing around the planter strips to protect the soil from compaction or shall aerate and amend the soil at the individual home construction phase. The applicant shall submit a letter from the project landscaper confirming that the soil in the planter strips has been aerated and amended prior to planting the trees.**

**If the plans change in a way that affects the number of street trees (e.g., driveway locations), the applicant shall submit an updated street tree plan for staff review and approval. Street trees are required to be a minimum caliper of 1.5-inches measured 6 inches from grade and shall be planted per the City of Sandy standard planting detail. Trees shall be planted, staked, and the planter strip shall be graded and backfilled as necessary, and bark mulch, vegetation, or other approved material installed prior to occupancy. Tree ties shall be loosely tied twine or other soft material and shall be removed after one growing season (or a maximum of 1 year).**

101. Section 17.92.40 requires that all landscaping shall be irrigated, either with a manual or automatic system. **As required by Section 17.92.140, the developer and lot owners shall be required to maintain all vegetation planted in the development for two (2) years from the date of completion, and shall replace any dead or dying plants during that period.**
102. Section 17.92.50 specifies the types and sizes of plant materials that are required when planting new landscaping. Street trees are typically required to be a minimum caliper of 1.5-inches measured 6 inches from grade. **All street trees shall be a minimum of 1.5-inches in caliper measured 6 inches above the ground and shall be planted per the City of Sandy standard planting detail. The applicant shall submit proposed trees specifics to City staff for review and approval concurrent with construction plan review.**
103. Section 17.92.60 requires revegetation in all areas that are not landscaped or remain as natural areas. The applicant did not submit any plans for re-vegetation of areas damaged through grading/construction, although most of the areas affected by grading will be improved. **Exposed soils shall be covered by mulch, sheeting, temporary seeding or other suitable material following grading or construction to maintain erosion control for a period of two (2) years following the date of recording of the final plat associated with those improvements.**
104. Section 17.92.90 has details on screening of unsightly views or visual conflicts. While the proposed lots are not unsightly, they are a large contrast from the existing view of the existing forest. This contrast was identified at a Planning Commission hearing for Bull Run Terrace in August of 2020 and the applicant was asked to look at some additional screening measures to protect existing trees or add additional landscaping. The applicant took the comments seriously and proposed additional landscaping along the common property line with the Deer Pointe subdivision. However, in this proposed subdivision for Deer Meadows the applicant is not proposing any tree retention nor is the applicant proposing any additional landscaping along the common property line with the Deer Pointe subdivision.
105. Section 17.92.130 contains standards for a performance bond. The applicant has the option to defer the installation of street trees and/or landscaping for weather-related reasons. Staff recommends the applicant utilize this option rather than install trees and landscaping during the dry summer months. Consistent with the warranty period in Section 17.92.140, staff recommends a two-year maintenance and warranty period for street trees based on the standard establishment period of a tree. **If the applicant chooses to postpone street tree and/or landscaping installation, the applicant shall post a performance bond equal to 120 percent of the cost of the street trees/landscaping, assuring installation within 6 months. The cost of the street trees shall be based on the average of three estimates from three landscaping contractors; the estimates shall include as separate items all materials, labor, and other costs of the required action, including a two-year maintenance and warranty period.**

**HILLSIDE DEVELOPMENT AND EROSION CONTROL – Chapters 17.56, 15.44, and 17.74**

106. The applicant submitted a Geotechnical and Slope Stability Investigation (Exhibit I) showing that the subject site contains a small area of slope exceeding 25 percent. The geotechnical investigation was completed by Redmond Geotechnical Services on November 23, 2020. **All recommendations in the Geotechnical and Slope Stability Investigation (Exhibit I) shall be conditions for development.**
107. Grass seeding shall be completed as required by Section 17.100.300. The submitted preliminary Grading and Erosion Control Plan (Exhibit C, Sheet C7) provides additional details to address erosion control concerns. A separate Grading and Erosion Control Permit will be required prior to any site grading. Erosion control requirements are defined in greater detail in Chapter 15.44 of this document. Section 15.44.50 contains requirements for maintenance of a site including re-vegetation of all graded areas. **The applicant’s Erosion Control Plan shall be designed in accordance with the standards of Section 15.44.50.**
108. **All the work within the public right-of-way and within the paved area should comply with American Public Works Association (APWA) and City requirements as amended. The applicant shall submit a grading and erosion control permit and request an inspection of installed devices prior to any additional grading onsite.** The grading and erosion control plan shall include a re-vegetation plan for all areas disturbed during construction of the subdivision. **All erosion control and grading shall comply with Section 15.44 of the Municipal Code. The proposed subdivision is greater than one acre which typically requires approval of a DEQ 1200-C Permit.**
109. Recent development has sparked unintended rodent issues in surrounding neighborhoods. Prior to development of the site, **the applicant shall have a licensed pest control agent evaluate the site to determine if pest eradication is needed.**
110. Section 17.74.40 specifies, among other things, retaining wall and fence height in front, side, and rear yards. Retaining walls in residential zones shall not exceed 4 feet in height in the front yard, 8 feet in height in rear and side yards abutting other lots, and 6 feet inside and rear yards abutting a street. The submitted plan set (Exhibit C, Sheet C5) details a 3-foot retaining wall at the west terminus of Street C, a 4-foot retaining wall between Tract C and Lot 26, and an 8-foot retaining wall to the west of Street A and north of Fawn Street. These three retaining walls are proposed as Keystone block and Ultra-block, and all three include notes that the heights are plus/minus the stated height on the plan set. The plan set does not detail the height of the retaining wall in Tract C for the stormwater facility. **The applicant shall submit additional details on the proposed retaining walls, including height, material, and information on the architectural finish, for staff review and approval.**

## RECOMMENDATION

The Planning Commission **denied** the subdivision request due to the following issues:

- 1) The application does not meet subdivision criteria 17.100.60(E)(1).
- 2) The application does not meet subdivision criteria 17.100.60(E)(3).
- 3) The application does not meet the parkland dedication requirements in Chapter 17.86.

In addition, staff recommends the City Council **deny** the subdivision request due to the following issues:

- 1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).
- ~~2) The applicant's statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops" is not sufficient as there were no dimensional specifications submitted by the applicant to support this statement.~~
- ~~3) The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.~~
- ~~4) The applicant proposes Lot 12 with less than the minimum 20 feet of street frontage as required by Section 17.36.30(C).~~
- ~~5) The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).~~
- ~~6) The minimum 100 feet of tangent alignment required in Section 17.84.50(J)5(a) is not provided at the intersection of Street "B" (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street "B".~~
- 7) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.
- 8) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.
- ~~9) The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.~~
- ~~10) The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site consistent with the Sandy Development Code.~~
- ~~11) The proposed 10-foot wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).~~
- 12) This subdivision proposal ~~does not propose to dedicate 0.96~~ includes 0.93 acres of parkland as required by Chapter 17.86. However, only 0.12 acres (5,292 square feet) of the proposed parkland dedication abuts Deer Pointe Park, which means the proposal would only expand Deer Pointe Park to 1.52 acres ~~The additional 0.96 acres could~~

~~expand Deer Pointe Park~~ which is inconsistent with the Parks and Trails Master Plan that was adopted in 1997.

# EXHIBIT A



## General Land Use Application

1 page

<b>Name of Project:</b>	Deer Meadows Subdivision
<b>Location or Address:</b>	40808 and 41010 Highway 26, Sandy, Oregon (south side of Highway 26)

<b>Map &amp; Tax Lot #</b>	<b>T:</b> 2S	<b>R:</b> 5E	<b>Section:</b> 18CD	<b>Tax Lot (s):</b> 900 and 1000
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<b>Request:</b>	Construct a Type II 32 lot residential subdivision in accordance with existing zoning.

I am the (check one)  owner  lessee of the property listed above, and the statements and information contained herein are in all respects true, complete and correct to the best of my knowledge and belief.

Applicant (if different than owner)	Owner Roll Tide Properties, Corp.
Address	Address P.O. Box 703
City/State/Zip	City/State/Zip Cornelius, OR 97113
Email	Email dave.vandehey@accessmax.com
Phone	Phone 503-327-6084
Signature	Signature

Staff Use Only.

File #:	Date:	Fee\$:	Planner:
Type of review:    Type I <input type="checkbox"/> Type II <input type="checkbox"/> Type III <input type="checkbox"/> Type IV <input type="checkbox"/>			
Has applicant attended a pre-app?    Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, date of pre-app meeting:			

Development Services Department, 39250 Pioneer Blvd, Sandy, OR 97055, 503.489.2160



# EXHIBIT B

## Project Details

<u>Project Location:</u>	South side of Highway 26, east of Langensand Road 40808 and 41010 Highway 26, Sandy, OR
<u>Legal Description:</u>	Map 25E 18CD, Tax Lots 900 and 1000
<u>Zoning District</u>	R-1, Low Density Residential R-2, Medium Density Residential C-3, Village Commercial
<u>Site Size</u>	Total Site 15.91 acres (693,057 sq. ft.)

### Applicant

Dave Vandehey  
Roll Tide Properties, Corp.  
P.O. Box 703  
Cornelius, OR 97113  
Phone: 503-327-6084  
Email: Dave.vandehey@accessmax.com

### Representative:

Civil Engineer / Surveyor  
Ray Moore, P.E., P.L.S.  
All County Surveyors & Planners, Inc.  
P.O. Box 955  
Sandy, OR 97055  
Phone: 503-668-3151  
Fax: 503-668-4730  
Email: ray@allcountysurveyors.com

### Consultant Team:

Planning  
Tracy Brown  
Tracy Brown Planning Consultants, LLC  
17075 Fir Drive  
Sandy, OR 97055  
Phone: 503-781-0453  
Email: tbrownplan@gmail.com

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Geotechnical Engineer

Daniel M. Redmond, P.E., G.E.

**Redmond Geotechnical Services, LLC**

P.O. Box 20547

Portland, Oregon 97294

Phone: 503-285-0598

Fax: 503-286-7176

Cell: 503-545-9055

Email: RedmondGeotechnicalServices@gmail.com

Traffic Engineer

Mike Ard

Ard Engineering

21370 SW Langer Farms Parkway, Suite 142

Sherwood, OR 97140

Phone: 503-537-8511

Email: mike.ard@gmail.com

Wetland Consultant

Jack Dalton

Environmental Science & Assessment, LLC

107 SE Washington Street, #249

Portland, OR. 97214

971-413-6738

jack@esapdx.com

Arborist

Todd Praeger

Teragan & Associates

3145 Westview Circle

Lake Oswego, OR. 97034

Phone: 971-295-4835

Email: todd@teragan.com

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## I. Introduction

The Applicant submitted this application on March 31, 2021 and the City deemed the application incomplete on April 13, 2021 (Exhibit A). The City was required to notify the Applicant of “exactly what information was missing” in its incompleteness determination.

This submittal provides all of the missing information as provided for in ORS 227.178(2)(a) and the date of receipt of the missing information starts the 120-day period in ORS 227.178(1). The applicable approval standards are those in effect on the date of the Application submittal because the application was made complete within 180 days of submittal as required by ORS 227.178(3)(a).

The applicant is submitting this application requesting land use approval to construct a Type II subdivision in compliance with existing zoning to include the following:

- 32 lots
- On-street parking
- Installation of public and franchise utilities
- Tree removal
- Fee-in-lieu payment for parkland dedication

The proposed subdivision is part of the planned progression of land use planning for this area of Sandy and involves the creation of “Needed Housing” under ORS 197.303(1) and 197.307(4) on land zoned for residential uses within the city limits of Sandy and is also a Limited Land Use Application under ORS 197.015(12)(a)(A). The Applicant is not waiving any rights under ORS 197.015(12), 197.195(1), 197.303(1), 197.307(4) and (6), 197.522, 227.173(2) and 227.175(4).

ORS 197.307(4) states, a local government may apply only clear and objective standards, conditions, and procedures regulating the creation of Need Housing, and such standards, conditions, and procedures cannot have the effect, either in themselves or cumulatively, of discouraging Needed Housing through unreasonable cost or delay.

Oregon Courts and the Land Use Board of Appeals (LUBA) have held that an approval standard is not clear and objective if it imposes on an applicant “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development.” *Rogue Valley Association of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998) aff’d, 158 Or App 1 (1999). ORS 197.831 places the burden on local governments to demonstrate that the standards and conditions placed on Needed Housing applications can be imposed only in a clear and objective manner. While this application addresses all standards and conditions, the Applicant reserves the right to object to the application of standards and conditions that are

not clear and objective and does not waive its right to assert that the Needed Housing statues apply to this application. The exceptions in ORS 197.307(4)(a) and 197.307(5) do not apply to this application. ORS 197.307(7)(a) is controlled by ORS 197.307(4). The City has not taken an exception for Needed Housing under ORS 197.303(3).

## **II. General Project Description**

The project site consists of two parcels located at Township 2 South, Range 5 East, Section 18CD, tax lots 900 and 1000. The property contains 15.91 acres and is vacant. The property contains a mix of R-1, Low Density Residential (5.512 acres), R-2, Medium Density Residential (4.739 acres), and C-3, Village Commercial (2.841 acres) zoning designations. In compliance with existing zoning, 30 lots (Lots 1 - 30) will be zoned R-1, one lot (Lot 31) R-2, and one lot (Lot 32) will contain both R-2 zoning (61%) and C-3 zoning (39%). Development on these lots will include construction of permitted outright use in these zones.

The property is gently sloping from the Southeast corner to the Northwest corner at Highway 26. The primary access to the development will be from an extension of Dubarko Road and Fawn Street to be extended onto the property. The applicant attended pre-application conferences with the City on March 17, 2021.

## **III. Application Approval Requests**

The applicant requests the following approvals with this application:

- Type II Subdivision;
- Type II Tree Removal

## **IV. Items Submitted With This Application**

- Land Use Application
- Preliminary Title Report
- Notification Mailing Labels
- Exhibit A - April 13, 2021 Incompleteness Letter
- Exhibit B - Project Narrative
- Exhibit C - Civil Plans
  - Sheet C1 - Cover Sheet and Future Street Plan
  - Sheet C2 - Preliminary Plat Map
  - Sheet C3 - Existing Conditions and Tree Retention Plan
  - Sheet C4 - Tree Tables
  - Sheet C5 - Master Street and Utility Plan
  - Sheet C6 - Preliminary Street Tree and Parking Plan
  - Sheet C7 - Preliminary Grading and Erosion Control Plan
  - Sheet C8 - Slope Analysis
- Exhibit D - Preliminary Stormwater Report
- Exhibit E - Traffic Impact Study
- Exhibit F - Arborist Report
- Exhibit G - Wetland Determination

- Exhibit H - DSL Offsite Determination
- Exhibit I - Geotechnical and Slope Stability Investigation
- Exhibit J - Geotechnical Supplemental Review Letter

## V. Review of Applicable Approval Criteria

Development applications are required to meet development standards set forth in the City of Sandy Development Code. This section addresses all applicable review criteria. Pertinent code provisions are cited below in regular text followed by a response describing how the proposal complies with this standard in *italics*. The following code chapters have been reviewed in this narrative:

<u>Chapter</u>	<u>Title</u>
17.18	- Processing Applications
17.30	- Zoning District
17.36	- Low Density Residential (R-1)
17.38	- Medium Density Residential (R-2)
17.46	- Village Commercial (C-3)
17.60	- Flood and Slope Hazard Overlay
17.80	- Additional Setbacks on Collector and Arterial Streets
17.82	- Special Setbacks on Transit Streets
17.84	- Improvements Required with Development
17.86	- Parkland and Open Space
17.90	- Design Standards
17.92	- Landscaping and Screening
17.98	- Parking, Loading, and Access Requirements
17.100	- Land Division
17.102	- Urban Forestry
15.30	- Dark Sky Ordinance

### CHAPTER 17.18 - PROCESSING APPLICATIONS

#### 17.18.00 PROCEDURES FOR PROCESSING LAND USE APPLICATIONS

An application shall be processed under a Type I, II, III or IV procedure. The differences between the procedures are generally associated with the different nature of the decisions as described in Chapter 17.12.

When an application and proposed development is submitted, the Director shall determine the type of procedure the Code specifies for its processing and the potentially affected agencies.

If a development proposal requires an applicant to file a land use application with the city (e.g. a design review application) and if there is a question as to the appropriate procedure to guide review of the application (e.g. a Type II versus a Type III design review process), the question will be resolved in favor of the lower type number.

**Response:** The applicant has submitted a Type II Needed Housing application in compliance with the clear and objective standards contained in the Sandy Development Code.

#### **17.18.20 PRE-APPLICATION CONFERENCE**

A pre-application conference is required for all Type II, III, and IV applications unless the Director determines a conference is not needed.

**Response:** A pre-application conference was held with the City to review the project on March 17, 2021. Based on input received at this meeting, modifications were made to the project layout.

### **CHAPTER 17.30 - ZONING DISTRICTS**

#### **17.30.20 - RESIDENTIAL DENSITY CALCULATION PROCEDURE**

The number of dwelling units permitted on a parcel of land is calculated after the determination of the net site area and the acreage of any restricted development areas (as defined by Chapter 17.60). Limited density transfers are permitted from restricted development areas to unrestricted areas consistent with the provisions of the Flood and Slope Hazard Area Overlay District, Chapter 17.60.

**Response:** The applicant proposes developing a 32 lot subdivision in conformance with the existing zoning on the property. Thirty lots will be zoned R-1, Low Density Residential, one lot zoned R-2, Medium Residential, and one lot (lot will contain a combination of R-2 and C-3, Village Commercial zoning).

The subject property contains a gross site area of 15.910 acres. After deducting dedicated rights-of-way and a public stormwater tract, the portion of the property zoned R-1 contains a net site area (NSA) of 5.64 acres, the R-2 zoned portion 4.74 acres, and the C-3 zoned portion 2.84 acres. The subject property also does not contain any restricted development areas (RDA) as defined by Chapter 17.60

The R-1 zone allows a minimum of 5 and a maximum of 8 units per net acre. The minimum density is calculated by multiplying the NSA x the required minimum density (5.64 acres x 5 = 28.2 units, rounded to 28 units)

The maximum density is determined by multiplying the NSA x the maximum allowed density (5.64 x 8 = 45.12, rounded to 45 units).

**As a result of these calculations the density range for the subject property is a minimum of 28 units and a maximum of 45 dwelling units. The proposal includes 30 units in conformance with this section.**

The R-2 zone allows a minimum of 8 and a maximum of 14 units per net acre. The minimum density is calculated by multiplying the NSA x the required minimum density (4.74 acres x 8 = 37.92 units, rounded to 38 units)

The maximum density is determined by multiplying the NSA x the maximum allowed density (4.74 x 14 = 66.36, rounded to 66 units).



***As a result of these calculations the density range for the subject property is a minimum of 38 units and a maximum of 66 dwelling units. The exact number of dwelling units on the lots zoned R-2 will be determine with a future design review application.***

*The applicant has not determined the uses proposed for the C-3 zoned portion of the property at this time.*

**CHAPTER 17.36 - LOW DENSITY RESIDENTIAL (R-1)**

**17.36.00 - INTENT**

This district is intended to implement the Low Density Residential Comprehensive Plan designation by providing for an urban level of low-density residential development. It is to be used as a transition between the Single Family Residential zone and the higher densities of a village. The uses are to be fully serviced by public facilities. This zone is intended to provide walkable neighborhoods with excellent linkage between residential areas, schools, parks, and village commercial. This zone is one of four zones included in a village area and is designed as a mixed-use neighborhood with a range of housing types and accessible commercial areas. Density shall not be less than 5 or more than 8 units per net acre.

***Response:*** *As detailed in Chapter 17.30 above, the proposed 30 lots (Lots 1 - 30) complies with the density range in the R-1 zoning district.*

**17.36.10 - PERMITTED USES**

**A. Primary Uses Permitted Outright:**

1. Single detached dwelling subject to design standards in Chapter 17.90;

***Response:*** *The applicant proposes constructing uses permitted in this zoning district.*

**17.36.30 - DEVELOPMENT STANDARDS**

Type	Standard	Proposed
A. Minimum Lot Area - Single detached dwelling	5,500 square ft.	All lots comply
B. Minimum Average Lot Width - Single detached dwelling	50 ft	All lots comply
C. Minimum Lot Frontage	20 ft. except as allowed by Section 17.100.160	All lots comply
D. Minimum Average Lot Depth	No minimum	Complies
E. Setbacks (Main Building) Front yard Rear yard Side yard (interior) Corner Lot Garage	10 ft. minimum 15 ft. minimum 5 ft. minimum 10 ft. minimum on side abutting the street 22 ft. minimum for front vehicle access 15 ft. minimum if entrance is perpendicular to the street (subject to Section 17.90.220)	All lots are capable of complying with setbacks. Setbacks will be confirmed with submittal of building permits.

F. Projections into Required Setbacks	See Chapter 17.74	No projections are proposed at this time.
G. Accessory Structures in Required Setbacks	See Chapter 17.74	No accessory structures are proposed at this time.
H. Structure Height	35 ft. maximum	To be determined.
I. Building Site Coverage	No minimum	Complies
J. Off-Street Parking	See Chapter 17.98	See Chapter 17.98.

**Response:** As shown on the plan set, all lots in the proposed subdivision contain at least 5,500 square feet, have at least 20 feet of street frontage, contain an average lot width of at least 50 feet as required. The details of development standards will be reviewed with submittal of building permits. Compliance with off-street parking requirements is reviewed in Chapter 17.98 below.

#### 17.36.40 - MINIMUM REQUIREMENTS

A. Must connect to municipal water.

**Response:** The applicant proposes extending water service to serve all dwellings in the new subdivision.

B. Must connect to municipal sewer if service is currently within 200 feet of the site. Sites more than 200 feet from municipal sewer, may be approved to connect to an alternative disposal system provided all of the following are satisfied:

1. A county septic permit is secured and a copy is provided to the city;
2. The property owner executes a waiver of remonstrance to a local improvement district and/or signs a deed restriction agreeing to complete improvements, including but not limited, to curbs, sidewalks, sanitary sewer, water, storm sewer or other improvements which directly benefit the property;
3. The minimum size of the property is one acre or is a pre-existing buildable lot, as determined by the city;
4. Site consists of a buildable parcel(s) created through dividing property in the city, which is less than five acres in size.

**Response:** All proposed units will be connected to sanitary sewer service.

C. The location of any real improvements to the property must provide for a future street network to be developed.

**Response:** A new street network will be constructed to serve each dwelling as required.

D. Must have frontage or approved access to public streets.

**Response:** All lots contain frontage on a public street and all lots will gain access from this street. No lots are proposed to gain access from Dubarko Drive or Street B.

#### **17.36.50 - ADDITIONAL REQUIREMENTS**

- A. Design review as specified in Chapter 17.90 is required for all uses.  
**Response:** Only Section 17.90.150, Residential Design Standards of Chapter 17.90 is applicable to residential developments. This section is reviewed below.
- B. Lots with 40 feet or less of street frontage shall be accessed by a rear alley or a shared private driveway.  
**Response:** All lots contain at least 40 feet of street frontage or will gain access by a shared private drive.
- C. Lots with alley access may be up to 10 percent smaller than the minimum lot size of the zone.  
**Response:** No lots will be accessed by an alley.
- D. Zero Lot Line Dwellings: Prior to building permit approval, the applicant shall submit a recorded easement between the subject property and the abutting lot next to the yard having the zero setback. This easement shall be sufficient to guarantee rights for maintenance purposes of structures and yard, but in no case shall it be less than 5 feet in width.  
**Response:** No zero lot line dwellings are proposed.

#### **CHAPTER 17.38 - MEDIUM DENSITY RESIDENTIAL (R-2)**

**17.38.00** - This district intended to implement the Medium Density Residential Comprehensive Plan designation by providing for medium density single-family and multiple-family uses in suitable locations, where public sewer, water and other services are readily accessible. All development shall also provide access to the surrounding neighborhood with excellent linkage between residential areas, schools, and parks. Density shall not be less than 8 or more than 14 units per net acre.

**Response:** The applicant is not proposing to construct any dwellings at this time. As discussed in Chapter 17.30 above, the density range for this property is 38 - 66 units as allowed in the R-2 zoning district. The exact number of units proposed within the allowed density range will be determine with a future design review application.

#### **17.38.10 - PERMITTED USES**

- A. Primary Uses Permitted Outright:  
**Response:** The applicant proposes constructing uses permitted outright in this zone.

#### **17.38.30 - DEVELOPMENT STANDARDS**

**Response:** *As shown on the plan set, all lots are at least 50 feet wide and can provide minimum setbacks required by this section. Required off-street parking is shown on the plan set and is reviewed in more detail in Chapter 17.98 below.*

#### **17.38.40 - MINIMUM REQUIREMENTS**

A. Must connect to municipal water.

**Response:** *The applicant proposes extending water service to serve all dwellings in the development.*

B. Must connect to municipal sewer if service is currently within 200 feet of the site. Sites more than 200 feet from municipal sewer, may be approved to connect to an alternative disposal system provided all of the following are satisfied:

1. A county septic permit is secured and a copy is provided to the city;
2. The property owner executes a waiver of remonstrance to a local improvement district and/or signs a deed restriction agreeing to complete improvements, including but not limited, to curbs, sidewalks, sanitary sewer, water, storm sewer or other improvements which directly benefit the property;
3. The minimum size of the property is one acre or is a pre-existing buildable lot, as determined by the city;
4. Site consists of a buildable parcel(s) created through dividing property in the city, which is less than five acres in size.

**Response:** *There is no existing septic system needing decommissioning. All dwellings will be connected to the city's sanitary sewer system as required.*

C. The location of any real improvements to the property must provide for a future street network to be developed.

**Response:** *A future street plan is included with the application materials.*

D. Must have frontage or approved access to public streets.

**Response:** *Each new residence constructed in the subdivision will gain access from a public street.*

#### **17.38.50 - ADDITIONAL REQUIREMENTS**

A. Design review as specified in Chapter 17.90 is required for all uses.

**Response:** *The Residential Design Standard of Section 17.90.150, are applicable to residential development.*

B. Lots with 40 feet or less of street frontage shall be accessed by a rear alley or a shared private driveway.

**Response:** *All proposed lots contain greater than 40 feet of street frontage or will be accessed by a shared drive.*

C. Zero Lot Line Dwellings: Prior to building permit approval, the applicant shall submit a recorded easement between the subject property and the abutting lot

next to the yard having the zero setback. This easement shall be sufficient to guarantee rights for maintenance purposes of structures and yard, but in no case shall it be less than 5 feet in width.

*Response: No zero lot line dwellings are proposed.*

## **CHAPTER 17.46 - VILLAGE COMMERCIAL (C-3)**

### **17.46.10 PERMITTED USES**

*Response: The C-3 zone allows single family dwellings and multi-family dwellings units above, beside, or behind a commercial business, and a variety of commercial uses. At this time the applicant does not have a plan for developing this portion of the property. Development of this property will be reviewed with submittal of a future design review application.*

## **CHAPTER 17.56 - HILLSIDE DEVELOPMENT**

### **17.56.10 APPLICABILITY**

These regulations shall apply to any parcel with slopes greater than twenty-five percent (25%) as shown on the Hillside Development Overlay District Map or with slope hazards mapped by the Department of Geology and Mineral Industries (DOGAMI). This chapter shall apply only to activities and uses that require a building, grading, tree removal and/or land use permit.

*Response: As shown on the slope analysis submitted with the plan set, the site contains a small area of slopes exceeding 25%. As such, a Geotechnical Report is and a supplemental review letter are included with the submittal.*

## **CHAPTER 17.80 - ADDITIONAL SETBACKS ON COLLECTOR AND ARTERIAL STREETS**

### **17.80.00 - INTENT**

The requirement of additional special setbacks for development on arterial or collector is intended to provide better light, air and vision on more heavily traveled streets. The additional setback, on standard streets, will protect collector and arterial streets and permit the eventual widening of streets.

### **17.80.10 - APPLICABILITY**

These regulations apply to all collector and arterial streets as identified in the latest adopted Sandy Transportation System Plan (TSP). The Central Business District (C-1) is exempt from Chapter 17.80 regulations.

### **17.80.20 - SPECIFIC SETBACKS**

Any structure located on streets listed above or identified in the Transportation System Plan as arterials or collectors shall have a minimum setback of 20 feet measured from the property line. This applies to applicable front, rear and side yards.

*Response: The City's Transportation System Plan identifies Dubarko Road as a "Minor Arterial" street, Highway 26 a "Major Arterial", and Street B terminating to tax lot 900 as a "Collector Street". The Preliminary Plat shows a 20 foot setback for all lots adjacent to these roads. The requirements of this section will be confirmed with construction of dwellings on the adjacent lots.*

## CHAPTER 17.82 - SPECIAL SETBACKS ON TRANSIT STREETS

### 17.82.10 APPLICABILITY

This chapter applies to all residential development located adjacent to a transit street. A transit street is defined as any street designated as a collector or arterial, unless otherwise designated in the Transit System Plan.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "adjacent", "to a transit street", "unless otherwise designated in the Transit System Plan" as used in this section are subjective words or not properly incorporated into the Development Code. The proposed subdivision is located adjacent to Highway 26, a major arterial, Dubarko Road, a Minor Arterial and Street B, a designated Collector in the City's Transportation System Plan.*

### 17.82.20 BUILDING ORIENTATION

- A. All residential dwellings shall have their primary entrances oriented toward a transit street rather than a parking area, or if not adjacent to a transit street, toward a public right-of-way or private walkway which leads to a transit street.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "primary entrances" and "oriented toward" as used in this section are subjective words. Lot 2 will be accessed from Street A and Lots 27 - 30 will be accessed from Street C, an access drive constructed for this purpose. Lot 31 also with frontage on Street B will be accessed from Street C. All dwellings constructed on these lots can be designed in compliance with this standard as required.*

- B. Dwellings shall have a primary entrance connecting directly between the street and building interior. A clearly marked, convenient, safe and lighted pedestrian route shall be provided to the entrance, from the transit street. The pedestrian route shall consist of materials such as concrete, asphalt, stone, brick, permeable pavers, or other materials as approved by the Director. The pedestrian path shall be permanently affixed to the ground with gravel subsurface or a comparable subsurface as approved by the Director.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "primary entrances" and "clearly marked, convenient, and safe", and "comparable subsurface as approved" as used in this section are subjective words. All dwellings constructed on Lots 2 and 27 - 31 can be designed in compliance with this standard as required.*

- C. Primary dwelling entrances shall be architecturally emphasized and visible from the street and shall include a covered porch at least 5 feet in depth.

**Response:** All dwellings constructed on Lots 2 and 27 - 31 can be designed in compliance with this standard as required.

- D. If the site has frontage on more than one transit street, the dwelling shall provide one main entrance oriented to a transit street or to a corner where two transit streets intersect.

**Response:** Only Lot 30 contains frontage on more than one transit street (Dubarko Drive and Street B). The details of this design will be determined during review of a building permit application for this lot.

## **CHAPTER 17.84 - IMPROVEMENTS REQUIRED WITH DEVELOPMENT**

### **17.84.20 - TIMING OF IMPROVEMENTS**

- A. All improvements required by the standards in this chapter shall be installed concurrently with development, as follows:

1. Where a land division is proposed, each proposed lot shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to approval of the final plat.

**Response:** All lots in the proposed subdivision will be required to install public and franchise utility improvements or financially guarantee these improvements prior to final plat approval.

2. Where a land division is not proposed, the site shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to temporary or final occupancy of structures.

**Response:** This section is not applicable because a land division is proposed.

- B. Where specific approval for a phasing plan has been granted for a planned development and/or subdivision, improvements may similarly be phased in accordance with that plan.

**Response:** The applicant proposes constructing the subdivision in a single phase.

### **17.84.30 - PEDESTRIAN AND BICYCLIST REQUIREMENTS**

- A. Sidewalks shall be required along both sides of all arterial, collector, and local streets, as follows:

1. Sidewalks shall be a minimum of 5 ft. wide on local streets. The sidewalks shall be separated from curbs by a tree planting area that provides separation between sidewalk and curb, unless modified in accordance with Subsection 3 below.

**Response:** All proposed sidewalks on the internal (local) streets will be five feet wide as required and separated from curbs by a tree planting area.

2. Sidewalks along arterial and collector streets shall be separated from curbs with a planting area, except as necessary to continue an existing curb-tight sidewalk. The planting area shall be landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of 6 ft. wide.  
**Response:** *As shown on Sheet C5, six-foot sidewalks are proposed to be constructed along Dubarko Road, a minor arterial and on Street B, a collector street. The cross-section for these street improvements includes a planter strip as required.*

3. Sidewalk improvements shall be made according to city standards, unless the city determines that the public benefit in the particular case does not warrant imposing a severe adverse impact to a natural or other significant feature such as requiring removal of a mature tree, requiring undue grading, or requiring modification to an existing building. Any exceptions to the standards shall generally be in the following order.

- a) Narrow landscape strips
- b) Narrow sidewalk or portion of sidewalk to no less than 4 feet in width
- c) Eliminate landscape strips
- d) Narrow on-street improvements by eliminating on-street parking
- e) Eliminate sidewalks

**Response:** *No exceptions or modifications to the sidewalk standards of this section are requested with this application.*

4. The timing of the installation of sidewalks shall be as follows:
  - a) Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements, or with development of the site if street improvements are deferred.
  - b) Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below.
  - c) Where sidewalks on local streets abut common areas, drainageways, or other publicly owned or semi-publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.

**Response:** *The applicant intends to construct sidewalks along Dubarko Road and Street B prior to final plat approval, or at the time of home construction whichever the city prefers. All other sidewalks are proposed to be constructed at the time of home construction.*

- B. Safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks, as follows:

1. For the purposes of this section, "safe and convenient" means pedestrian and bicyclist facilities that: are reasonably free from hazards which would



interfere with or discourage travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians and bicyclists considering destination and length of trip.

**Response:** *No pedestrian or bicycle facilities other than sidewalks and on-street bicycle lanes have been identified or are any proposed.*

2. To meet the intent of “B” above, right-of-ways connecting cul-de-sacs or passing through unusually long or oddly shaped blocks shall be a minimum of 15 ft. wide with 8 feet of pavement.

**Response:** *As noted above, no off-street facilities are proposed.*

3. 12 feet wide pathways shall be provided in areas with high bicycle volumes or multiple use by bicyclists, pedestrians, and joggers.

**Response:** *No facilities of this type are proposed with the subdivision.*

4. Pathways and sidewalks shall be encouraged in new developments by clustering buildings or constructing convenient pedestrian ways. Pedestrian walkways shall be provided in accordance with the following standards:

- a) The pedestrian circulation system shall be at least five feet in width and shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to minimize out of direction pedestrian travel.

- b) Walkways at least five feet in width shall be provided to connect the pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.

- c) Walkways shall be as direct as possible and avoid unnecessary meandering.

**Response:** *No pedestrian pathways are proposed at this time, only sidewalks adjacent to public streets.*

- d) Walkway/driveway crossings shall be minimized. Internal parking lot design shall maintain ease of access for pedestrians from abutting streets, pedestrian facilities, and transit stops.

- e) With the exception of walkway/driveway crossings, walkways shall be separated from vehicle parking or vehicle maneuvering areas by grade, different paving material, painted crosshatching or landscaping. They shall be constructed in accordance with the sidewalk standards adopted by the City. (This provision does not require a separated walkway system to collect drivers and passengers from cars that have parked on site unless an unusual parking lot hazard exists).

- f) Pedestrian amenities such as covered walkways, awnings, visual corridors and benches will be encouraged. For every two benches provided, the minimum parking requirements will be reduced by one, up to a maximum of four benches per site. Benches shall have direct access to the circulation system.

**Response:** *The requirements of these sections are not applicable to the proposed subdivision.*

- C. Where a development site is traversed by or adjacent to a future trail linkage identified within the Transportation System Plan, improvement of the trail linkage shall occur concurrent with development. Dedication of the trail to the City shall be provided in accordance with 17.84.80.

**Response:** *No trails are identified in the City's Transportation System Plan or Parks Master Plan on the subject property.*

- D. To provide for orderly development of an effective pedestrian network, pedestrian facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).

**Response:** *No pedestrian facilities, except sidewalks are proposed.*

- E. To ensure improved access between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or Director may require off-site pedestrian facility improvements concurrent with development.

**Response:** *No off-site pedestrian improvements have been identified.*

#### **17.84.40 - TRANSIT AND SCHOOL BUS TRANSIT REQUIREMENTS**

- A. Development sites located along existing or planned transit routes shall, where appropriate, incorporate bus pull-outs and/or shelters into the site design. These improvements shall be installed in accordance with the guidelines and standards of the transit agency. School bus pull-outs and/or shelters may also be required, where appropriate, as a condition of approval for a residential development of greater than 50 dwelling units where a school bus pick-up point is anticipated to serve a large number of children.

**Response:** *A small portion of the subject property is located along Dubarko Road, a minor arterial. No required transit improvements were identified during the pre-application conference for this development.*

- B. New developments at or near existing or planned transit or school bus transit stops shall design development sites to provide safe, convenient access to the transit system, as follows:

1. Commercial and civic use developments shall provide a prominent entrance oriented towards arterial and collector streets, with front setbacks reduced as much as possible to provide access for pedestrians, bicycles, and transit.
2. All developments shall provide safe, convenient pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of 17.84.30 B.

**Response:** *The proposed subdivision complies with the requirements of this section.*

#### 17.84.50 - STREET REQUIREMENTS

A. Transportation Impact Study (No Dwellings). For development applications that do not propose any dwelling units, the City may require a transportation impact study that evaluates the impact of the proposed development on the transportation system. Unless the City does not require a transportation impact study, the applicant shall prepare the study in accordance with the following:

1. A proposal establishing the scope of the study shall be submitted for review to the City Traffic Engineer. The scope shall reflect the magnitude of the project in accordance with accepted transportation planning and engineering practices. Large projects shall assess intersections and street segments where the development causes increases of more than 20 vehicles in either the AM or PM peak hours. Once the City Traffic Engineer has approved the scope of the study, the applicant shall submit the results of the study as part of its development application. Failure to submit a required study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering.
2. If the study identifies level-of-service conditions less than the minimum standard established in the development code or the Sandy Transportation System Plan, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT standards established in the development code, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.

**Response:** *At this time the proposal only includes dwellings and this section is not applicable. Future development of Lot 32 with commercial uses may trigger compliance with this section.*

B. Transportation Impact Study (Dwellings). For development applications that propose dwelling units, an applicant must submit a transportation impact study unless the application is exempt from this requirement pursuant to subsection (B)(6), below. Failure to submit the study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering. The applicant shall prepare the study in accordance with the following:

**Response:** *A traffic impact study is included with this application.*

1. The study area must include all existing and proposed site accesses and all existing and proposed streets and intersections where the development adds more than 20 vehicles during any peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual. The determination of peak hour vehicle addition shall include the cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years.

2. The study must analyze existing conditions and projected conditions upon completion of the proposed development.
3. The study must be performed for the weekday a.m. peak hour (one hour between 7 a.m. and 9 a.m.) and p.m. peak hour (one hour between 4 p.m. and 6 p.m.). Analysis of other time periods may be required for uses that generate their highest traffic volumes at other times of the day or on weekends.
4. The study must demonstrate that the transportation impacts from the proposed development will comply with the City's level-of-service and average daily traffic standards and the Oregon Department of Transportation's mobility standard.
5. If the study identifies level-of-service conditions less than the minimum standard established in the development code or the Sandy Transportation System Plan, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT standards established in the development code or fails to meet the Oregon Department of Transportation's mobility standard, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.

**Response:** *A traffic impact study developed in compliance with the requirements of this section is included with the application.*

6. A transportation impact study is not required under this section if:
  - a) The cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years will generate no more than 20 vehicle trips in any weekday a.m. or p.m. peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual; or
  - b) The proposed development completed a transportation impact study at the time of annexation within the past 5 years and that study assessed the impact of the same or more dwelling units than proposed under the new land use action; or
  - c) The application only proposes to convert an existing detached single family dwelling to a duplex.

**Response:** *This section is not applicable as a traffic impact study is included.*

- C. Transportation Impact Study (Dwellings) - Discretionary Track. As an alternative to the process outlined in Section 17.84.50(B), an applicant may choose to follow the process in Section 17.84.50(A).

**Response:** *This section is not applicable.*

- D. Location of new arterial streets shall conform to the Transportation System Plan in accordance with the following:
  1. Arterial streets should generally be spaced in one-mile intervals.

2. Traffic signals should generally not be spaced closer than 1500 ft. for reasonable traffic progression.

**Response:** *No new arterial streets are required as part of this application.*

- E. Local streets shall be designed to discourage through traffic. NOTE: for the purposes of this section, “through traffic” means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic and excessive vehicle speeds the following street design characteristics shall be considered, as well as other designs intended to discourage traffic:

1. Straight segments of local streets should be kept to less than a quarter mile in length. As practical, local streets should include traffic calming features, and design features such as curves and “T” intersections while maintaining pedestrian connectivity.
2. Local streets should typically intersect in “T” configurations rather than 4-way intersections to minimize conflicts and discourage through traffic. Adjacent “T” intersections shall maintain a minimum of 150 ft. between the nearest edges of the 2 rights-of-way.

**Response:** *The proposed subdivision does not include any long straight street segments. All streets have been designed in accordance with the requirements of these sections.*

3. Cul-de-sacs should generally not exceed 400 ft. in length nor serve more than 20 dwelling units, except in cases where existing topography, wetlands, or drainage systems or other existing features necessitate a longer cul-de-sac in order to provide adequate access to an area. Cul-de-sacs longer than 400 feet or developments with only one access point may be required to provide an alternative access for emergency vehicle use only, install fire prevention sprinklers, or provide other mitigating measures, determined by the City.

**Response:** *Two cul-de-sac streets are proposed (the extension of Fawn Street and Street A north of Fawn Street). The Fawn Street extension is 194 feet long and will serve 12 lots. The Street A cul-de-sac north of Fawn Street is 389 feet long and will serve 10 lots. Both of these streets are less than 400 feet long and will serve fewer than 20 dwelling units in compliance with this standard.*

- F. Development sites shall be provided with access from a public street improved to City standards in accordance with the following:

1. Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.

**Response:** *All lots will gain access from an abutting street improved to city standards.*

2. Half-street improvements are considered the minimum required improvement. Three quarter-street or full-street improvements shall be required where traffic volumes generated by the development are such that a half-street improvement would cause safety and/or capacity problems. Such a determination shall be made by the City Engineer.

**Response:** *All new streets are proposed as full street improvements.*

3. To ensure improved access to a development site consistent with policies on orderly urbanization and extension of public facilities the Planning Commission or Director may require off-site improvements concurrent with development. Off-site improvement requirements upon the site developer shall be reasonably related to the anticipated impacts of the development.

**Response:** *No off-site improvements have been identified or are warranted with construction of this subdivision.*

4. Reimbursement agreements for 3/4 street improvements (i.e., curb face to curb face) may be requested by the developer per Chapter 12 of the SMC.

**Response:** *All streets are proposed as full streets. No 3/4 streets are proposed.*

5. A 1/2 street improvement includes curb and pavement 2 feet beyond the center line of the right-of-way. A 3/4 street improvement includes curbs on both sides of the side and full pavement between curb faces.

**Response:** *No 1/2 street improvements are proposed.*

- G. As necessary to provide for orderly development of adjacent properties, public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property(ies) in accordance with the following:

1. Temporary dead-ends created by this requirement to extend street improvements to the edge of adjacent properties may be installed without turn-arounds, subject to the approval of the Fire Marshal.
2. In order to assure the eventual continuation or completion of the street, reserve strips may be required.

**Response:** *The proposed street layout results in one temporary dead-end street (Street B, "New Street") that will be stubbed to the southern property line of the subject property. The applicant is aware the Fire Marshal will need to review the proposal. In addition, the applicant is aware that reserve strips will likely be required at the end of this street.*

- H. Where required by the Planning Commission or Director, public street improvements may be required through a development site to provide for the logical extension of an existing street network or to connect a site with a nearby neighborhood activity center, such as a school or park. Where this creates a land division incidental to the development, a land partition shall be completed concurrent with the development.

**Response:** *The applicant does not anticipate that any public street improvements will be required to be extended beyond the site boundaries. No such improvements were identified at the pre-application conference.*

- I. Except for extensions of existing streets, no street names shall be used that will duplicate or be confused with names of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area and be subject to approval of the Director.

**Response:** *The proposal contains five street segments: Dubarko Road, an extension of Fawn Street, and Streets A, B, and C. The City will need to determine if the street extension of Fawn Street will carry the Fawn Street name or a different name.*

- J. Location, grades, alignment, and widths for all public streets shall be considered in relation to existing and planned streets, topographical conditions, public convenience and safety, and proposed land use. Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network is not adversely affected. The following standards shall apply:

1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall conform to planned street extensions identified in the Transportation Plan and/or provide for continuation of the existing street network in the surrounding area.

**Response:** *A future street plan is submitted with this application on Sheet C1. This plan shows that the proposal will facilitate and not preclude development on adjacent properties.*

2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.

**Response:** *Dubarko, a minor arterial is proposed to have a grade of 6%, the extension of Fawn Street, a local street will have a grade of 4%, Street A, a local street, will have a grade south of Fawn Street of 3% and a grade north of Fawn Street of 2% to 11%, Street B ("New Street") will have a grade of 4% to 6%, and Street C will have a grade of 7%. All streets comply with these standards.*

3. As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in "T" intersections are unavoidable, they shall leave a minimum of 150 ft. between the nearest edges of the two rights-of-way.

**Response:** *Dubarko Road, a minor arterial will be extended by a continuation of the centerline of this existing street. Street B ("New Road") is not an extension of an existing street. The proposal complies with this standard.*

4. Centerline radii of curves shall not be less than 500 ft. on arterial streets, 300 ft. on collector streets, and 100 ft. on local streets.

**Response:** *As shown on Sheet 2, Dubarko Road, a minor arterial is designed with a centerline radii of 500 feet, Street B, a collector, will have a centerline radii of 300 feet, and the extension of Fawn Street, a local street, will have a centerline radii of 100 feet. All of these streets comply with this standard.*

5. Streets shall be designed to intersect at angles as near as practicable to right angles and shall comply with the following:

- a) The intersection of an arterial or collector street with another arterial or collector street shall have a minimum of 100 ft. of straight (tangent) alignment perpendicular to the intersection.

**Response:** *The intersection of Street B with Dubarko Drive is designed in compliance with this standard.*

- b) The intersection of a local street with another street shall have a minimum of 50 ft. of straight (tangent) alignment perpendicular to the intersection.

**Response:** *All local streets intersect in compliance with this standard.*

- c) Where right angle intersections are not possible, exceptions can be granted by the City Engineer provided that intersections not at right angles have a minimum corner radius of 20 ft. along the right-of-way lines of the acute angle.

**Response:** *All intersections are designed to intersect at a right angle or very close to a right angle.*

- d) Intersections with arterial streets shall have a minimum curb corner radius of 20 ft. All other intersections shall have a minimum curb corner radius of 10 ft.

**Response:** *As shown on submitted plans, all street intersections comply with this standard.*

6. Right-of-way and improvement widths shall be as specified by the Transportation System Plan. Exceptions to those specifications may be approved by the City Engineer to deal with specific unique physical constraints of the site.

**Response:** *The proposed right-of-way width of Dubarko Road and Street B are proposed at 64 feet and Street A and the Fawn Street extension are proposed at 50 feet. Street C is proposed as an Access Drive to have a 40 foot right-of-way in compliance this standard.*

- K. Private streets may be considered within a development site provided all the following conditions are met:

**Response:** *No private streets are proposed.*



**17.84.60 - PUBLIC FACILITY EXTENSIONS**

- A. All development sites shall be provided with public water, sanitary sewer, broadband (fiber), and storm drainage.  
*Response: The submitted Utility Plan (Sheet C5) shows the location of proposed public water, sanitary sewer, and stormwater drainage facilities. Broadband fiber service will be detailed with construction plans.*
- B. Where necessary to serve property as specified in “A” above, required public facility installations shall be constructed concurrent with development.  
*Response: All of the utilities identified above will be constructed concurrent with the development.*
- C. Off-site public facility extensions necessary to fully serve a development site and adjacent properties shall be constructed concurrent with development.  
*Response: The applicant will extend all utilities as necessary to serve the development as required by this section.*
- D. As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).  
*Response: As shown on the submitted Sheet C5, Master Street and Utility Plan, all public facilities are proposed to be extended through the site to the edge of adjacent properties.*
- E. Private on-site sanitary sewer and storm drainage facilities may be considered provided all the following conditions exist:  
*Response: No private sanitary sewer or storm drainage facilities are proposed.*

**17.84.70 - PUBLIC IMPROVEMENT PROCEDURES**

*Response: The applicant is aware of and intends to comply with the requirements of this section.*

**17.84.80 - FRANCHISE UTILITY INSTALLATIONS**

These standards are intended to supplement, not replace or supersede, requirements contained within individual franchise agreements the City has with providers of electrical power, telephone, cable television, and natural gas services (hereinafter referred to as “franchise utilities”).

- A. Where a land division is proposed, the developer shall provide franchise utilities to the development site. Each lot created within a subdivision shall have an individual service available or financially guaranteed prior to approval of the final plat.  
*Response: Franchise utilities will be provided to all lots within the proposed subdivision as required. The location of these utilities will be identified on construction plans and installed or guaranteed prior to final plat approval.*

- B. Where necessary, in the judgment of the Director, to provide for orderly development of adjacent properties, franchise utilities shall be extended through the site to the edge of adjacent property(ies), whether or not the development involves a land division.

**Response:** *The applicant does not anticipate extending franchise utilities beyond the site.*

- C. The developer shall have the option of choosing whether or not to provide natural gas or cable television service to the development site, providing all of the following conditions exist:

1. Extension of franchise utilities through the site is not necessary for the future orderly development of adjacent property(ies);
2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 17.84.50 F above); and
3. The development is non-residential.

**Response:** *The applicant anticipates installing natural gas and will determine if the installation of cable television service is required.*

- D. Where a land division is not proposed, the site shall have franchise utilities required by this section provided in accordance with the provisions of 17.84.70 prior to occupancy of structures.

**Response:** *A land division is proposed, as such this section is not applicable. With the future review of the proposed multi-family units, this section will be applicable.*

- E. All franchise utility distribution facilities installed to serve new development shall be placed underground except as provided below. The following facilities may be installed aboveground:

1. Poles for street lights and traffic signals, pedestals for police and fire system communications and alarms, pad mounted transformers, pedestals, pedestal mounted terminal boxes and meter cabinets, concealed ducts, substations, or facilities used to carry voltage higher than 35,000 volts;
2. Overhead utility distribution lines may be permitted upon approval of the City Engineer when unusual terrain, soil, or other conditions make underground installation impracticable. Location of such overhead utilities shall follow rear or side lot lines wherever feasible.

**Response:** *All franchise utilities will be installed underground with the exception of street lights as allowed by this section.*

- F. The developer shall be responsible for making necessary arrangements with franchise utility providers for provision of plans, timing of installation, and payment for services installed. Plans for franchise utility installations shall be submitted concurrent with plan submittal for public improvements to facilitate review by the City Engineer.

**Response:** *The developer will make all necessary arrangements with franchise utility providers as required by this section.*

- G. The developer shall be responsible for installation of underground conduit for street lighting along all public streets improved in conjunction with the development in accordance with the following:
1. The developer shall coordinate with the City Engineer to determine the location of future street light poles. The street light plan shall be designed to provide illumination meeting standards set by the City Engineer.
  2. The developer shall make arrangements with the serving electric utility for trenching prior to installation of underground conduit for street lighting.
- Response:** *The developer will install underground conduit for street lighting in accordance with the requirements of this section.*

#### **17.84.90 - LAND FOR PUBLIC PURPOSES**

- A. Easements for public sanitary sewer, water, storm drain, pedestrian and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
1. When located between adjacent lots, easements shall be provided on one side of a lot line.
  2. The minimum easement width for a single utility is 15 ft. The minimum easement width for two adjacent utilities is 20 ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.
- Response:** *There is an existing 15-foot wide water easement bisecting the site along the western line of Lot 32. A new 10-foot public storm easement is proposed along the back of Lots 3 and Lots 9 - 12 and between Lots 27 and 28. The rest of public facilities will be located within the public right-of-way.*
- B. Public utility easements with a minimum width of 5 feet shall be provided adjacent to all street rights-of-way for franchise utility installations.
- Response:** *Despite the language in this section, eight foot wide public utility easements will be provided along all lots adjacent to street rights-of-way for future franchise utility installations.*
- C. Where a development site is traversed by a drainageway or water course, a drainage way dedication shall be provided to the City.
- Response:** *The site is not traversed by a drainage way or water course and this section is not applicable.*
- D. Where a development is traversed by, or adjacent to, a future trail linkage identified within the Transportation System Plan, dedications of suitable width to accommodate the trail linkage shall be provided. This width shall be determined by the City Engineer, considering the type of trail facility involved.

**Response:** No future trail is identified in the TSP on the subject property and no trails are proposed.

- E. Where existing rights-of-way and/or easements within or adjacent to development sites are nonexistent or of insufficient width, dedications may be required. The need for and widths of those dedications shall be determined by the City Engineer.

**Response:** The only existing right-of-way adjacent to the development is Highway 26. No additional right-of-way dedication along this facility has been identified.

- F. Where easement or dedications are required in conjunction with land divisions, they shall be recorded on the plat. Where a development does not include a land division, easements and/or dedications shall be recorded on standard document forms provided by the City Engineer.

**Response:** All easements and dedications will be identified on the plat as required.

#### **17.84.100 - MAIL DELIVERY FACILITIES**

**Response:** The location and type of mail delivery facilities will be coordinated with the City Engineer and the Post Office as part of the construction plan process.

### **CHAPTER 17.86 - PARKLAND and OPEN SPACE**

#### **17.86.00 - INTENT**

The availability of parkland and open space is a critical element in maintaining and improving the quality of life in Sandy. Land that features trees, grass and vegetation provides not only an aesthetically pleasing landscape but also buffers incompatible uses, and preserves sensitive environmental features and important resources. Parks and open space, together with support facilities, also help to meet the active and passive recreational needs of the population of Sandy. This chapter implements policies of Goal 8 of the Comprehensive Plan and the Parks Master Plan by outlining provisions for parks and open space in the City of Sandy.

**Response:** The city's adopted Parks Master Plan and Comprehensive Plan map shows a conceptual neighborhood park located in the vicinity of the subject property and the property directly west. The subdivision approval criteria in Sandy Development Code Section 17.100.60 do not incorporate the 1997 Parks Master Plan. As such, the sections in this chapter do not apply to this application. The applicant will pay a fee in lieu of parkland dedication in accordance with Subsection 2 of this Section. A one acre park tract dedicated as part of the Deer Pointe 2 Subdivision in 2007 appears to have satisfied this plan.

#### **17.86.10 - MINIMUM PARKLAND DEDICATION REQUIREMENTS**

Parkland Dedication: New residential subdivisions, planned developments, multi-family or manufactured home park developments shall be required to provide parkland to serve existing and future residents of those developments.

**Response:** *The proposed residential subdivision is subject to the provisions of this chapter.*

1. The required parkland shall be dedicated as a condition of approval for the following:
  - a. Tentative plat for a subdivision or partition;
  - b. Planned Development conceptual or detailed development plan;
  - c. Design review for a multi-family development or manufactured home park; and
  - d. Replat or amendment of any site plan for multi-family development or manufactured home park where dedication has not previously been made or where the density of the development involved will be increased.

**Response:** *No public parkland has been identified on the tentative plat.*

2. Calculation of Required Dedication: The required parkland acreage to be dedicated is based on a calculation of the following formula rounded to the nearest 1/100 (0.00) of an acre:

Required parkland dedication (acres) = (proposed units) x (persons/unit) x 0.0043 (per person park land dedication factor)

**Response:** *Of the proposed 32 lots, 30 are zoned R-1, one is zoned R-2, and one is proposed to contain both R-2 and C-3 zoning. The exact unit count is not known at this time. The applicant is aware that payment of a fee in lieu of parkland dedication will be based on the proposed unit count.*

#### **17.86.20 - MINIMUM PARKLAND STANDARDS**

Land required or proposed for parkland dedication shall be contained within a continuous unit and must be suitable for active use as a neighborhood or mini-park, based on the following criteria:

1. Homes must front on the parkland as shown in the example below:
2. The required dedication shall be contained as a contiguous unit and not separated into pieces or divided by roadways.
3. The parkland must be able to accommodate play structures, play fields, picnic areas, or other active park use facilities. The average slope of the active use parkland shall not exceed 15%.

**Response:** *The applicant does not propose dedicating any parkland with this development. The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The minimum parkland standards listed in this section contain subjective language. The words "continuous unit", "suitable", "contiguous", and "accommodate" are subjective words as used in this section. No parkland dedication is proposed with this application.*

#### **17.86.40 - CASH IN LIEU OF DEDICATION**

At the city's discretion only, the city may accept payment of a fee in lieu of land dedication. The city may require payment in lieu of land when the park land to be

dedicated is less than 3 acres. A payment in lieu of land dedication is separate from Park Systems Development Charges, and is not eligible for a credit of Park Systems Development Charges. The amount of the fee in lieu of land dedication (in dollars per acre) shall be set by City Council Resolution, and it shall be based on the typical market value of developed property (finished lots) in Sandy net of related development costs.

1. The following factors shall be used in the choice of whether to accept land or cash in lieu:
  - a. The topography, geology, access to, parcel size, and location of land in the development available for dedication;
  - b. Potential adverse/beneficial effects on environmentally sensitive areas;
  - c. Compatibility with the Parks Master Plan, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program in effect at the time of dedication;
  - d. Availability of previously acquired property; and
  - e. The feasibility of dedication.
2. Cash in lieu of parkland dedication shall be paid prior to approval of the final plat or as specified below:
  - a. 50 percent of the payment shall be paid prior to final plat approval, and
  - b. The remaining 50 percent of the payment pro-rated equally among the lots, plus an administrative surcharge as determined by the City Council through a resolution, will constitute a lien against the property payable at the time of sale.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The choice between dedication and payment of a fee in lieu of land dedication is subjective, as is the procedure to make the recommendation on the choice. The words "topography, geology, access to, parcel size, and location of land in the development available for dedication" and "potential adverse/beneficial effects on environmentally sensitive areas", "compatibility with", "availability" and "feasibility" as used in this section are subjective. The subdivision approval criteria in Sandy Development Code Section 17.100.60 do not incorporate the 1997 Parks Master Plan. As such, the sections above do not apply to this application. The applicant will pay a fee in lieu of parkland dedication in accordance with Subsection 2 of this Section.*

#### **17.86.50 - MINIMUM STANDARDS FOR OPEN SPACE DEDICATION**

The applicant through a subdivision or design review process may propose the designation and protection of open space areas as part of that process. This open space will not, however, be counted toward the parkland dedication requirement of Sections 17.86.10 through 17.86.40.

1. The types of open space that may be provided are as follows:
  - a. Natural Areas: areas of undisturbed vegetation, steep slopes, stream corridors, wetlands, wildlife habitat areas or areas replanted with native vegetation after construction.

- b. Greenways: linear green belts linking residential areas with other open space areas. These greenways may contain bicycle paths or footpaths. Connecting greenways between residences and recreational areas are encouraged.

**Response:** *The applicant does not proposed dedicating open space and this section is not applicable.*

- 2. A subdivision or design review application proposing designation of open space shall include the following information as part of this application:
  - a. Designate the boundaries of all open space areas; and
  - b. Specify the manner in which the open space shall be perpetuated, maintained, and administered; and
  - c. Provide for public access to trails included in the Park Master Plan, including but not limited to the Tickle Creek Path.

**Response:** *This section is not applicable as no open space is proposed or required.*

#### **CHAPTER 17.92 - LANDSCAPING AND SCREENING GENERAL STANDARDS - ALL ZONES**

**Response:** *This chapter has limited applicability to subdivisions so only those applicable sections are reviewed in this submittal.*

##### **17.92.10 - GENERAL PROVISIONS**

- A. Where landscaping is required by this Code, detailed planting plans shall be submitted for review with development applications. No development may commence until the Director or Planning Commission has determined the plans comply with the purposes clause and specific standards in this chapter. All required landscaping and related improvements shall be completed or financially guaranteed prior to the issuance of a Certificate of Occupancy.
- B. Appropriate care and maintenance of landscaping onsite and landscaping in the adjacent public right-of-way is the right and responsibility of the property owner, unless City ordinances specify otherwise for general public and safety reasons. If street trees or other plant materials do not survive or are removed, materials shall be replaced in kind within 6 months.
- C. Significant plant and tree specimens should be preserved to the greatest extent practicable and integrated into the design of a development. Trees of 25-inches or greater circumference measured at a height of 4-1/2 ft. above grade are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5-ft. outside the tree's drip line. Trees to be retained shall be protected from damage during construction by a construction fence located 5 ft. outside the dripline.

**Response:** *As previously determined by the Planning Commission, the City's tree protection standards in this section do not apply to residential subdivi-*

sions. The regulations of Chapter 17.102, Urban Forestry relevant to this proposal are reviewed below. Landscaping is primarily confined to the proposed stormwater facility and street side landscape planters.

#### **17.92.20 - MINIMUM IMPROVEMENTS - LANDSCAPING AND SCREENING**

**Response:** The Single Family Residential zone is not listed in this section requiring compliance with minimum landscaping requirements. Future development of Lot 32 will trigger compliance with the requirements depending on the proposed use. Compliance will be reviewed as part of a future design review application.

### **CHAPTER 17.98 - PARKING, LOADING, AND ACCESS REQUIREMENTS**

#### **17.98.10 - GENERAL PROVISIONS**

M. Residential Parking Analysis Plan. A Residential Parking Analysis Plan shall be required for all new residential planned developments, subdivisions, and partitions to include a site plan depicting all of the following:

- a. Location and dimension of required parking spaces as specified in Section 17.98.200.
- b. Location of areas where parking is not permitted as specified in Sections 17.98.200(A)(3) and (5).
- c. Location and design of parking courts (if applicable).

**Response:** A Residential Parking Analysis Plan identifying the location of parking for 31 lots as required by this section is included on sheet C7 of the plan set. Parking for Lot 32 will be accommodated onsite. The details of this analysis is discussed in Section 17.98.200 below.

#### **17.98.20 - OFF-STREET PARKING REQUIREMENTS**

- A. Off Street Parking Requirements. Off street parking shall conform to the following standards:
2. All square footage measurements are gross square feet of total floor area.
  3. 18 lineal inches of bench shall be considered 1 seat.
  4. Except as otherwise specified, parking for employees shall be provided based on 1 space per 2 employees for the largest shift in addition to required parking specified in Sections A6-A9 below.
  5. Where less than 5 parking spaces are required, then only one bicycle space shall be required except as otherwise modified in Sections 5-9 below.
  6. In addition to requirements for residential off street parking, new dwellings shall meet the on-street parking requirements in Section 17.98.200.

**Response:** Each single-family dwelling is required to provide at least two off-street parking spaces. Compliance with this requirement will be evaluated during building plan review. Parking for the development on Lot 32 will be evaluated as part of a future design review application.

#### **17.98.60 - DESIGN, SIZE AND ACCESS**

All off-street parking facilities, vehicular maneuvering areas, driveways, loading facilities, accessways, and private streets shall conform to the standards set forth in this section.



**Response:** *The details of this section will be evaluated with submittal of the design review application for the multi-family/condominium units.*

**17.98.80 - ACCESS TO ARTERIAL AND COLLECTOR STREETS**

**Response:** *No lots are proposed to gain access from an arterial or collector street.*

**17.98.90 - ACCESS TO UNIMPROVED STREETS**

**Response:** *All streets proposed in the subdivision will be improved to city standards.*

**17.98.100 - DRIVEWAYS**

A. A driveway to an off-street parking area shall be improved from the public roadway to the parking area a minimum width of 20 feet for a two-way drive or 12 feet for a one-way drive but in either case not less than the full width of the standard approach for the first 20 feet of the driveway.

**Response:** *All lots are designed in compliance with this standard.*

B. A driveway for a single-family dwelling shall have a minimum width of 10 feet.

**Response:** *All lots will have a curb cut and driveway approach in compliance with this standard.*

C. A driveway for a two-family dwelling shall have a minimum width of 20 feet. A driveway approach must be constructed in accordance with applicable city standards and the entire driveway must be paved with asphalt or concrete.

**Response:** *Any of the lots constructed with two-family dwellings will be developed in compliance with this section.*

D. Driveways, aisles, turnaround areas and ramps shall have a minimum vertical clearance of twelve feet for their entire length and width but such clearance may be reduced in parking structures.

**Response:** *All driveways will be designed in compliance with this standard.*

E. No driveway shall traverse a slope in excess of 15 percent at any point along the driveway length.

**Response:** *All driveways will be designed in compliance with this standard.*

F. The location and design of the driveway shall provide for unobstructed sight per the vision clearance requirements. Requests for exceptions to these requirements will be evaluated by the City Engineer considering the physical limitations of the lot and safety impacts to vehicular, bicycle, and pedestrian traffic.

**Response:** *All driveways will be designed in compliance with this standard.*

**17.98.110 - VISION CLEARANCE**

A. Except within the Central Business District, vision clearance areas shall be provided at intersections of all streets and at intersections of driveways and alleys with streets to promote pedestrian, bicycle, and vehicular safety. The extent

of vision clearance to be provided shall be determined from standards in Chapter 17.74 and taking into account functional classification of the streets involved, type of traffic control present at the intersection, and designated speed for the streets.

**Response:** *The subject property is located in the R-1, R-2, and C-3 zones requiring compliance with this section. The requirements of this section will be considered in placing landscaping in these areas with construction of homes and will be evaluated with a future design review application for the multi-family/condominium units.*

- B. Traffic control devices, streetlights, and utility installations meeting approval by the City Engineer are permitted within vision clearance areas.

**Response:** *The exceptions contained in this section will be considered in the design and placement of these structures.*

#### **17.98.200 - RESIDENTIAL ON-STREET PARKING REQUIREMENTS**

- A. Residential On-Street Parking Requirements. Residential on-street parking shall conform to the following standards:

1. In addition to required off-street parking, all new residential planned developments, subdivisions and partitions shall provide one (1) on-street parking space within 200 feet of each dwelling except as provided in Section 17.98.200(A)(6) below.
2. The location of residential on-street parking shall be reviewed for compliance with this section through submittal of a Residential Parking Analysis Plan as required in Section 17.98.10(M).
3. Residential on-street parking shall not obstruct required clear vision areas and shall not violate any local or state laws.
4. Parallel residential on-street parking spaces shall be 22 feet minimum in length.
5. Residential on-street parking shall be measured along the curb from the outside edge of a driveway wing or curb cut. Parking spaces must be set back a minimum of 15 feet from an intersection and may not be located within 10 feet of a fire hydrant.

**Response:** *This section is applicable to the 31 lots zoned R-1 and R-2. A Residential On-Street Parking Analysis designed in compliance with the requirements of this section is included on Sheet C6 of the application package. As shown on this plan, at least one on-street parking space at least 22 feet in length has been identified within 200 feet of each of these lots as required. This sheet shows that 47 on-street parking spaces have been identified in compliance with this standard.*

6. Portions of residential on-street parking required by this section may be provided in parking courts that are interspersed throughout a development when the following standards are met:

**Response:** *No parking courts are proposed.*

## **CHAPTER 17.100 - LAND DIVISION**

### **17.100.20 - LAND DIVISION CLASSIFICATION - TYPE I, II OR III PROCEDURES**

C. Type II Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type II procedure when a street is extended, satisfactory street conditions exist and the resulting parcels/lots comply with the standards of the zoning district and this chapter. Satisfactory street conditions exist when the Director determines one of the following:

1. Existing streets are stubbed to the property boundaries and are linked by the land division.
2. An existing street or a new proposed street need not continue beyond the land division in order to complete an appropriate street system or to provide access to adjacent property.
3. The proposed street layout is consistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.

*Response: The proposed subdivision complies with all applicable code requirements to be processed as a Type II application.*

## **CHAPTER 17.100 - LAND DIVISION**

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C. Type II Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type II procedure when a street is extended, satisfactory street conditions exist and the resulting parcels/lots comply with the standards of the zoning district and this chapter. Satisfactory street conditions exist when the Director determines one of the following:

1. Existing streets are stubbed to the property boundaries and are linked by the land division.
2. An existing street or a new proposed street need not continue beyond the land division in order to complete an appropriate street system or to provide access to adjacent property.
3. The proposed street layout is consistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.

*Response: The proposal is for a Type II "Needed Housing" residential subdivision designed in compliance with applicable standards.*

### **17.100.60 - SUBDIVISIONS**

Approval of a subdivision is required for a land division of 4 or more parcels in a calendar year. A two-step procedure is required for subdivision approval: (1) tentative plat review and approval; and (2) final plat review and approval.

*Response: The proposal is a 90 lot subdivision.*

A. Preapplication Conference. The applicant for a subdivision shall participate in a preapplication conference with city staff to discuss procedures for approval, applicable state and local requirements, objectives and policies of the Sandy Comprehensive Plan, and the availability of services.

*Response: A pre-application conference was held with the city on February 26, 2020.*

- B. Application Requirements for a Tentative Plat. Subdivision applications shall be made on forms provided by the planning department and shall be accompanied by:

**Response:** *All of the items required by this section are included with the submittal.*

- E. Approval Criteria. The Director or Planning Commission shall review the tentative plat for the subdivision based on the classification procedure (Type II or III) set forth in Section 17.12 and the following approval criteria:

1. The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval.

**Response:** *The submitted application is a “Needed Housing” application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words “consistent with” as used in this section are subjective words. As reviewed in this narrative, the proposed subdivision is designed in compliance with density, setback, and dimensional standards in the R-1 and R-2 zoning districts. This criterion is met.*

2. The proposed subdivision is consistent with the design standards set forth in this chapter.

**Response:** *The submitted application is a “Needed Housing” application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words “consistent with” as used in this section are subjective words. As discussed in this narrative, the proposed subdivision is consistent with all required design standards in this chapter. This criterion is met.*

3. The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.

**Response:** *The submitted application is a “Needed Housing” application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words “connected” and “consisted with” as used in this section are subjective words. Further, the City’s Transportation System is not specifically incorporated into the Development and cannot be applied to this application. This criterion is met.*

4. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.

**Response:** *As detailed in the submitted Traffic Study traffic volumes on local streets are not projected to exceed ADT standards. This criterion is met.*

5. Adequate public facilities are available or can be provided to serve the proposed subdivision.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "adequate" as used in this section are subjective words. There is no indication by City officials that public facilities are not adequate to serve the proposed subdivision.*

6. All proposed improvements meet City standards.

*Response: As reviewed in this narrative, the proposed improvements in this application comply with City standards.*

7. The phasing plan, if requested, can be carried out in a manner that meets the objectives of the above criteria and provides necessary public improvements for each phase as it develops.

*Response: The applicant proposes developing the subdivision in a single phase.*

#### **17.100.80 - CHARACTER OF THE LAND**

Land which the Director or the Planning Commission finds to be unsuitable for development due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations or topography, utility easements, or other features which will reasonably be harmful to the safety, health, and general welfare of the present or future inhabitants of the partition or subdivision and the surrounding areas, shall not be developed unless adequate methods are formulated by the subdivider and approved by the Director or the Planning Commission to solve the problems created by the unsuitable land conditions.

*Response: The subject property does not contain any of the items identified as "unsuitable" in this section. As demonstrated in this narrative, the subject property is suitable to construct the proposed subdivision.*

#### **17.100.90 - ACCESS CONTROL GUIDELINES AND COORDINATION**

A. Notice and coordination with ODOT required. The city will coordinate and notify ODOT regarding all proposals for new or modified public and private accesses on to Highways 26 and 211.

*Response: The applicant's traffic consultant coordinated with ODOT and the City's traffic consultant prior to the preparation of the traffic impact study submitted with this application. The subject property abuts Highways 26 but no access to this road is proposed.*

#### **17.100.100 - STREETS GENERALLY**

A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circu-

lation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.

**Response:** *Fawn Street and Dubarko Drive will be extended onto the subject property to provide access to lots in the subdivision. These streets are designed to create a logical street pattern and spread out traffic rather than concentrate it on a single street. No access is proposed to Highway 26. The submitted Future Street Plan identifies how the proposed street pattern can be extended to serve adjacent properties.*

- B. **Transportation Impact Studies.** An applicant is required to prepare and submit a transportation impact study in accordance with the standards of Chapter 17.84 unless those standards exempt the application from the requirement.

**Response:** *As reviewed above, the proposed development triggers preparation of a transportation impact study. A Traffic Impact Study is included with the application package.*

- C. **Topography and Arrangement.** All streets shall be properly related to special traffic generators such as industries, business districts, schools, and shopping centers and to the pattern of existing and proposed land uses.

**Response:** *All proposed streets comply with the requirements of this section.*

- D. **Street Spacing.** Street layout shall generally use a rectangular grid pattern with modifications as appropriate to adapt to topography or natural conditions.

**Response:** *As noted above, the location of Highway 26, Dubarko Road, and Street B control the street and lot layout of the subject property. With these conditions, a rectangular grid street pattern is not practical and the proposed street pattern represents a logical and efficient street system.*

- E. **Future Street Plan.** Future street plans are conceptual plans, street extensions and connections on acreage adjacent to land divisions. They assure access for future development and promote a logical, connected pattern of streets. It is in the interest of the city to promote a logical, connected pattern of streets. All applications for land divisions shall provide a future street plan that shows the pattern of existing and proposed future streets within the boundaries of the proposed land divisions, proposed connections to abutting properties, and extension of streets to adjacent parcels within a 400 foot radius of the study area where development may practically occur.

**Response:** *A future street plan in compliance with this section is included with the plan set.*

- F. **Connections.** Except as permitted under Exemptions, all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties which have no future street plan. Streets shall terminate at other streets or at parks, schools or other public land within a neighborhood.

Where practicable, local roads shall align and connect with other roads when crossing collectors and arterials.

Proposed streets or street extensions shall be located to provide direct access to existing or planned transit stops, and existing or planned neighborhood activity centers, such as schools, shopping areas and parks.

*Response: As shown on submitted plans, Street A in the proposed subdivision connects Dubarko Road to Fawn Street extended onto the subject property. Street B is proposed to terminate at the southern property of the development so it can be extended south with future development. All streets are designed as practical to provide a connection to abutting properties.*

#### **17.100.120 - BLOCKS AND ACCESSWAYS**

- A. **Blocks.** Blocks shall have sufficient width to provide for two tiers of lots at appropriate depths. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "sufficient width" and "appropriate depths" as used in this section are subjective. The shape of the subject property and the alignment of Highway 26, Dubarko Drive and Fawn Street control the lot layout and design. Due to these physical constraints, the site does not lend itself to creating blocks with two tiers.*

- B. **Residential Blocks.** Blocks fronting local streets shall not exceed 400 feet in length, unless topographic, natural resource, or other similar physical conditions justify longer blocks. Blocks may exceed 400 feet if approved as part of a Planned Development, Specific Area Plan, adjustment or variance.

*Response: The submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "unless topographic, natural resource, or other similar physical conditions justify longer blocks" as used in this section are subjective. The location of Highway 26, Dubarko Road, and topographic constraints in the eastern portion of the property do not make it practical or reasonable to require typical 400 foot residential blocks.*

- D. **Pedestrian and Bicycle Access Way Requirements.** In any block in a residential or commercial district over 600 feet in length, a pedestrian and bicycle accessway with a minimum improved surface of 10 feet within a 15-foot right-of-way or tract shall be provided through the middle of the block. To enhance public convenience and mobility, such accessways may be required to connect to cul-de-sacs, or between streets and other public or semipublic lands or through greenway systems.

*Response: No blocks are proposed greater than 600 feet in length to warrant construction of a pedestrian accessway as specified in this section.*

**17.100.130 - EASEMENTS**

A minimum eight (8) foot public utility easement shall be required along property lines abutting a right-of-way for all lots within a partition or subdivision. Where a partition or subdivision is traversed by a watercourse, drainage way, channel or stream, the land division shall provide a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse, and such further width as determined needed for water quality and quantity protection.

*Response: Eight foot wide public utility easements will be platted along all property lines abutting a public right-of-way. As shown on submitted plans, a 10-foot wide public storm drainage easement is proposed to be platted along the back of Lots 3 and 9 - 12 and between Lots 27 and 28.*

**17.100.140 - PUBLIC ALLEYS**

*Response: No alleys are proposed or required.*

**17.100.150 - RESIDENTIAL SHARED PRIVATE DRIVES**

A shared private drive is intended to provide access to a maximum of two (2) dwelling units.

**A. Criteria for Approval**

Shared private drives may be approved by the Director when one or more of the following conditions exist:

1. Direct access to a local street is not possible due to physical aspects of the site including size, shape, or natural features.
2. The construction of a local street is determined to be unnecessary.

*Response: Two private drives (Tracts A and B) are proposed as shown on submitted plans.*

**B. Design**

1. A shared private drive constructed to city standards shall not serve more than two (2) dwelling units.
2. A shared access easement and maintenance agreement shall be established between the two units served by a shared private drive. The language of the easement and maintenance agreement shall be subject to approval by the Director.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. Shared private drives shall be fully improved with an all weather surface (e.g. concrete, asphalt, permeable pavers) in conformance with city standards. The pavement width shall be 20 feet.
5. Parking shall not be permitted along shared private drives at any time and shall be signed and identified accordingly.



**Response:** Each private drive is proposed to serve only two lots as allowed. Each private drive will be constructed in accordance with the requirements of this section.

#### **17.100.160 - PUBLIC ACCESS LANES**

Public access lanes are designed to provide primary access to a limited number of dwellings where the construction of a local street is not necessary. Public access lanes are intended to serve a maximum of six dwelling units.

A. Criteria for Approval. Public access lanes may be approved by the Director when certain conditions exist which make the construction of a standard local street unnecessary. Approval of public access lanes shall be based on one or more of the following:

1. Physical conditions such as natural features, unusual lot size, shape, or other unique features prevent the construction of a local street.
2. It is determined that construction of a local street is not necessary to facilitate orderly development of a future street system.
3. It is determined that there are no logical extensions of an existing local street to serve the site.

**Response:** Due to the configuration of the subject property and the location and access limitations to Dubarko Drive and Street B, Street C is proposed as a Public Access Lane as detailed below.

B. General Provisions.

1. A public access lane may serve a maximum of six dwelling units.
2. Public access lanes are subject to spacing requirements of Section 17.100.120.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. If a public access lane is designed as a dead end, a turnaround shall be provided at the point where the lane terminates. The design of the turnaround shall be subject to approval by the Director and the Fire Department.
5. Parking shall be prohibited in public access lane turnarounds.
6. Street lighting may be required in public access lanes for traffic and pedestrian safety.

**Response:** The applicant is aware of these general provisions.

C. Public Access Lane Design

2. Public Access Lane Option "B" (Figure 17.100-B).

- a. Public access lane "B" is designed to be double loaded and provide access to lots located on both sides of the lane.
- b. Public access lanes shall be constructed to city standards and must meet the required dimension as specified in this section.
- c. Curbside sidewalks are required along both sides of the access lane to achieve specified dimensions.

- d. Planter strips are not required along public access lanes due to the minimal lots served. Lots abutting a public access land are required to have street trees in accordance with Section 17.100.290.
- e. Parking is permitted on both sides of a public access lane “B” as shown in Figure 17.100-B. Signage shall be display to indicate the parking regulations along the lane and in the turnaround.

*Response: Street C is designed in compliance with the standards in this section. As shown on Sheet C5 (Section C), this street is designed to include a 40-foot right-of-way with 28-feet of paving and sidewalks on both sides.*

**17.100.170 - FLAG LOTS**

Flag lots can be created where it can be shown that no other street access is possible to achieve the requested land division. The flag lot shall have a minimum street frontage of 15 feet for its accessway. The following dimensional requirements shall apply to flag lots:

- A. Setbacks applicable to the underlying zoning district shall apply to the flag lot.
- B. The access strip (pole) may not be counted toward the lot size requirements.

*Response: Lot 11 of the proposed subdivision could be considered a flag lot as defined by code. This lot conforms with all applicable standards.*

**17.100.180 - INTERSECTIONS**

- A. Intersections. Streets shall be laid out so as to intersect as nearly as possible at right angles. A proposed intersection of two new streets at an angle of less than 75 degrees shall not be acceptable. No more than two streets shall intersect at any one point unless specifically approved by the City Engineer. The city engineer may require left turn lanes, signals, special crosswalks, curb extensions and other intersection elements justified by a traffic study or necessary to comply with the Development Code.

*Response: All streets are designed to intersect an abutting street at a right angle in compliance with the requirements of this section.*

- B. Curve Radius. All local and neighborhood collector streets shall have a minimum curve radius (at intersections of rights-of-way) of 20 feet, unless otherwise approved by the City Engineer. When a local or neighborhood collector enters on to a collector or arterial street, the curve radius shall be a minimum of 30 feet, unless otherwise approved by the City Engineer.

*Response: All proposed streets comply with the standards of this section.*

**17.100.190 - STREET SIGNS**

The subdivider shall pay the cost of street signs prior to the issuance of a Certificate of Substantial Completion. The City shall install all street signs and upon completion will bill the developer for costs associated with installation. In addition, the subdivider may be required to pay for any traffic safety devices related

to the development. The City Engineer shall specify the type and location of the street signs and/or traffic safety devices.

**Response:** *The applicant understands it will be his responsibility to pay the cost of street signs and the city will install these signs.*

#### **17.100.200 - STREET SURFACING**

Public streets, including alleys, within the development shall be improved in accordance with the requirements of the City or the standards of the Oregon State Highway Department. An overlay of asphalt concrete, or material approved by the City Engineer, shall be placed on all streets within the development. Where required, speed humps shall be constructed in conformance with the City's standards and specifications.

**Response:** *All streets will be improved in accordance with City standards.*

#### **17.100.210 - STREET LIGHTING**

A complete lighting system (including, but not limited to: conduits, wiring, bases, poles, arms, and fixtures) shall be the financial responsibility of the subdivider on all cul-de-sacs, local streets, and neighborhood collector streets. The subdivider will be responsible for providing the arterial street lighting system in those cases where the subdivider is required to improve an arterial street. Standards and specifications for street lighting shall be coordinated with the utility and any lighting district, as appropriate.

**Response:** *The applicant is aware of the requirements of this section. A lighting plan will be coordinated with PGE and the city prior to installation of these fixtures.*

#### **17.100.220 - LOT DESIGN**

A. The lot arrangement shall be such that there will be no foreseeable difficulties, for reason of topography or other conditions, in securing building permits to build on all lots in compliance with the Development Code.

**Response:** *The proposed subdivision contains a logical lot layout and no difficulties are anticipated in securing building permits to build on any of these lots. Development on Lot 32 will require design review approval prior to development.*

B. The lot dimensions shall comply with the minimum standards of the Development Code. When lots are more than double the minimum lot size required for the zoning district, the subdivider may be required to arrange such lots to allow further subdivision and the opening of future streets to serve such potential lots.

**Response:** *As discussed above, all lots comply with the lot dimension and minimum standards as specified for lots platted within the R-1, R-2, and C-3 zoning districts.*

- C. The lot or parcel width at the front building line shall meet the requirements of the Development Code and shall abut a public street other than an alley for a width of at least 20 feet. A street frontage of not less than 15 feet is acceptable in the case of a flag lot division resulting from the division of an unusually deep land parcel which is of a size to warrant division into not more than two parcels.

**Response:** *All lots in the proposed subdivision contain at least 20 feet of frontage along a public street with the exception of four lots (Lots 12, 13, 21 and 22) which are proposed to be accessed by private drives. The proposal complies with this section.*

- D. Double frontage lots shall be avoided except where necessary to provide separation of residential developments from arterial streets or to overcome specific disadvantages of topography or orientation.

**Response:** *None of the lots contain double frontage as defined by code except Lots 25, 26 that have frontage on both Street A and Highway 26 and Lots 27 - 30 with frontage on both Dubarko Road and Street C. Because direct access from Highway 26 and Dubarko Road is not permitted, a double frontage lot configuration is unavoidable.*

- E. Lots shall avoid deriving access from major or minor arterials. When driveway access from major or minor arterials may be necessary for several adjoining lots, the Director or the Planning Commission may require that such lots be served by a common access drive in order to limit possible traffic hazards on such streets. Where possible, driveways should be designed and arranged to avoid requiring vehicles to back into traffic on minor or major arterials.

**Response:** *All lots are proposed to gain access from a new local street. No direct access to Dubarko Road, a minor arterial or Street B, a collector are proposed.*

#### **17.100.230 - WATER FACILITIES**

Water lines and fire hydrants serving the subdivision or partition, and connecting the development to City mains, shall be installed to provide adequate water pressure to serve present and future consumer demand. The materials, sizes, and locations of water mains, valves, service laterals, meter boxes and other required appurtenances shall be in accordance with the standards of the Fire District, the City, and the State.

If the city requires the subdivider to install water lines in excess of eight inches, the city may participate in the oversizing costs. Any oversizing agreements shall be approved by the city manager based upon council policy and dependent on budget constraints. If required water mains will directly serve property outside the subdivision, the city may enter into an agreement with the subdivider setting forth methods for reimbursement for the proportionate share of the cost.

**Response:** *The applicant intends to install all water lines and fire hydrants in compliance with applicable standards.*

#### **17.100.240 - SANITARY SEWERS**

Sanitary sewers shall be installed to serve the subdivision and to connect the subdivision to existing mains. Design of sanitary sewers shall take into account the capacity and grade to allow for desirable extension beyond the subdivision.

If required sewer facilities will directly serve property outside the subdivision, the city may enter into an agreement with the subdivider setting forth methods for reimbursement by nonparticipating landowners for the proportionate share of the cost of construction.

**Response:** *Response: The applicant intends to install sanitary sewer lines in compliance with applicable standards. All lots can be served by a gravity sewer line.*

#### **17.100.250 - SURFACE DRAINAGE AND STORM SEWER SYSTEM**

A. Drainage facilities shall be provided within the subdivision and to connect with off-site drainage ways or storm sewers. Capacity, grade and materials shall be by a design approved by the city engineer. Design of drainage within the subdivision shall take into account the location, capacity and grade necessary to maintain unrestricted flow from areas draining through the subdivision and to allow extension of the system to serve such areas.

**Response:** *A single stormwater water quality and detention facility (Tract A) is proposed. This facility has been sized and located to accommodate public stormwater generated by the subdivision. A preliminary stormwater report is included with this application as required.*

B. In addition to normal drainage design and construction, provisions shall be taken to handle any drainage from preexisting subsurface drain tile. It shall be the design engineer's duty to investigate the location of drain tile and its relation to public improvements and building construction.

**Response:** *No subsurface drain tiles are known to exist on the site.*

C. The roof and site drainage from each lot shall be discharged to either curb face outlets (if minor quantity), to a public storm drain or to a natural acceptable drainage way if adjacent to the lot.

**Response:** *All roof and site drainage will be discharged to curb face outlets or another approved system as required.*

#### **17.100.260 - UNDERGROUND UTILITIES**

All subdivisions or major partitions shall be required to install underground utilities (including, but not limited to, electrical and telephone wiring). The utilities shall be installed pursuant to the requirements of the utility company.

**Response:** *As shown on improvement plans the applicant intends to install all utilities underground as required.*

#### **17.100.270 - SIDEWALKS**

Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision.

**Response:** *As shown on submitted plans, sidewalks will be constructed along both sides of all new streets as required.*

#### **17.100.280 - BICYCLE ROUTES**

If appropriate to the extension of a system of bicycle routes, existing or planned, the Director or the Planning Commission may require the installation of bicycle lanes within streets. Separate bicycle access ways may be required to reduce walking or cycling distance when no feasible street connection is available.

**Response:** *No bicycle routes are existing, planned, or proposed on the subject property.*

#### **17.100.290 - STREET TREES**

Where planting strips are provided in the public right-of-way, a master street tree plan shall be submitted and approved by the Director. The street tree plan shall provide street trees approximately every 30' on center for all lots.

**Response:** *Planter strips will be provided along all new street frontages as required. Street trees in accordance with City standards will be provided in these areas. The proposed tree species will be selected from the City's approved tree list.*

#### **17.100.300 - EROSION CONTROL**

Grass seed planting shall take place prior to September 30th on all lots upon which a dwelling has not been started but the ground cover has been disturbed. The seeds shall be of an annual rye grass variety and shall be sown at not less than four pounds to each 1000 square feet of land area.

**Response:** *Grass seeding will be completed as required by this section. The submitted erosion control plan provides additional details to address erosion control concerns.*

#### **17.100.310 - REQUIRED IMPROVEMENTS**

The following improvements shall be installed at no expense to the city, consistent with the design standards of Chapter 17.84, except as otherwise provided in relation to oversizing.

- A. Drainage facilities
- B. Lot, street and perimeter monumentation
- C. Mailbox delivery units
- D. Sanitary sewers
- E. Sidewalks
- F. Street lights
- G. Street name signs
- H. Street trees
- I. Streets
- J. Traffic signs

- K. Underground communication lines, including broadband (fiber), telephone, and cable. Franchise agreements will dictate whether telephone and cable lines are required.
  - L. Underground power lines
  - M. Water distribution lines and fire hydrants
- Response: All improvements specified in this section will be installed by the developer at no expense to the City of Sandy consistent with the design standards of Chapter 17.84 and applicable standards.*

**CHAPTER 17.102 - URBAN FORESTRY**

**17.102.20 - APPLICABILITY**

This chapter applies only to properties within the Sandy Urban Growth Boundary that are greater than one acre including contiguous parcels under the same ownership.

- A. General: No person shall cut, harvest, or remove trees 11 inches DBH or greater without first obtaining a permit and demonstrating compliance with this chapter.
  1. As a condition of permit issuance, the applicant shall agree to implement required provisions of this chapter and to allow all inspections to be conducted.
  2. Tree removal is subject to the provisions of Chapter 15.44, Erosion Control, Chapter 17.56, Hillside Development, and Chapter 17.60 Flood and Slope Hazard.

*Response: The subject property contains 15.91 acres and the standards of this chapter are applicable to the proposed application. As shown on submitted plans and detailed in the Arborist Report, development of the site requires removal of the majority of the trees on the site. The proposed tree removal and protection plan has been designed in accordance with the standards of this chapter and the provisions in Chapters 15.44, 17.56, and 17.60 as applicable.*

**17.102.50 - TREE RETENTION AND PROTECTION REQUIREMENTS**

- A. Tree Retention: The landowner is responsible for retention and protection of trees required to be retained as specified below:
  1. At least three trees 11 inches DBH or greater are to be retained for every one-acre of contiguous ownership.
  2. Retained trees can be located anywhere on the site at the landowner's discretion before the harvest begins. Clusters of trees are encouraged.
  3. Trees proposed for retention shall be healthy and likely to grow to maturity, and be located to minimize the potential for blow-down following the harvest.
  4. If possible, at least two of the required trees per acre must be of conifer species.
  5. Trees within the required protected setback areas may be counted towards the tree retention standard if they meet these requirements.

**Response:** The subject property contains 15.91 acres requiring retention of 48 trees, 11 inches and greater DBH (15.91 x 3 = 47.73 rounded up to 48 trees). As stated in this section trees proposed for retention shall be “healthy and likely to grow to maturity”. This section also has a preference for retaining conifer trees over deciduous. Submitted plans show that 48 trees are proposed to be retained in a grove along the northern boundary of the site. The submitted Arborist Report provides a description and quality assessment of each of the trees on the site. Most of the trees are in “good” condition but some have structural defects.

- B. Tree Protection Area: Except as otherwise determined by the Planning Director, all tree protection measures set forth in this section shall be instituted prior to any development activities and removed only after completion of all construction activity. Tree protection measures are required for land disturbing activities including but not limited to tree removal, clearing, grading, excavation, or demolition work.
1. Trees identified for retention shall be marked with yellow flagging tape and protected by protective barrier fencing placed no less than 10 horizontal feet from the outside edge of the trunk.
  2. Required fencing shall be a minimum of six feet tall supported with metal posts placed no farther than ten feet apart installed flush with the initial undisturbed grade.
  3. No construction activity shall occur within the tree protection zone, including, but not limited to dumping or storage of materials such as building supplies, soil, waste items, equipment, or parked vehicles.

**Response:** As shown on the submitted Tree Retention and Protection plan the majority of trees proposed to be retained are located on Lot 13 with several trees also located on Lots 14, and 21. This entire group of trees is proposed to be retained and protected by a conservation easement platted for this purpose. The submitted Arborist report also contains additional recommendations for protection of these trees during construction.

#### **17.102.60 - TREE REPLANTING REQUIREMENTS**

1. All areas with exposed soils resulting from tree removal shall be replanted with a ground cover of native species within 30 days of harvest during the active growing season, or by June 1st of the following spring.
2. All areas with exposed soils resulting from tree removal occurring between October 1 and March 31 shall also be covered with straw to minimize erosion.
3. Removal of hazard trees as defined shall be replanted with two native trees of quality nursery stock for every tree removed.
4. Tree Removal allowed within the FSH Overlay District shall be replanted with two native trees of quality nursery stock for every tree removed.



5. Tree Removal not associated with a development plan must be replanted following the provisions of OAR Chapter 629, Division 610, Section 020-060

*Response: The requirements of this section as applicable will be completed with construction of subdivision improvements.*

#### **17.102.70 - VARIANCES**

Under a Type III review process, the Planning Commission may allow newly-planted trees to substitute for retained trees if:

1. The substitution is at a ratio of at least two-to-one (i.e., at least two native quality nursery grown trees will be planted for every protected tree that is removed); and
2. The substitution more nearly meets the intent of this ordinance due to:
  - a. The location of the existing and proposed new trees, or
  - b. The physical condition of the existing trees or their compatibility with the existing soil and climate conditions; or
  - c. An undue hardship is caused by the requirement for retention of existing trees.
  - d. Tree removal is necessary to protect a scenic view corridor.

*Response: As noted above, the proposed tree retention plan complies with the tree retention requirements of Section 17.102.50 above. A variance to this section has not been requested or is one required.*

#### **CHAPTER 15.30 - DARK SKY ORDINANCE**

##### **15.30.000 - PURPOSE**

The purpose of the Sandy Dark Sky Ordinance is to regulate outdoor lighting in order to reduce or prevent light pollution. This means to the extent reasonably possible the reduction or prevention of glare and light trespass, the conservation of energy, and promotion of safety and security. (Ord. 2002-11)

##### **15.30.030 - EXEMPTIONS AND EXCEPTIONS**

D. Full cutoff street lighting, which is part of a federal, state, or municipal installation.

##### **15.30.060 - GENERAL STANDARDS**

D. All outdoor lighting systems shall be designed and operated so that the area 10 feet beyond the property line of the premises receives no more than .25 (one quarter) of a foot-candle of light from the premises lighting system.

*Response: The applicant understands the requirements of this chapter. A detailed lighting plan will be submitted with construction plans following land use approval.*

#### **V. Conclusion**

The proposed subdivision is part of the planned progression of land use planning for this area of Sandy and involves the creation of "Needed Housing" under ORS 197.303(1) and 197.307(4) on land zoned for residential uses within the city limits of Sandy. The applicant has submitted this application requesting land use ap-

proval to construct a Type II residential subdivision on the 15.91 acre site to include the following:

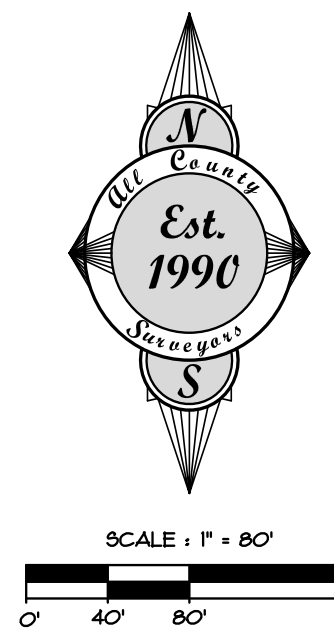
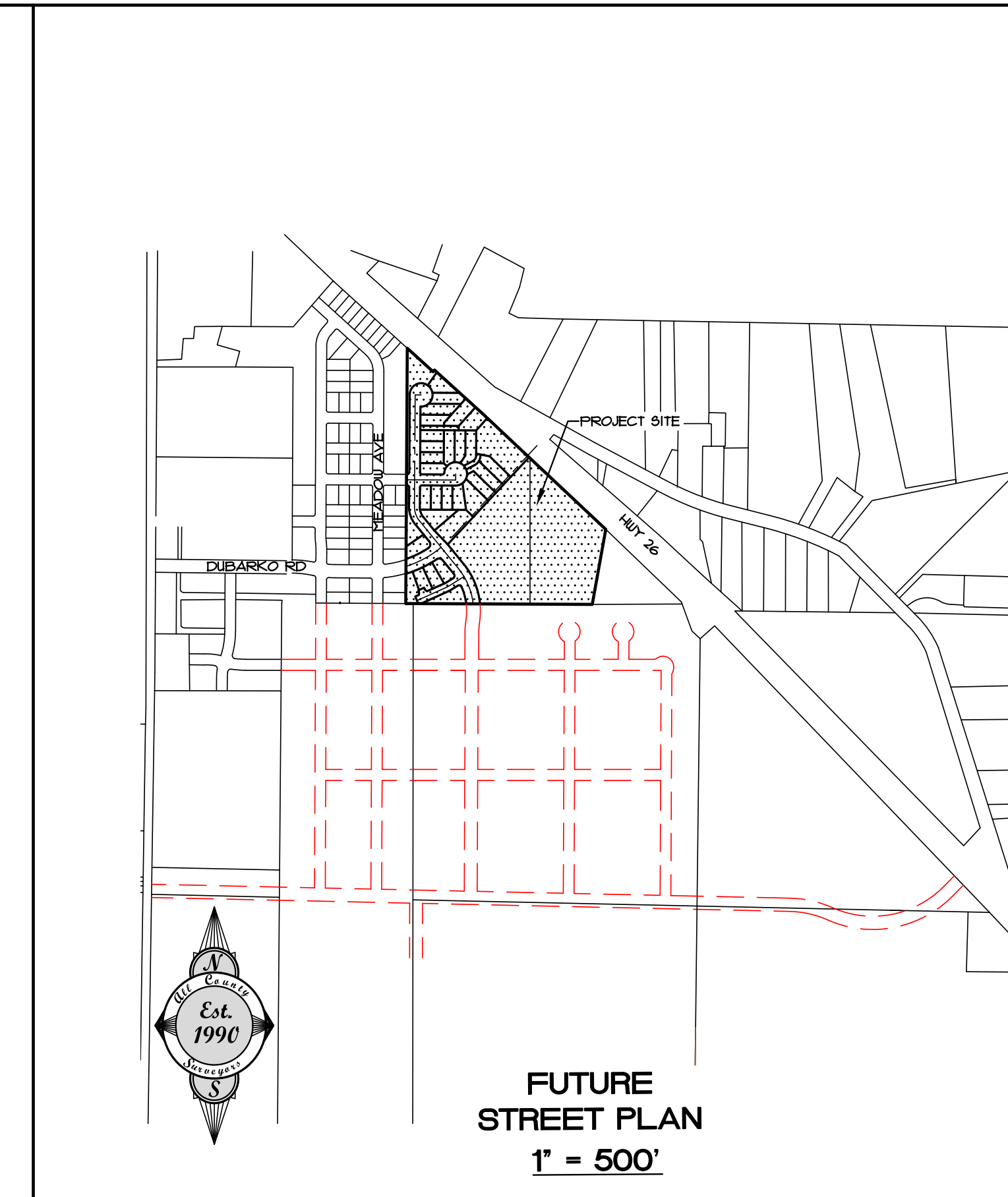
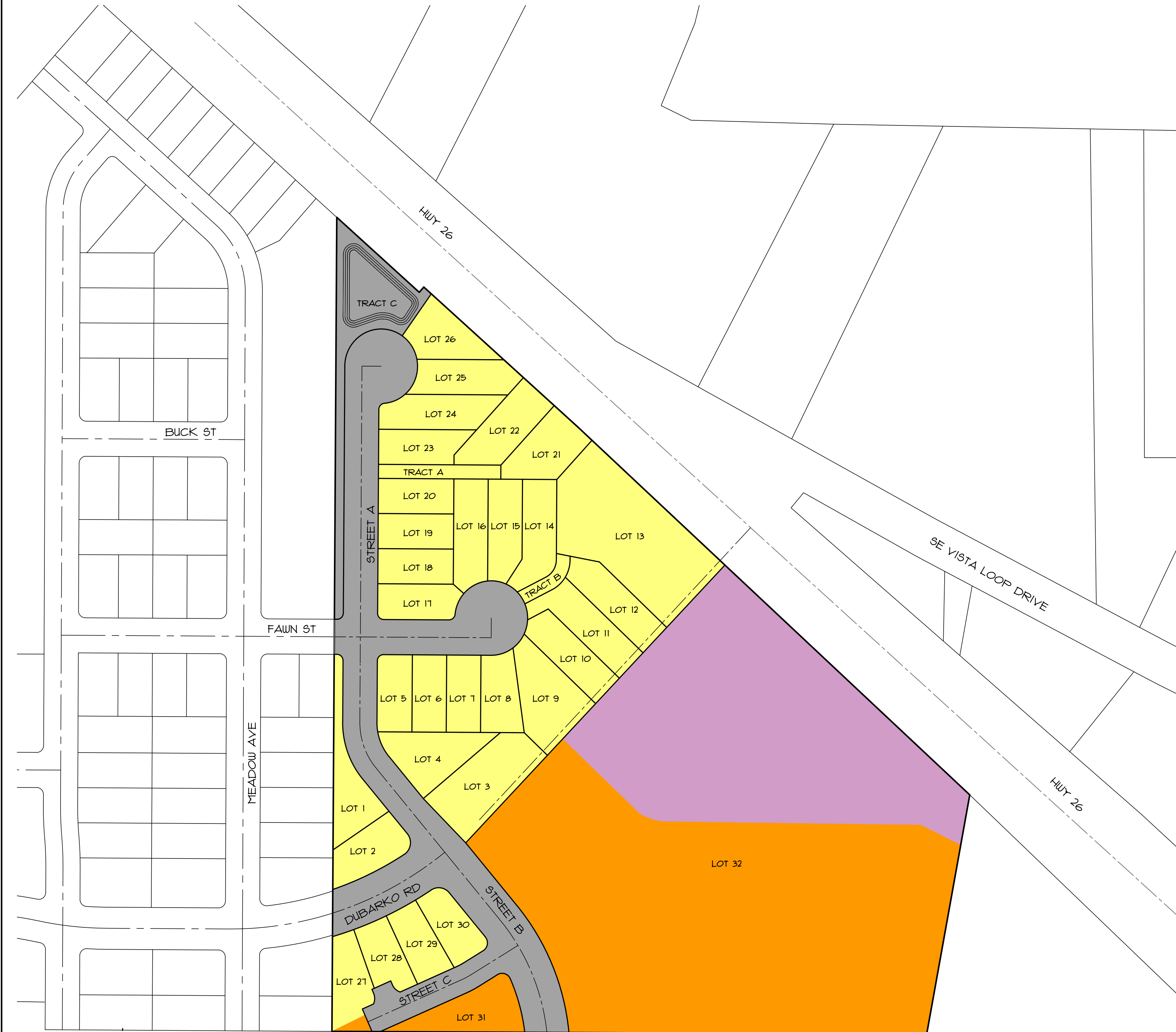
- 32 lots
- On-street parking
- Installation of public and franchise utilities
- Tree removal
- Fee-in-lieu payment for parkland dedication

As reviewed in this narrative and shown on submitted plans and studies including the submitted Arborist Report and Geotechnical Report, the proposed subdivision complies with all applicable standards. Given these facts the applicant respectfully requests this application be approved as submitted.

# EXHIBIT C

# DEER MEADOWS

32-LOT SUBDIVISION



**CLIENT**  
 ROLL TIDE PROPERTIES CORPORATION  
 PO BOX 103  
 CORNELIUS, OR 97113

**SURVEYOR/ENGINEER**  
 ALL COUNTY SURVEYORS & PLANNERS, INC.  
 PO BOX 955  
 SANDY, OR 97055

**PLANNER**  
 TRACY BROWN PLANNING CONSULTANTS, LLC  
 11075 FIR DR.  
 SANDY, OR 97055

**LEGEND**

- R-2 ZONE
- R-1 ZONE
- C-3 ZONE
- PUBLIC ROW, PUBLIC & PRIVATE TRACTS

**SHEET INDEX**

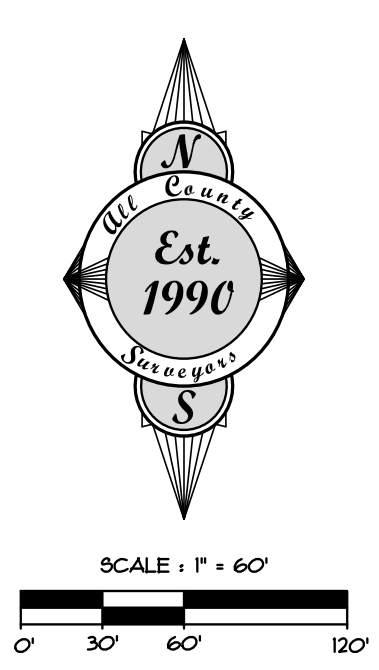
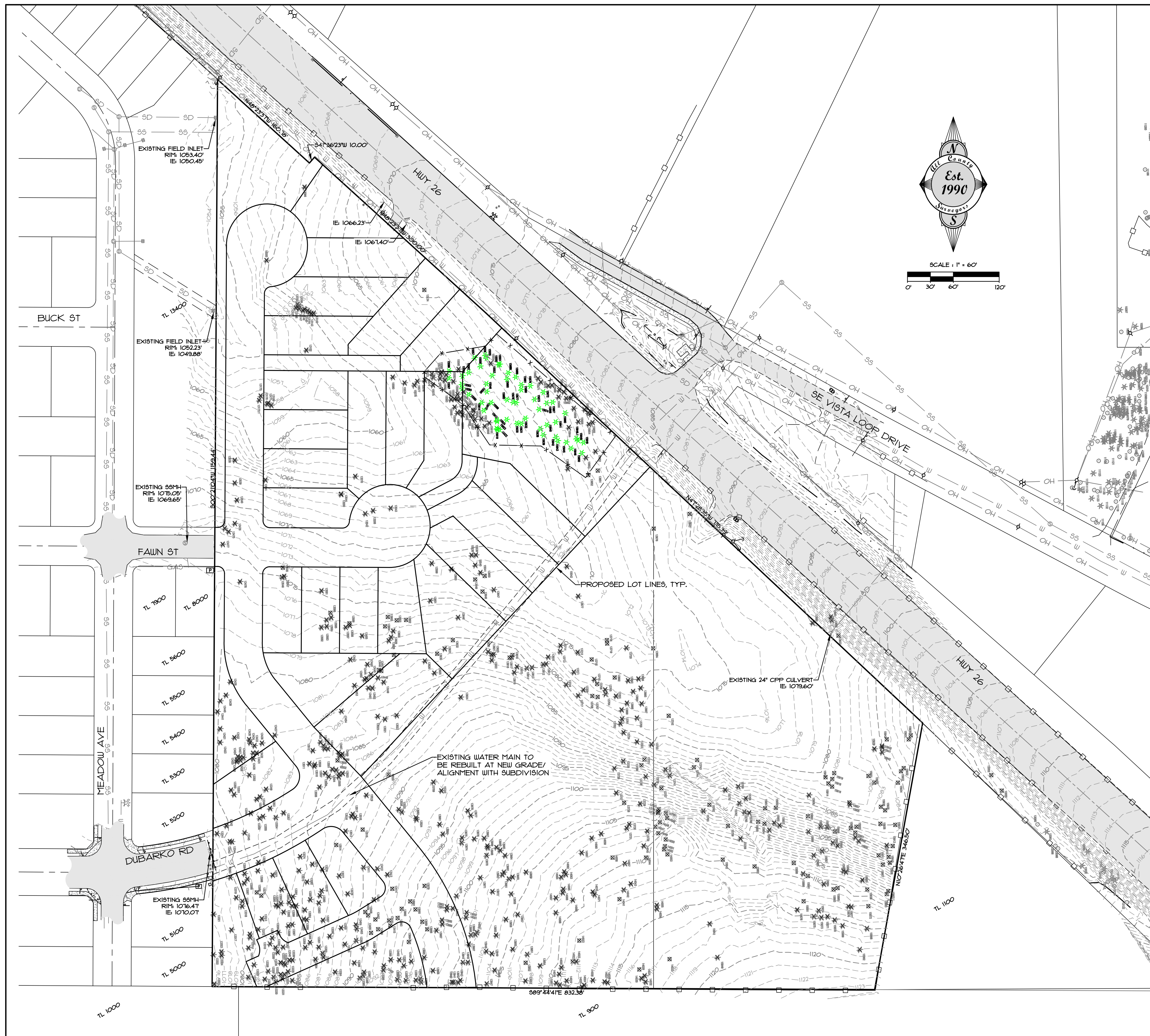
1. COVER SHEET & FUTURE STREET PLAN
2. PRELIMINARY PLAT MAP
3. EXISTING CONDITIONS AND TREE RETENTION PLAN
4. TREE TABLES
5. MASTER STREET & UTILITY PLAN
6. PRELIMINARY STREET TREE & PARKING PLAN
7. PRELIMINARY GRADING & EROSION CONTROL PLAN
8. SLOPE ANALYSIS

PROJECT: DEER MEADOWS SUBDIVISION COVER SHEET AND FUTURE STREET PLAN LOCATION: 40808 & 41010 HWY 26, SANDY, OR 97055	SCALE: N/A VERT. DATE: 07/26/2018 HORIZ. FILE: 19-035-Planning-B.dwg	SECTION: 1B TWP: 2S RANGE: 5E	SHEET: C1 OF: 8
	REVISION: _____ NO.: _____ DATE: _____	DESIGNED: CTH DRAWN: CTH CHECKED: RLM APPROVED: RLM	REVISION: _____ NO.: _____ DATE: _____
CLIENT: ROLL TIDE PROPERTIES CORPORATION CORNELIUS, OR 97113	SURVEYOR & PLANNERS, Inc. Surveying, Planning and Civil Engineering and P.L.L.C. P.O. Box 955 Sandy, OR 97055 Phone: (503) 668-4730 Fax: (503) 668-4730 DATE OF PLOT: 08/28/2023	PROFESSIONAL SEAL TRACY BROWN PLANNING CONSULTANTS, LLC RENEWAL DATE: 12/31/2023	









LEGEND	
---	PROPERTY LINE
---	LOT LINE
▨	EXISTING BUILDING
▨	EXISTING EDGE OF PAVEMENT
▨	EXISTING SIDEWALK/CONCRETE
---	EXISTING CURB
W	EXISTING WATER LINE
SD	EXISTING STORM LINE
SS	EXISTING SANITARY LINE
GA5	EXISTING GAS LINE
T	EXISTING TELEPHONE LINE
P	EXISTING UNDERGROUND POWER
⊙	EXISTING STORM MANHOLE
⊙	EXISTING CATCH BASIN
⊙	EXISTING SANITARY MANHOLE
⊙	EXISTING UTILITY POLE
⊙	EXISTING WATER METER
⊙	EXISTING WATER VALVE
⊙	EXISTING FIRE HYDRANT
⊙	EXISTING SIGN
---	EXISTING GROUND CONTOUR
---	EXISTING LIGHT POLE
*	EXISTING DECIDUOUS TREE
⊙	EXISTING CONIFEROUS TREE
---	NEW LOT LINE
---	NEW EASEMENT LINE
---	NEW CURB
▨	NEW SIDEWALK/CONCRETE
---	NEW AC
W	NEW WATER LINE
SS	NEW SANITARY LINE
SD	NEW STORM LINE
---	SAUCUT LINE
---	NEW FINISH GRADE CONTOUR
⊙	NEW WATER METER
⊙	NEW STORM MANHOLE
⊙	NEW CATCH BASIN
⊙	NEW SANITARY MANHOLE
⊙	NEW CLEANOUT
⊙	NEW FIRE HYDRANT
⊙	NEW WATER VALVE
⊙	NEW STREET LIGHT
⊙	NEW SIGN
⊙	NEW MAILBOX UNIT

LEGEND	
*	EXISTING CONIFEROUS TREE TO BE PRESERVED
⊙	EXISTING DECIDUOUS TREE TO BE REMOVED
*	EXISTING CONIFEROUS TREE TO BE REMOVED

INSTALL PROTECTIVE BARRIER FENCING TO PROTECT TREES DURING EXCAVATION FOR THE UTILITIES. REQUEST AN INSPECTION OF EROSION CONTROL MEASURES AND TREE PROTECTION MEASURES AS SPECIFIED IN SECTION 11.02.5(C) PRIOR TO CONSTRUCTION ACTIVITIES OR GRADING. REFER TO ARBORIST REPORT FOR DETAIL ON FENCING LOCATION.

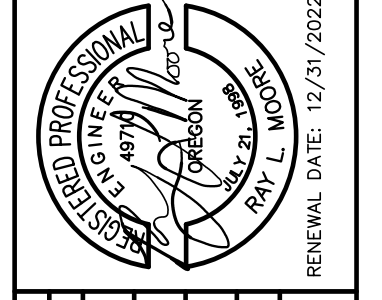
**TREE RETENTION NOTES**

TREES REQUIRED TO BE RETAINED:  
 3 TREES/ACRE X 15.91 ACRES = **48 TREES**

NUMBER OF TREES PROPOSED FOR RETENTION:  
**48 TREES**

- NOTES**
- THIS IS NOT A BOUNDARY SURVEY. NO LIABILITY IS ASSUMED BY ALL COUNTY SURVEYORS AND PLANNERS FOR THE EXISTENCE OF ANY EASEMENTS, ENCUMBRANCES AND DISCREPANCIES IN BOUNDARY OR TITLE DEFECTS.
  - UNDERGROUND UTILITIES SHOWN ON THIS SURVEY ARE LIMITED TO THOSE ITEMS VISIBLE BY SURFACE INSPECTION AND LOCATED PAINTED ON THE GROUND AS OF THE DATE OF THIS SURVEY. SUBSURFACE STRUCTURES, IF ANY, ARE NOT SHOWN.
  - UNDERGROUND UTILITY LOCATIONS MUST BE POTHOLED AND VERIFIED PRIOR TO CONSTRUCTION.
  - THE ELEVATION DATUM IS BASED ON THE CITY OF SANDY BENCHMARK #33. THE BENCHMARK IS LOCATED AT THE INTERSECTION OF MCCORMICK AND LANGENBEND. THE PUBLISHED ELEVATION IS 1021.5'

BY		SHEET	
REVISION		<b>C3</b>	
NO.		OF	<b>8</b>
DATE		DESIGNED:	CTH
		DRAWN:	CTH
		CHECKED:	RLM
		APPROVED:	RLM



SCALE:	N/A	VERT.:	N/A	SECTION:	1B
HORIZ.:	1"=60'	DATE:	07/26/2018	RANGE:	5E
FILE:	19-035-Planning-B.dwg	LEGAL:		TWP.:	2S

**DEER MEADOWS SUBDIVISION**

**EXISTING CONDITIONS AND TREE RETENTION PLAN**

**40808 & 41010 HWY 26, SANDY, OR 97055**

**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering and  
 P.L.L.C.  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 08/28/2021

CLIENT:  
 ROLL TIDE  
 PROPERTIES CORPORATION  
 CORVALLIS, OR 97331



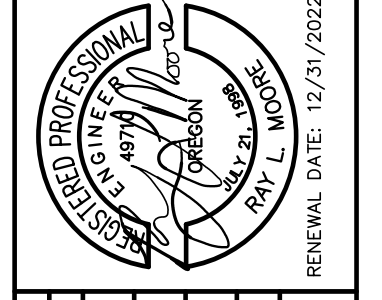
TREE PRESERVATION INVENTORY					
TREE NO.	SPECIES (COMMON NAME)	DBH (INCHES)	CONDITION	COMMENTS	TREATMENT
13653	DOUGLAS-FIR	11	FAIR	THIN CROWN, LARGE WOUND AT LOWER TRUNK	REMOVE
15546	DOUGLAS-FIR	15	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15550	DOUGLAS-FIR	6	VERY POOR	DEAD	RETAIN
15551	DOUGLAS-FIR	30	GOOD	CODOMINANT AT 7', WEST STEM HAS 33% LIVE CROWN RATIO	RETAIN
15552	N/A	N/A	N/A	SAME AS TREE 15551	N/A
15553	DOUGLAS-FIR	13	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15554	DOUGLAS-FIR	11	FAIR	POOR TRUNK TAPER, SUPPRESSED	REMOVE
15555	DOUGLAS-FIR	30	GOOD	MODERATELY ONE SIDED	RETAIN
15556	DOUGLAS-FIR	12	POOR	OVERTOPPED BY ADJACENT TREES, SUPPRESSED	RETAIN
15557	GRAND FIR	22	GOOD	ONE SIDED, CODOMINANT AT 30' WITH INCLUDED BARK	RETAIN
15558	DOUGLAS-FIR	12	GOOD	33% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15562	DOUGLAS-FIR	20	GOOD	40% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15564	DOUGLAS-FIR	14	GOOD	MARGINAL TRUNK TAPER, 33% LIVE CROWN RATIO	RETAIN
15565	DOUGLAS-FIR	11	FAIR	ONE SIDED, MARGINAL TRUNK TAPER, 33% LIVE CROWN RATIO	REMOVE
15566	DOUGLAS-FIR	23	GOOD	ONE SIDED	RETAIN
15567	DOUGLAS-FIR	17	GOOD	MARGINAL TRUNK TAPER, 40% LIVE CROWN RATIO	RETAIN
15568	DOUGLAS-FIR	7	VERY POOR	DEAD	REMOVE
15569	DOUGLAS-FIR	11	FAIR	POOR TRUNK TAPER	REMOVE
15570	DOUGLAS-FIR	14	FAIR	ONE SIDED, OVERTOPPED BY ADJACENT TREES	REMOVE
15571	DOUGLAS-FIR	9	FAIR	POOR TRUNK TAPER, SUPPRESSED	REMOVE
15582	DOUGLAS-FIR	10	FAIR	POOR TRUNK TAPER, SUPPRESSED	REMOVE
15583	DOUGLAS-FIR	13	GOOD	POOR TRUNK TAPER, 25% LIVE CROWN RATIO	RETAIN
15584	DOUGLAS-FIR	14	GOOD	MARGINAL TRUNK TAPER, 40% LIVE CROWN RATIO	RETAIN
15584.1	DOUGLAS-FIR	8	VERY POOR	DEAD	REMOVE
15585	DOUGLAS-FIR	15	GOOD	35% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15589	DOUGLAS-FIR	18	GOOD	33% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15590	DOUGLAS-FIR	13	GOOD	35% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15612	DOUGLAS-FIR	9	VERY POOR	DEAD	RETAIN
15614	DOUGLAS-FIR	9	FAIR	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15615	DOUGLAS-FIR	14	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15619	DOUGLAS-FIR	20, 16	GOOD	CODOMINANT AT GROUND LEVEL WITH INCLUDED BARK, MARGINAL TRUNK TAPER	RETAIN
15620	N/A	N/A	N/A	SAME AS TREE 15619	N/A
15621	N/A	N/A	N/A	DUPLICATE TREE POINT	N/A
15622	DOUGLAS-FIR	19	GOOD	ONE SIDED, BOWED TRUNK, MARGINAL TRUNK TAPER	RETAIN
15623	DOUGLAS-FIR	8	GOOD	ONE SIDED, POOR TRUNK TAPER	RETAIN
15624	DOUGLAS-FIR	9	VERY POOR	DEAD	RETAIN

TREE PRESERVATION INVENTORY					
TREE NO.	SPECIES (COMMON NAME)	DBH (INCHES)	CONDITION	COMMENTS	TREATMENT
15630	DOUGLAS-FIR	18	GOOD	ONE SIDED	RETAIN
15631	DOUGLAS-FIR	24	GOOD	ONE SIDED	RETAIN
15632	DOUGLAS-FIR	13	GOOD	40% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15638	DOUGLAS-FIR	21	GOOD	ONE SIDED	RETAIN
15639	DOUGLAS-FIR	14	GOOD	ONE SIDED, MARGINAL TRUNK TAPER, BOWED TRUNK	RETAIN
15640	DOUGLAS-FIR	15	GOOD	ONE SIDED, 10% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15641	DOUGLAS-FIR	19	GOOD	40% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15642	DOUGLAS-FIR	19	GOOD	MODERATELY ONE SIDED, MARGINAL TRUNK TAPER, 50% LIVE CROWN RATIO	RETAIN
15643	DOUGLAS-FIR	16	GOOD	ONE SIDED	RETAIN
15644	DOUGLAS-FIR	17	GOOD	33% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	REMOVE
15645	DOUGLAS-FIR	24	GOOD	ONE SIDED	RETAIN
15646	DOUGLAS-FIR	16	GOOD	ONE SIDED	RETAIN
15648	DOUGLAS-FIR	17	GOOD	ONE SIDED, 60% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15649	DOUGLAS-FIR	16	GOOD	ONE SIDED, MARGINAL TRUNK TAPER	RETAIN
15649.1	DOUGLAS-FIR	17	GOOD	MODERATELY ONE SIDED, MARGINAL TRUNK TAPER	RETAIN
15650	DOUGLAS-FIR	23, 16	GOOD	CODOMINANT AT GROUND LEVEL, NORTH STEM HAS POOR TRUNK TAPER	RETAIN
15651	N/A	N/A	N/A	SAME AS TREE 15650	N/A
15654	DOUGLAS-FIR	21	GOOD	ONE SIDED, CODOMINANT AT 12' WITH INCLUDED BARK	REMOVE
15655	DOUGLAS-FIR	24	GOOD	ONE SIDED	REMOVE
15656	DOUGLAS-FIR	16	GOOD	MARGINAL TRUNK TAPER, 40% LIVE CROWN RATIO	REMOVE
15659	DOUGLAS-FIR	21	GOOD	MODERATELY ONE SIDED, 6' DEAD CODOMINANT STEM AT BASE OF TRUNK	REMOVE
15660	DOUGLAS-FIR	19	GOOD	35% LIVE CROWN RATIO, MARGINAL TRUNK TAPER, DEAD 8' CODOMINANT STEM AT 15'	RETAIN
15662	DOUGLAS-FIR	8	VERY POOR	DEAD	REMOVE
15666	DOUGLAS-FIR	13	GOOD	MARGINAL TRUNK TAPER, 35% LIVE CROWN RATIO	REMOVE
15667	DOUGLAS-FIR	16	GOOD	40% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15668	DOUGLAS-FIR	14	GOOD	40% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15669	DOUGLAS-FIR	15	GOOD	ONE SIDED, OVERTOPPED BY ADJACENT TREES	REMOVE
15670	DOUGLAS-FIR	23	GOOD	MODERATELY ONE SIDED	REMOVE
15671	DOUGLAS-FIR	10	GOOD	ONE SIDED, POOR TRUNK TAPER	REMOVE
15672	DOUGLAS-FIR	15	GOOD	33% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15673	DOUGLAS-FIR	15	GOOD	35% LIVE CROWN RATIO, MARGINAL TRUNK TAPER	RETAIN
15674	DOUGLAS-FIR	13	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15677	DOUGLAS-FIR	13	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15678	DOUGLAS-FIR	14	GOOD	33% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15679	DOUGLAS-FIR	16, 12	GOOD	CODOMINANT AT GROUND LEVEL WITH INCLUDED BARK, SOUTH STEM HAS MARGINAL TRUNK TAPER WITH 25% LIVE CROWN RATIO	RETAIN
15680	DOUGLAS-FIR	11	GOOD	25% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN
15681	DOUGLAS-FIR	14	GOOD	POOR TRUNK TAPER, 20% LIVE CROWN RATIO	RETAIN
15682	DOUGLAS-FIR	26	GOOD	ONE SIDED	REMOVE
15685	DOUGLAS-FIR	22	GOOD	MODERATELY ONE SIDED	RETAIN
15686	DOUGLAS-FIR	25	GOOD	ONE SIDED	RETAIN
15688	DOUGLAS-FIR	20	GOOD	MARGINAL TRUNK TAPER, 50% LIVE CROWN RATIO	RETAIN
15690	DOUGLAS-FIR	16	GOOD	33% LIVE CROWN RATIO, POOR TRUNK TAPER	RETAIN

NOTE:  INDICATES TREES 1" DBH AND GREATER DEEMED TO BE VIABLE BY ARBORIST INSPECTION, AND MEETING THE REQUIREMENTS OF THE SANDY DC FOR TREE RETENTION.

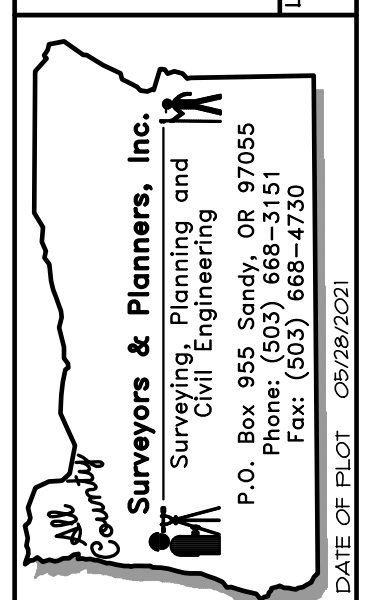
TOTAL NUMBER OF VIABLE, 1" DBH TREES TO BE PRESERVED: 48

BY	DATE	REVISION	SHEET
			C4
			OF 8
DESIGNED: CTH	DRAWN: CTH	CHECKED: RLM	APPROVED: RLM



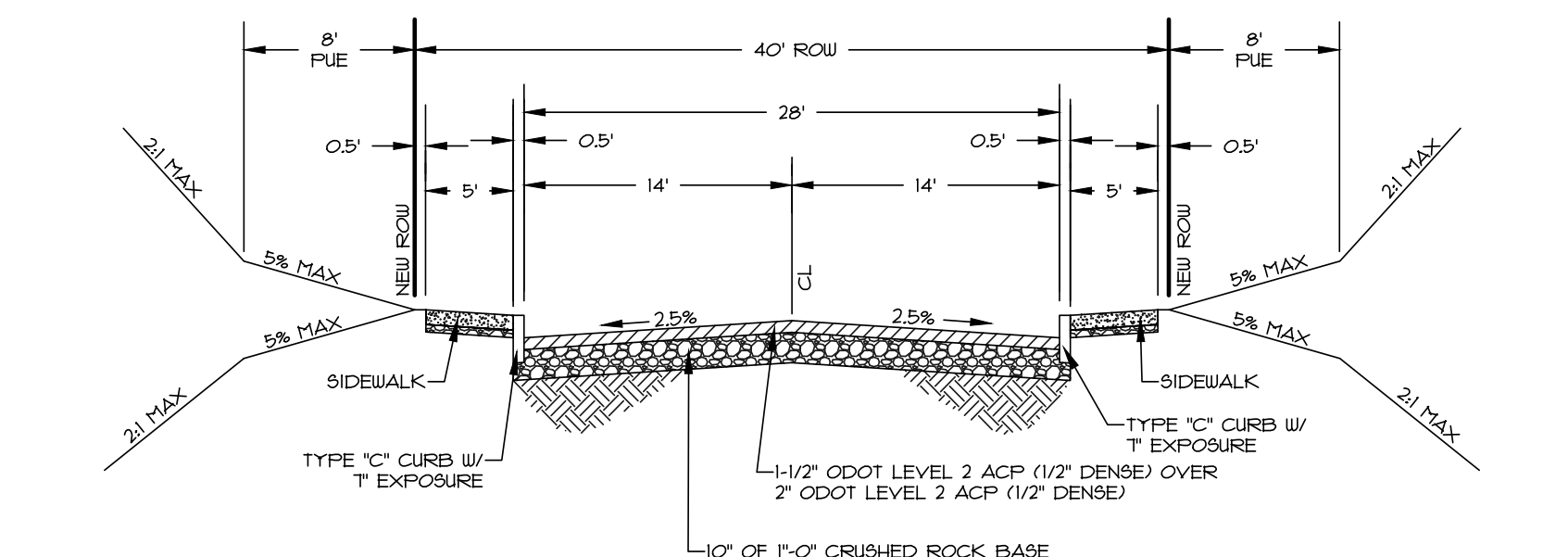
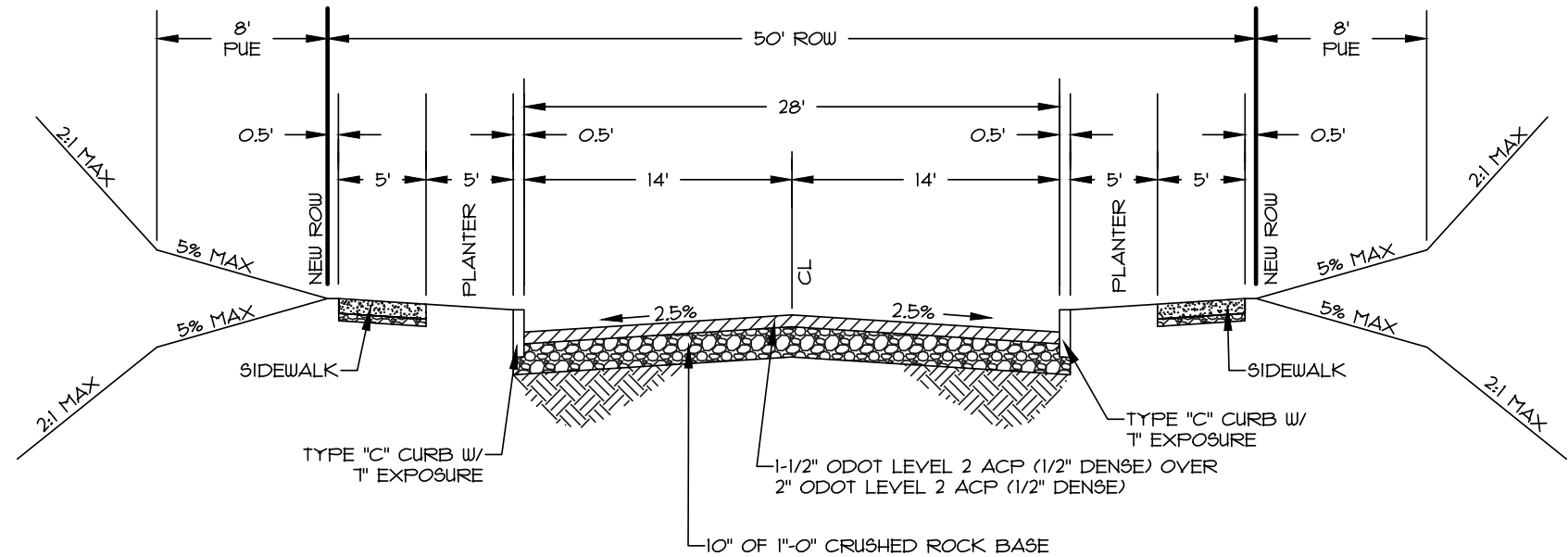
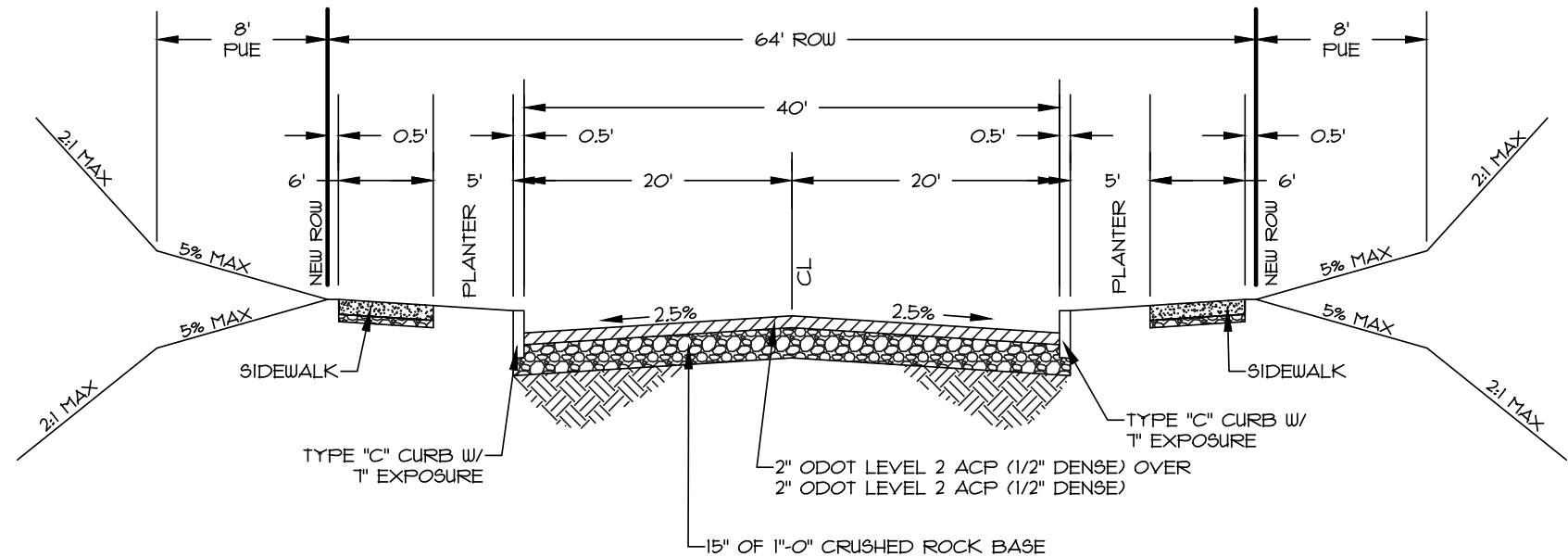
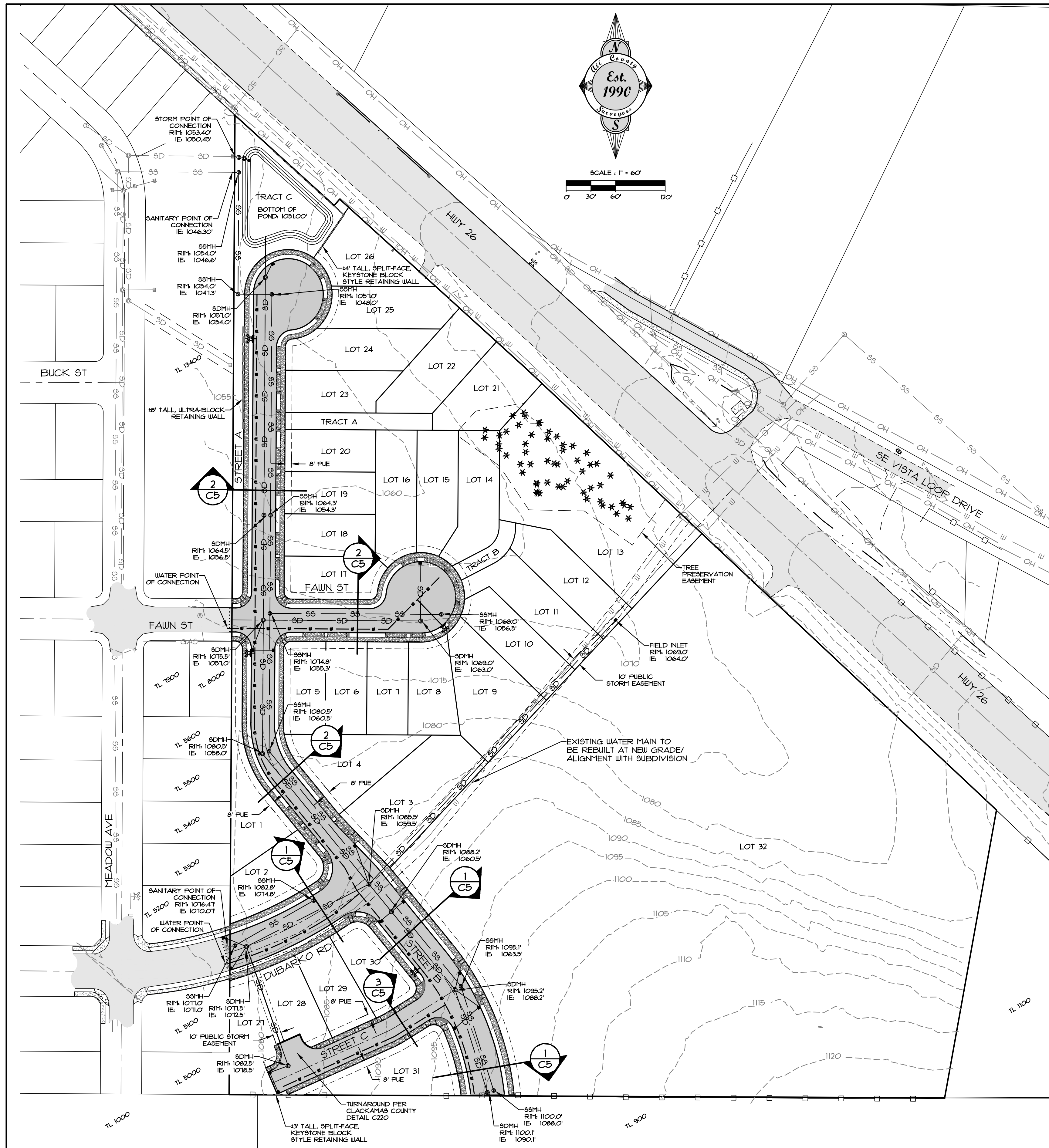
SCALE	VERT. HORIZ.	DATE	FILE	SECTION	RANGE	DATE
N/A	1"=60'	07/26/2018	19-035-Planning-B.dwg		5E	12/21/2022

PROJECT:	DEER MEADOWS SUBDIVISION
LOCATION:	40808 & 41010 HWY 26, SANDY, OR 97055
TREE TABLES	



CLIENT:	ROLL TIDE PROPERTIES CORPORATION CORNELIUS, OR 97113
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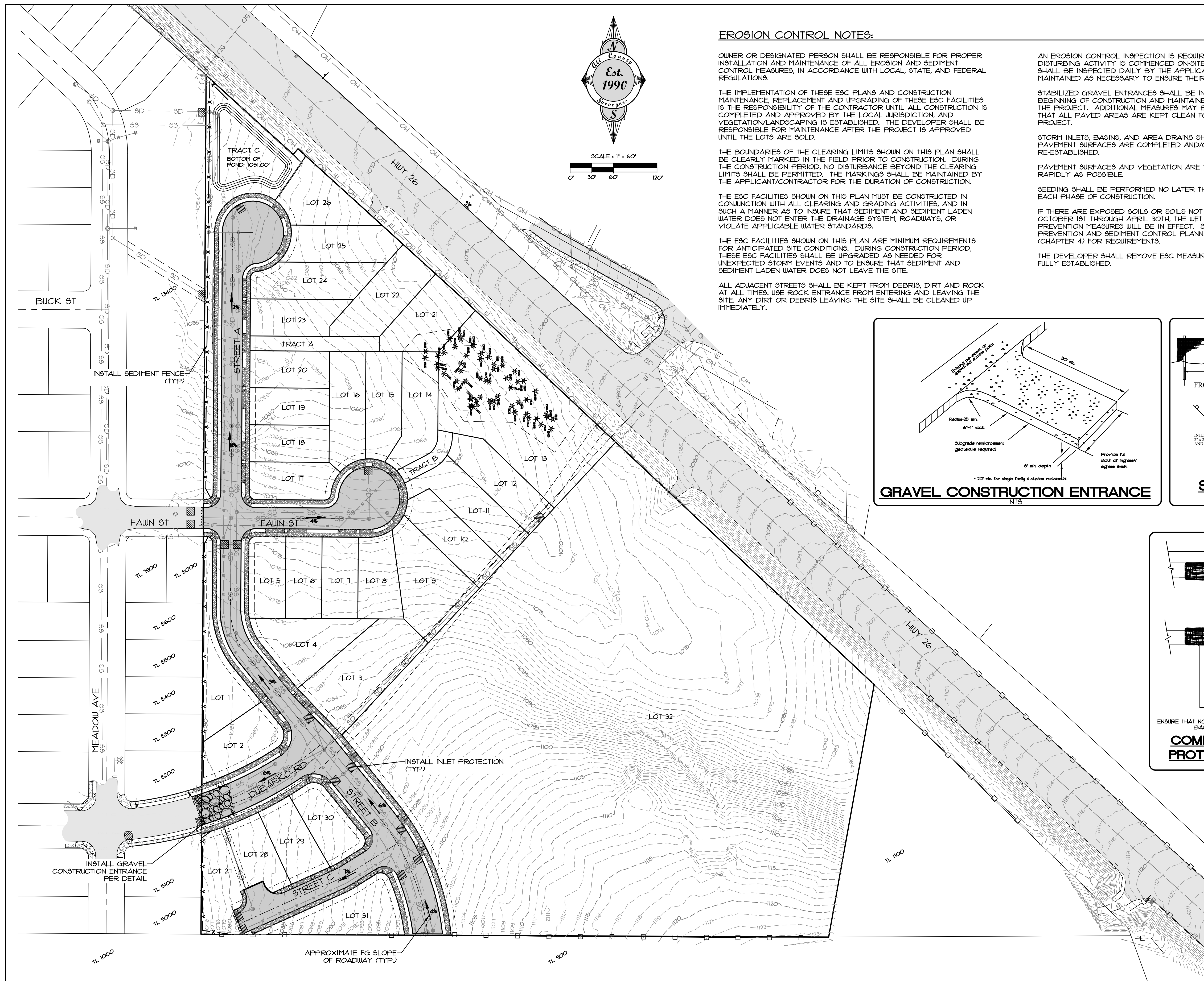
**NOTES**  
1) BOTH OF THE PROPOSED CUL-DE-SACS HAVE LESS THAN 50% OF THEIR CIRCUMFERENCE COVERED BY DRIVEWAY DROPS.

SHEET		C5	
OF		8	
DESIGNED:	CTH	CHECKED:	RLM
DRAWN:	CTH	APPROVED:	RLM
DATE:	12/21/2023	REVISION:	
NO.		BY:	
SCALE:	N/A	VERT.:	1"=60'
DATE:	07/26/2018	LEGAL:	5E
FILE:	19-035-Planning-Bldg	SECTION:	1B
PROJECT: DEER MEADOWS SUBDIVISION			
MASTER STREET AND UTILITY PLAN			
LOCATION: 40808 & 41010 HWY 26, SANDY, OR 97055			
<p>Surveyors &amp; Planners, Inc. Surveying, Planning and Civil Engineering P.O. Box 855 Sandy, OR 97055 Phone: (503) 668-4730 Fax: (503) 668-4730 DATE OF PLOT: 08/28/2023</p>			
CLIENT: ROLL TIDE PROPERTIES CORPORATION CORNELIUS, OR 97113			









**EROSION CONTROL NOTES:**

OWNER OR DESIGNATED PERSON SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

THE IMPLEMENTATION OF THESE ESC PLANS AND CONSTRUCTION MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE LOCAL JURISDICTION, AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE DEVELOPER SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THE PROJECT IS APPROVED UNTIL THE LOTS ARE SOLD.

THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE MARKINGS SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.

THE ESC FACILITIES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE.

ALL ADJACENT STREETS SHALL BE KEPT FROM DEBRIS, DIRT AND ROCK AT ALL TIMES. USE ROCK ENTRANCE FROM ENTERING AND LEAVING THE SITE. ANY DIRT OR DEBRIS LEAVING THE SITE SHALL BE CLEANED UP IMMEDIATELY.

AN EROSION CONTROL INSPECTION IS REQUIRED BEFORE ANY GROUND DISTURBING ACTIVITY IS COMMENCED ON-SITE. ALSO, THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

STABILIZED GRAVEL ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

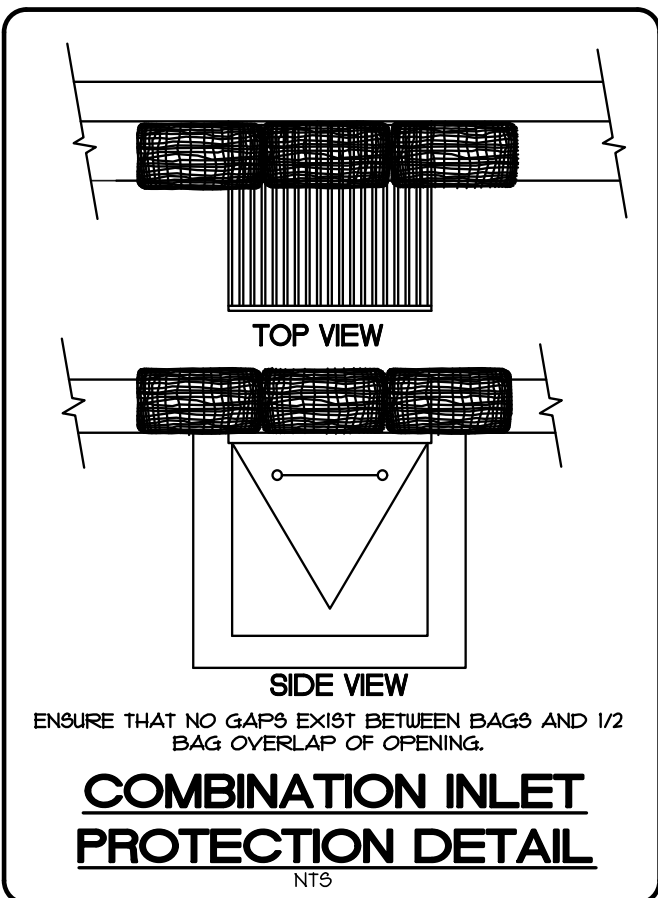
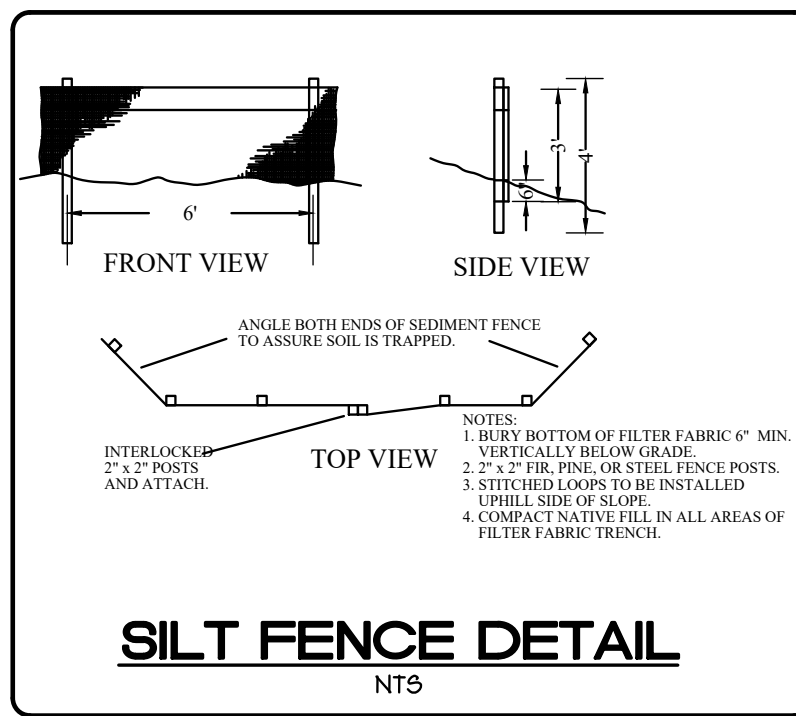
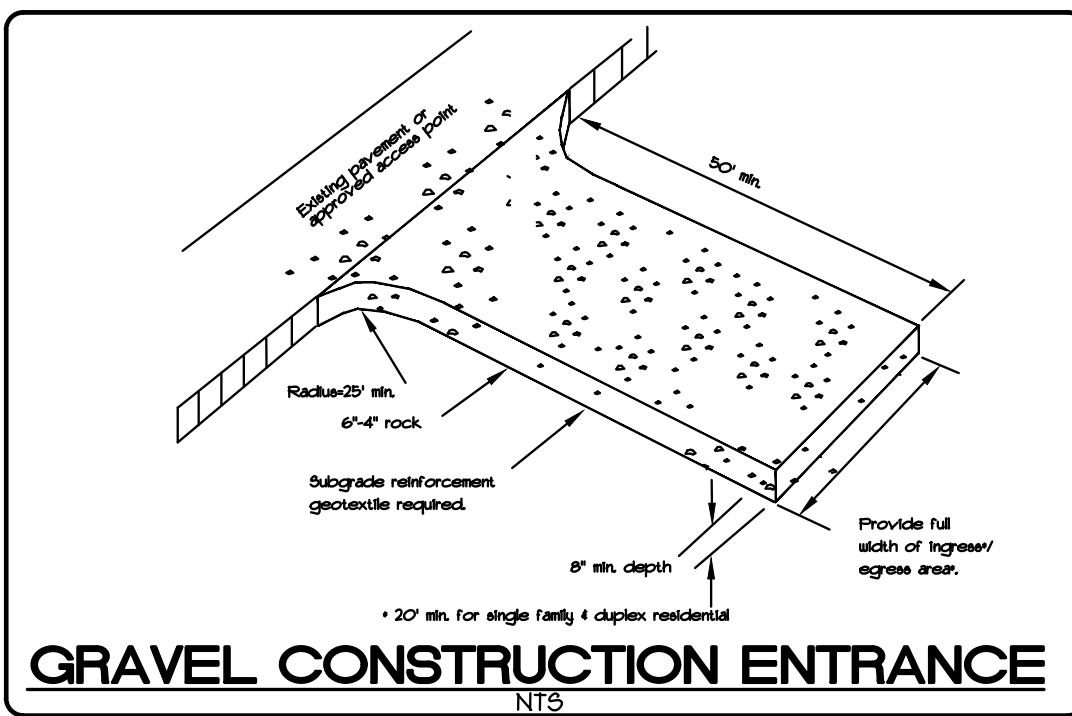
STORM INLETS, BASINS, AND AREA DRAINS SHALL BE PROTECTED UNTIL PAVEMENT SURFACES ARE COMPLETED AND/OR VEGETATION IS RE-ESTABLISHED.

PAVEMENT SURFACES AND VEGETATION ARE TO BE PLACED AS RAPIDLY AS POSSIBLE.

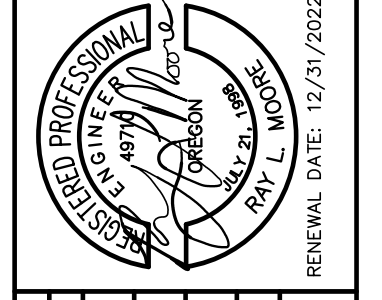
SEEDING SHALL BE PERFORMED NO LATER THAN SEPTEMBER 1 FOR EACH PHASE OF CONSTRUCTION.

IF THERE ARE EXPOSED SOILS OR SOILS NOT FULLY ESTABLISHED FROM OCTOBER 1ST THROUGH APRIL 30TH, THE WET WEATHER EROSION PREVENTION MEASURES WILL BE IN EFFECT. SEE THE EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL (CHAPTER 4) FOR REQUIREMENTS.

THE DEVELOPER SHALL REMOVE ESC MEASURES WHEN VEGETATION IS FULLY ESTABLISHED.



BY	REVISION	SHEET
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		OF <b>8</b>
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	APPROVED: RLM	



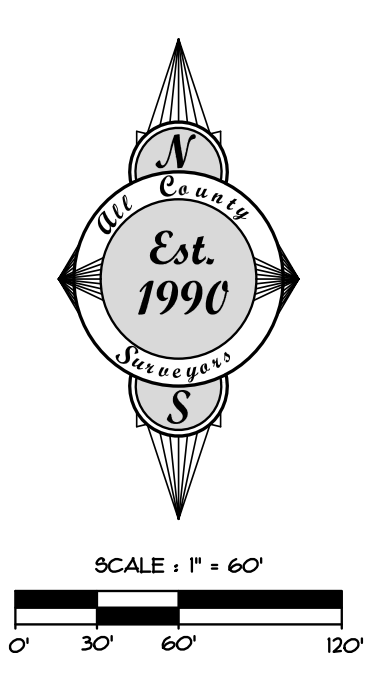
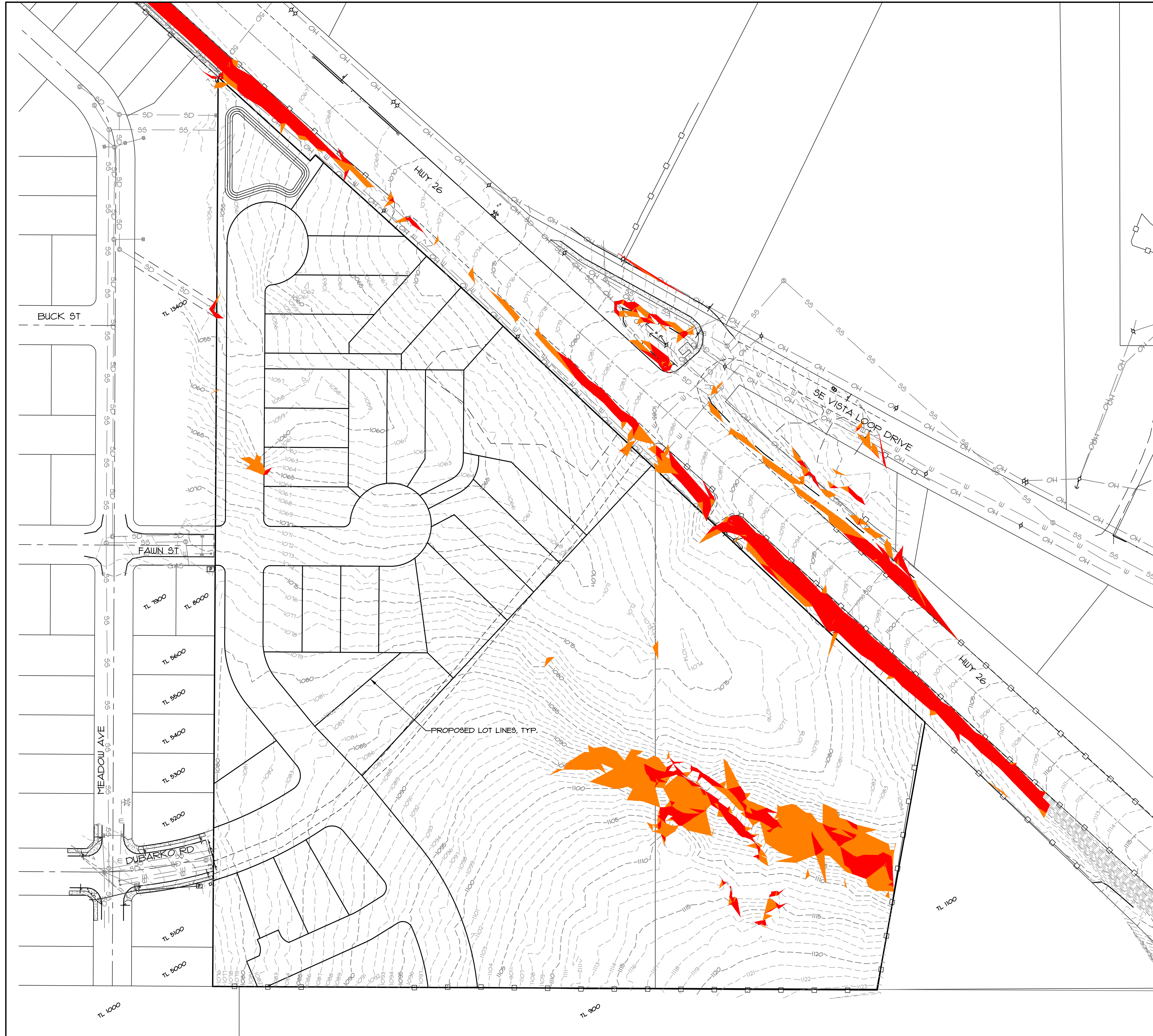
SCALE	VERT. HORIZ.	DATE	FILE	SECTION	RANGE	LEGAL
N/A	1"=60'	07/26/2018	19-035-Planning-B.dwg	1B	25	5E

**DEER MEADOWS SUBDIVISION**  
**PRELIMINARY GRADING & EROSION CONTROL PLAN**  
40808 & 41010 HWY 26, SANDY, OR 97055

**Surveyors & Planners, Inc.**  
Surveying, Planning and  
Civil Engineering  
P.O. Box 855 Sandy, OR 97055  
Phone: (503) 668-4730  
Fax: (503) 668-4730  
DATE OF PLOT: 08/28/2021

CLIENT:  
ROLL TIDE  
PROPERTIES CORPORATION  
CORVALLIS, OR 97331

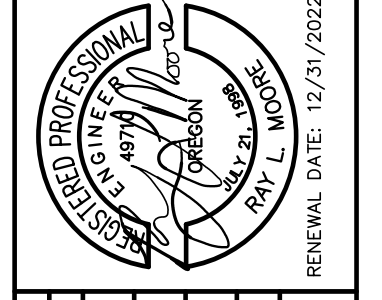




**LEGEND**

	SLOPES OF 0-24.99%
	SLOPES OF 25-34.99%
	SLOPES OF 35% AND GREATER

DATE	NO.	REVISION	BY	SHEET
				<b>C8</b>
				OF <b>8</b>
DESIGNED:	CTH			
DRAWN:	CTH			
CHECKED:	RLM			
APPROVED:	RLM			



SCALE:	N/A
VERT.:	N/A
HORIZ.:	1"=60'
DATE:	07/26/2018
FILE:	19-035-Planning-B.dwg
LEGAL:	
SECTION:	1B
TWP.:	2S
RANGE:	5E
RENEWAL DATE:	12/31/2022

**DEER MEADOWS SUBDIVISION**  
**SLOPE ANALYSIS**  
 40808 & 41010 HWY 26, SANDY, OR 97055

**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering and  
 P.L.L.C.  
 P.O. Box 855 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 08/28/2021

CLIENT:  
 ROLL TIDE  
 PROPERTIES CORPORATION  
 CORNELIUS, OR 97113



# EXHIBIT D

## Preliminary Storm Drainage Design and Calculations For the Deer Meadows Subdivision

May, 2021

**Prepared By:**  
All County Surveyors and Planners, Inc.  
Tyler Henderson, P.E.  
Ray L. Moore, P.E., P.L.S.  
P.O. Box 955  
Sandy, Oregon 97055  
Phone: (503) 668-3151  
Job #19-035

**Prepared For:**  
Roll Tide Properties Corporation  
Alex Reverman  
P.O. Box 703  
Cornelius, OR 97113  
Phone: (503) 327-6084



RENEWAL DATE: 12/31/2022

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Proposed Improvements .....	2
Hydrograph Parameters .....	3-4
Detention Sizing Results .....	5
Water Quality Design .....	6
Conclusions .....	6

**Appendices:**

**Appendix A**

- Pre-Developed Plan
- Developed Plan

**Appendix B**

- Standard Formulas
- Coefficients
- Hydrograph Analysis Summary
- Detention System Summary
- Stage Storage Summary
- Rectangular, Sharp Crested Weir Calculations

## **PURPOSE:**

The purpose of this analysis is to:

- Describe existing and proposed site conditions.
- Provide detention calculations for the 2-yr, 5-yr, 10-yr, and 25-yr storm events.
- Provide water quality calculations.

## **PROJECT LOCATION AND DESCRIPTION:**

The project site is located on the south side of the Mount Hood Highway in Sandy, Oregon. The site includes tax lots 900 and 1000. The +/- 15.91-acre site consists of grassy fields, and plentiful tree cover. The land is generally sloped to the north and west with an average slope of about 8%. A Vicinity Map and Site Layout (with proposed storm sewer layout) can be found in Appendix A.

## **PROPOSED IMPROVEMENTS**

The proposed 32-lot Deer Meadows Subdivision project will consist of 29 single-family residential lots ranging from 5,500 SF to 32,189 SF. The project also includes a single split-zoned R-1/R-2 lot 7,076 SF in size, and a single R-2 lot 9,083 SF in size. The final lot is split zoned R-2/C-3 and is 320,409 SF in size. The split-zoned R-2/C-3 lot will be developed in the future under a design review process and will provide it's own stormwater detention/water quality system onsite. The site improvements will include streets, curbs, sidewalks, utilities, etc.

New storm sewer pipes, manholes, and catch basins will be installed to convey storm water to a public detention pond located in Tract C. A new water quality manhole will be installed downstream of the detention pond (See Site Layout – Appendix A).

The pond will be sized to detain the new public streets and the new homes to be built on lots 1 through 31. Lot 32 will provide lot-level detention and water quality systems at the time of future development. Lot 32 will drain through the detention pond, and the pond will be sized to accommodate these anticipated flows. The existing upland drainage on the site will be intercepted and flow through the new storm detention pond.

Upstream and downstream analyses will be performed as needed at the time of final engineering.

**HYDROGRAPH PARAMETERS:**

**Rainfall**

The rainfall distribution numbers below were taken from the City of Sandy Stormwater Website: <https://www.ci.sandy.or.us/publicworks/page/stormwater>

2 year, 24 hr. rainfall = 3.5"

5 year, 24 hr. rainfall = 4.5"

10 year, 24 hr. rainfall = 4.8"

25 year, 24 hr. rainfall = 5.5"

**Soils**

The soil data for this site is from *Soil Survey of Clackamas County, Oregon* published by the United States Department of Agriculture (USDA). The post-development soil is assumed to be the same as pre-development.

Soil Type: 15B, Cazadero silty clay loam. Hydrologic Group "C"

15C, Cazadero silty clay loam. Hydrologic Group "C"

24B, Cottrell silty clay loam. Hydrologic Group "C"

(See next section and Portland SWMM/Sewer and Drainage Facilities Design Manual for CN's)

**Areas and Curve Numbers**

Drainage basin areas were determined using a topographic map drafted in AutoCAD. See the Pre-Developed Plan and Developed Plan in Appendix A.

The impervious area for these post-developed basins includes the proposed roofs from lots 1 through 31, streets, sidewalks, driveways, and curbs and planters, as well as the undeveloped condition of lot 32. See the following tables for a specific breakdown of these areas.

<b>Pre-Development</b>		
<b>Areas</b>	<b>CN</b>	<b>Reference</b>
Pervious (15.91 acres)	79	Portland SWMM Table A-8. Curve Numbers Type "C" Soils
Impervious (0.00 acres)	98	N/A
<b>Post-Development</b>		
<b>Areas</b>	<b>CN</b>	<b>Land Use Description</b>
Pervious (11.52 acres)*	76	Portland SDFDM Table 6-5 Non-composite Curve Numbers Lawns with Type "C" Soils, and Table A-8 as above.
Impervious (4.39 acres)**	98	Buildings, AC, Sidewalks, etc.

\*Post-Developed Pervious CN: Weighted CN

Undeveloped Type C Soil 7.36 AC: CN = 79

Lawns Type C Soil 4.16 AC: CN = 70

$[(7.36AC \times 79) + (4.16AC \times 70)] / (7.36 + 4.16) = 75.75 = 76.0$

\*\*Refer to Water Quality Design Section for detailed area breakdown.

**Time of Concentration**

The times of concentrations (Tc), were assumed as follows.

Pre-development T<sub>c</sub>= 30.0 minutes

Post-development T<sub>c</sub>= 5.0 minutes

**Hydrograph Modeling Results**

Hydrographs for the site were determined using a spreadsheet based on the King County, Washington Hydrograph Program, version 4.21B, which uses the Santa Barbara Urban Hydrograph (SBUH) method.



**DETENTION SIZING RESULTS:**

The Post-Development flows were routed through a proposed 3-foot-deep detention pond. The 3-foot-deep detention pond has been designed so that the Post-Developed release rates for the entire site do not exceed the Pre-Developed rates for the 2-year, 5-year, 10-year, and 25-year storm events per the City of Sandy public Works Design Standards. See the Detention System Summary in Appendix B.

<b>Hydrology Table</b>			
<b>Recurrence Interval (years)</b>	<b>Pre-developed Flows (cfs)</b>	<b>Developed Flows (cfs)</b>	<b>Proposed Release Rates (cfs)</b>
2	3.84	7.46	3.73
5	6.37	11.21	6.09
10	7.17	12.39	7.17
25	9.09	15.21	9.09

The required storage volume is 20,016-cubic feet. This can be contained in a 3-foot-deep pond with a bottom area of 5,472 square feet.

**Flow Control:**

The flow control orifices were designed to release the Post-development Peak-Q's at or below the Pre-developed Peak-Q's.  
(See the Detention System Summary - Appendix B)

<b>Orifice Table</b>		
<b>Orifice</b>	<b>Dia. (inches)</b>	<b>Height (feet)</b>
Bottom	10.72	0.00
Top	weir	weir

**WATER QUALITY DESIGN:**

**CDS Storm Water Treatment Device**

A CDS manhole by Contech Stormwater Solutions was designed for water quality for the site - see detail in Appendix B. The impervious area for the site includes AC pavement, sidewalks, and roofs. The impervious area is 4.39-acres.

Proposed asphalt, walks, etc.:	2.26 acres
Roof, Patio, Driveway*:	2.13 acres
Total Impervious Area:	4.39 acres

*40'x60' Building footprint:	2400SF
20'x20' Driveway:	400SF
2-10'x10' Patio:	200SF
Total:	3,000SF X 31 lots = 93,000SF

The flow (Q) from this runoff was calculated using the rational method ( $Q = CIA$ )

Where Q = flow (cfs)

- C = runoff coefficient = 0.90 pavement and Roofs
- I = Intensity = 0.2 inches per hour (Water Quality Design Storm)
- A = Impervious Area = 4.39 Acres

$$Q = 0.90 \times 0.2 \times 4.39$$

$$Q = 0.79 \text{ cfs}$$

A Contech Storm Water Treatment Device from the CDS line will be sized to treat the flow from impervious area at the time of final engineering.

**CONCLUSIONS:**

- The conveyance system for the proposed Deer Meadows Subdivision site has been sized to handle the peak 25-year, 24-hour storm.
- On-site detention has been designed to maintain existing downstream storm water runoff characteristics in accordance with the City of Sandy requirements.
- A CDS Storm Water Treatment Device will be used for water quality.



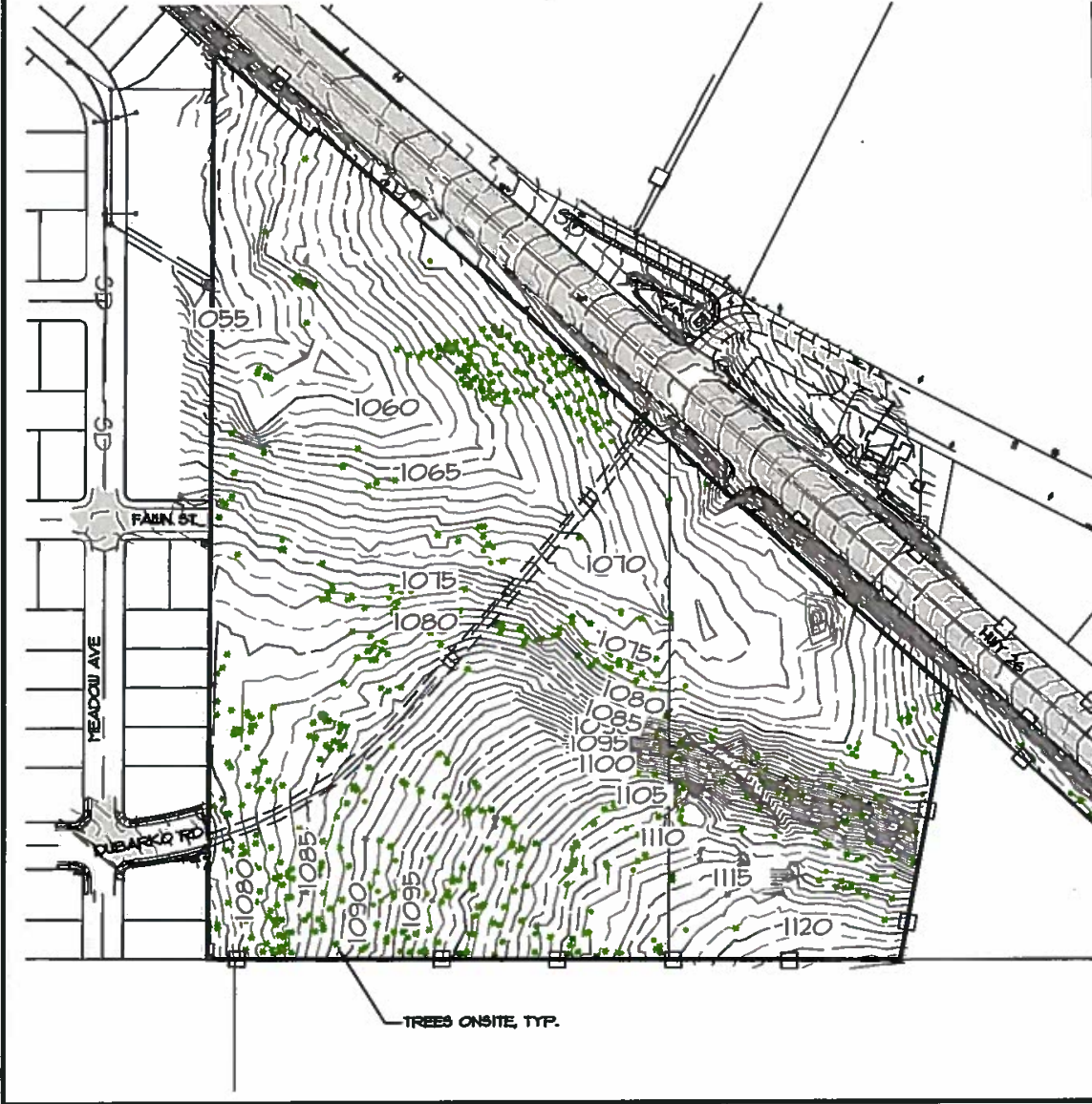
# **Appendix A**

- Pre-Developed Plan
- Developed Plan

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# EXISTING CONDITIONS MAP



SCALE : 1" = 200'



RENEWAL DATE: 12/31/2022

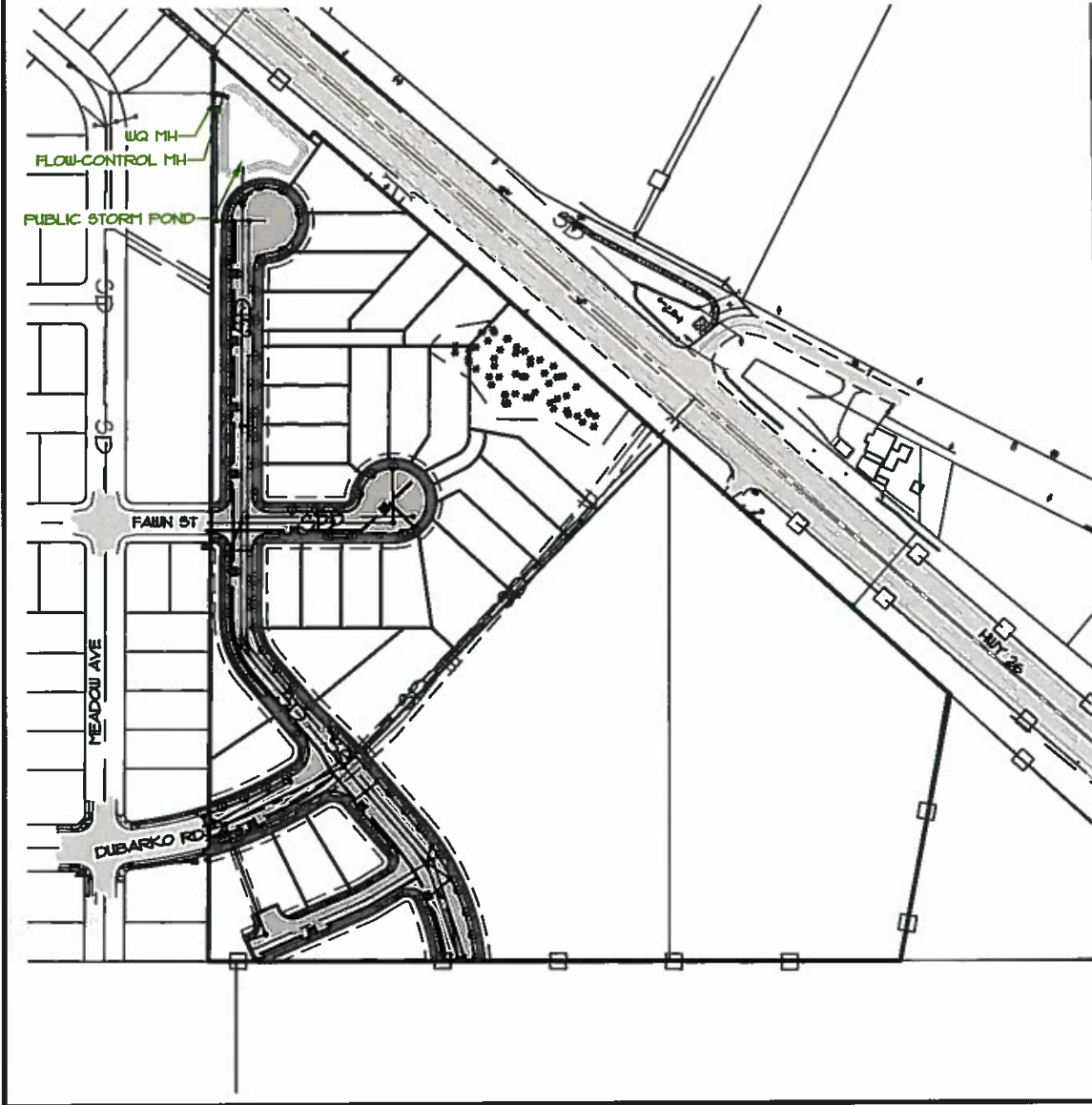
*All County*  
**Surveyors & Planners, Inc.**  
 Surveying, Planning  
 and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

19-035-Planning-B.dwg  
 DATE OF PLOT: 5/21/21

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# DEVELOPED CONDITIONS MAP



SCALE: 1" = 200'



RENEWAL DATE: 12/31/2022

**All County**  
**Surveyors & Planners, Inc.**  
Surveying, Planning  
and Civil Engineering  
P.O. Box 955 Sandy, OR 97055  
Phone: (503) 668-3151  
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DATE OF PLOT: 5/21/21

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## **Appendix B**

- Standard Formulas
- Coefficients
- Hydrograph Analysis Summary
- Detention System Summary
- Stage Storage Summary
- Rectangular, Sharp Crested Weir Calculations

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## Standard formulas used for the Time of Concentration Calculations

### Overland Flow (max 300' total)

$$\frac{(0.42)[(Ns)(L)]^{0.8}}{(P_2)^{0.5}(S_0)^{0.4}}$$

Tc	= time of concentration for less than 300' of travel (minutes)
Ns	= sheet flow Manning's effective roughness coefficient
L	= flow length (ft)
P2	= 2-year, 24 hour rainfall (in)
So	= slope of hydraulic grade line (land slope, ft/ft)

### Shallow Concentrated Flow (after initial 300')

$$T = \frac{L}{(60)(k\sqrt{S_0})}$$

T	= travel time for sheet flow (min)
L	= flow length (ft)
So	= slope of hydraulic grade line (land slope, ft/ft)
k	= time of concentration velocity factor (ft/s)

### Flow in Swales

$$Q = (1.486/n) \times A \times R^{2/3} \times S^{1/2} \text{ (Manning's Equation)}$$

Tc	= time of concentration for gutter flow (minutes)
A	= area of flow (sf)
R	= hydraulic radius (ft)
LS	= side slope
Q	= quantity of flow (ft <sup>3</sup> /sec)
V	= average velocity of flow (ft/sec)
L	= length of flow
Ve	= vertical length of side slope
Ho	= horizontal length of side slope
Bw	= base width (in)
D	= depth (in)
S	= slope (ft/ft)
n	= Manning's n

### Flow in gutters

$$V = \frac{1.12}{n} (S)^{0.5} (\Delta x)^{0.67} (T)^{0.67}$$

Tc	= time of concentration for gutter flow (minutes)
V	= average velocity of flow (ft/sec)
Q	= quantity of flow (ft <sup>3</sup> /sec)
S	= street longitudinal slope (ft/ft)
Sx	= street cross slope (ft/ft)
T	= total width of flow in the gutter (ft)
n	= sheet flow Manning's (pavement = 0.018)
L	= Length of flow (ft)

### Flow in pipes Mannings Equation

Tc	= time of concentration in pipe (minutes)
V	= calculated velocity pipe full (ft/sec)
Q	= quantity of flow (ft <sup>3</sup> /sec)
n	= Manning's n
D	= pipe Diameter (in)
S	= slope (ft/ft)
L	= length of pipe

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## COEFFICIENTS

**Ns =** = Manning's coefficient (sheet flow)  
n values are for sheet flow only

### Design Value

- 0.011 Concrete or asphalt
- 0.010 Bare soil
- 0.020 Graveled surface
- 0.020 Bare clay - loam (eroded)
- 0.150 Grass (short prairie)
- 0.240 Grass (dense lawn)
- 0.410 Grass (bermuda)
- 0.400 Woods (light underbrush)
- 0.800 Woods (dense underbrush)

**k =** = time of concentration velocity factor (ft/s)

### Design Value

- 3 Forest with heavy ground cover and meadows (n=0.10)
- 5 Brushy ground with some trees (n=0.060)
- 8 Fallow or cultivation (n=0.040)
- 9 High grass (n=0.035)
- 11 Short grass, pasture or lawns (n=0.030)
- 13 Nearly bare ground (n=0.025)
- 27 Paved and gravel areas (n=0.012)

**n =** = Manning's coefficient (channel)

### Design Value

#### CONSTRUCTED CHANNELS

##### A. Earth, straight and uniform

- 0.018 Earth (straight and uniform)
- 0.025 Gravel (straight and uniform)
- 0.027 Grass (with weeds)

##### B. Earth, winding and sluggish

- 0.025 Earth (no vegetation)
- 0.030 Grass (some weeds)
- 0.035 Dense weeds (deep channel)
- 0.030 Earth (rubble bottom and sides)
- 0.035 Stony bottom and weedy banks
- 0.040 Cobble bottom with clean sides

##### C. Rock lined

- 0.035 Smooth and uniform
- 0.040 Jagged and irregular

##### D. Channels not maintained (weeds and brush uncut)

- 0.050 Dense weeds (high as flow depth)
- 0.050 Clean bottom (brush on sides)
- 0.100 Dense brush (high stage)
- 0.200 Water quality swales (mowed regularly)

#### NATURAL STREAMS

- 0.029 Clean (straight no pools)
- 0.035 Clean (straight no pools with weeds and stones)
- 0.039 Clean (winding pools)
- 0.042 Clean (winding pools weeds and stones)
- 0.052 Clean (winding pools weeds and large stones)
- 0.065 Weedy (sluggish with deep pools)
- 0.112 Very weedy (sluggish with deep pools)

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**Project Name: Deer Meadows**  
**Hydrograph Analysis Summary**

Job # 19-035  
 Date: 5/28/2021

Rainfall (year)	Rainfall (Inches)
2	3.50
5	4.50
10	4.80
25	5.50
100	0.00

Pre-Developed Pervious	
Area =	15.91 acres
CN =	79 na
Impervious	
Area =	0 acres
CN =	99 na
Tc =	30 min
Total A =	15.91 acres

Developed Pervious	
Area =	11.52 acres
CN =	78 na
Impervious	
Area =	4.39 acres
CN =	98 na
Tc =	5 min
Total A =	15.91 acres

Note: The hydrographs shown are based on the S.C.S. Type - 1A, 24 hour storm using the SBUH method based on the King County Model.

Pre-Developed Hydrographs						
Year	2	5	10	25	100	
Cpeak	cfs => 3.84	6.37	7.17	9.09	0.00	
Volume	cf => 90,144	136,837	151,461	188,400	-	
Tpeak	min => 480	480	480	480	10	
Tpeak	hr => 8.00	8.00	8.00	8.00	0.17	
Hydrograph Name	2	5	10	25	100	
Time (min)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	
0	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.00	
30	0.00	0.00	0.00	0.00	0.00	
40	0.00	0.00	0.00	0.00	0.00	
50	0.00	0.00	0.00	0.00	0.00	
60	0.00	0.00	0.00	0.00	0.00	
70	0.00	0.00	0.00	0.00	0.00	
80	0.00	0.00	0.00	0.00	0.00	
90	0.00	0.00	0.00	0.00	0.00	
100	0.00	0.00	0.00	0.00	0.00	
110	0.00	0.00	0.00	0.00	0.00	
120	0.00	0.00	0.00	0.00	0.00	
130	0.00	0.00	0.00	0.00	0.00	
140	0.00	0.00	0.00	0.00	0.00	
150	0.00	0.00	0.00	0.00	0.00	
160	0.00	0.00	0.00	0.00	0.00	
170	0.00	0.00	0.00	0.00	0.00	
180	0.00	0.00	0.00	0.00	0.00	
190	0.00	0.00	0.00	0.00	0.00	
200	0.00	0.00	0.00	0.00	0.00	
210	0.00	0.00	0.00	0.00	0.00	
220	0.00	0.00	0.00	0.01	0.00	
230	0.00	0.00	0.00	0.05	0.00	
240	0.00	0.00	0.01	0.10	0.00	
250	0.00	0.01	0.04	0.17	0.00	
260	0.00	0.03	0.08	0.24	0.00	
270	0.00	0.07	0.13	0.32	0.00	
280	0.00	0.11	0.19	0.40	0.00	
290	0.00	0.17	0.26	0.50	0.00	
300	0.01	0.24	0.34	0.61	0.00	
310	0.03	0.31	0.43	0.72	0.00	
320	0.06	0.39	0.51	0.83	0.00	
330	0.10	0.46	0.59	0.93	0.00	
340	0.15	0.54	0.68	1.03	0.00	
350	0.20	0.63	0.78	1.16	0.00	
360	0.26	0.73	0.90	1.31	0.00	
370	0.32	0.84	1.01	1.45	0.00	
380	0.39	0.93	1.12	1.58	0.00	
390	0.45	1.02	1.21	1.70	0.00	
400	0.51	1.11	1.31	1.81	0.00	
410	0.61	1.27	1.50	2.04	0.00	
420	0.75	1.51	1.76	2.37	0.00	
430	0.88	1.71	1.98	2.65	0.00	
440	1.07	2.02	2.32	3.07	0.00	
450	1.32	2.40	2.76	3.61	0.00	
460	1.63	3.22	3.67	4.76	0.00	
470	2.00	5.09	5.76	7.36	0.00	
480	2.40	6.37	7.17	9.09	0.00	
490	2.77	6.17	6.93	8.74	0.00	
500	3.44	5.57	6.24	7.84	0.00	
510	3.12	5.00	5.58	6.99	0.00	
520	2.90	4.60	5.13	6.41	0.00	

Developed Hydrographs						
Year	2	5	10	25	100	
Cpeak	cfs => 7.46	11.21	12.39	15.21	0.00	
Volume	cf => 109,999	158,947	171,829	207,283	-	
Tpeak	min => 470	470	470	470	10	
Tpeak	hr => 7.83	7.83	7.83	7.83	0.17	
Hydrograph Name	2	5	10	25	100	
Time (min)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	
0	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.00	
30	0.00	0.01	0.02	0.04	0.00	
40	0.01	0.05	0.07	0.12	0.00	
50	0.05	0.12	0.14	0.20	0.00	
60	0.09	0.17	0.19	0.26	0.00	
70	0.12	0.21	0.23	0.30	0.00	
80	0.14	0.24	0.27	0.34	0.00	
90	0.17	0.27	0.30	0.37	0.00	
100	0.19	0.29	0.32	0.40	0.00	
110	0.23	0.35	0.38	0.47	0.00	
120	0.28	0.41	0.45	0.55	0.00	
130	0.30	0.43	0.47	0.57	0.00	
140	0.31	0.45	0.49	0.59	0.00	
150	0.33	0.46	0.51	0.60	0.00	
160	0.34	0.48	0.52	0.62	0.00	
170	0.38	0.54	0.58	0.69	0.00	
180	0.43	0.60	0.65	0.77	0.00	
190	0.44	0.61	0.66	0.78	0.00	
200	0.45	0.62	0.67	0.79	0.00	
210	0.46	0.63	0.68	0.80	0.00	
220	0.47	0.64	0.69	0.80	0.00	
230	0.52	0.70	0.75	0.88	0.00	
240	0.56	0.76	0.82	0.96	0.00	
250	0.57	0.77	0.82	1.01	0.00	
260	0.58	0.77	0.83	1.07	0.00	
270	0.58	0.78	0.86	1.14	0.00	
280	0.59	0.79	0.91	1.20	0.00	
290	0.64	0.91	1.04	1.38	0.00	
300	0.70	1.04	1.19	1.58	0.00	
310	0.70	1.10	1.25	1.63	0.00	
320	0.71	1.15	1.31	1.71	0.00	
330	0.72	1.21	1.37	1.77	0.00	
340	0.75	1.26	1.43	1.84	0.00	
350	0.86	1.42	1.61	2.06	0.00	
360	0.97	1.59	1.79	2.29	0.00	
370	1.01	1.65	1.86	2.37	0.00	
380	1.06	1.71	1.92	2.44	0.00	
390	1.10	1.77	1.99	2.51	0.00	
400	1.15	1.83	2.05	2.58	0.00	
410	1.43	2.27	2.54	3.19	0.00	
420	1.74	2.73	3.05	3.83	0.00	
430	1.81	2.83	3.18	3.94	0.00	
440	2.23	3.46	3.85	4.79	0.00	
450	2.67	4.11	4.57	5.67	0.00	
460	4.10	6.25	6.93	8.55	0.00	
470	7.46	11.21	12.39	15.21	0.00	
480	7.23	10.78	11.88	14.53	0.00	
490	4.24	6.26	6.89	8.38	0.00	
500	3.04	4.46	4.91	5.95	0.00	
510	2.65	3.87	4.25	5.15	0.00	
520	2.69	3.92	4.30	5.20	0.00	

Pre-Developed Hydrographs						
Year		2	5	10	25	100
Qpeak	cfs =>	3.84	6.37	7.17	9.09	0.00
Volume	cf =>	90,144	136,637	151,481	186,400	-
Tpeak	min =>	480	480	480	480	10
Tpeak	hr =>	8.00	8.00	8.00	8.00	0.17
Hydrograph Name=>		2	5	10	25	100
Time (min)	Time (hr)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)
530	8.83	2.64	4.15	4.63	5.76	0.00
540	9.00	2.34	3.66	4.08	5.06	0.00
550	9.17	2.14	3.32	3.69	4.57	0.00
560	9.33	1.99	3.08	3.42	4.22	0.00
570	9.50	1.90	2.92	3.24	3.98	0.00
580	9.67	1.84	2.81	3.11	3.82	0.00
590	9.83	1.80	2.74	3.03	3.71	0.00
600	10.00	1.78	2.69	2.97	3.64	0.00
610	10.17	1.77	2.66	2.94	3.59	0.00
620	10.33	1.76	2.65	2.92	3.57	0.00
630	10.50	1.77	2.65	2.92	3.55	0.00
640	10.67	1.77	2.65	2.92	3.55	0.00
650	10.83	1.74	2.59	2.85	3.46	0.00
660	11.00	1.67	2.48	2.72	3.31	0.00
670	11.17	1.62	2.40	2.64	3.20	0.00
680	11.33	1.59	2.35	2.58	3.13	0.00
690	11.50	1.57	2.32	2.55	3.08	0.00
700	11.67	1.56	2.30	2.52	3.05	0.00
710	11.83	1.56	2.29	2.51	3.03	0.00
720	12.00	1.55	2.28	2.50	3.02	0.00
730	12.17	1.56	2.28	2.50	3.02	0.00
740	12.33	1.56	2.28	2.50	3.02	0.00
750	12.50	1.57	2.29	2.51	3.02	0.00
760	12.67	1.57	2.29	2.51	3.03	0.00
770	12.83	1.53	2.23	2.45	2.94	0.00
780	13.00	1.46	2.12	2.32	2.79	0.00
790	13.17	1.41	2.04	2.24	2.69	0.00
800	13.33	1.37	1.99	2.18	2.62	0.00
810	13.50	1.35	1.95	2.14	2.57	0.00
820	13.67	1.33	1.93	2.11	2.53	0.00
830	13.83	1.32	1.91	2.09	2.51	0.00
840	14.00	1.32	1.90	2.08	2.49	0.00
850	14.17	1.32	1.90	2.07	2.49	0.00
860	14.33	1.32	1.90	2.07	2.48	0.00
870	14.50	1.32	1.89	2.07	2.48	0.00
880	14.67	1.32	1.90	2.07	2.48	0.00
890	14.83	1.30	1.87	2.04	2.44	0.00
900	15.00	1.28	1.81	1.98	2.36	0.00
910	15.17	1.24	1.77	1.94	2.31	0.00
920	15.33	1.22	1.75	1.91	2.28	0.00
930	15.50	1.21	1.73	1.89	2.26	0.00
940	15.67	1.20	1.72	1.87	2.24	0.00
950	15.83	1.20	1.71	1.87	2.23	0.00
960	16.00	1.20	1.71	1.86	2.22	0.00
970	16.17	1.20	1.71	1.86	2.22	0.00
980	16.33	1.20	1.71	1.86	2.22	0.00
990	16.50	1.20	1.71	1.86	2.22	0.00
1000	16.67	1.20	1.71	1.86	2.22	0.00
1010	16.83	1.17	1.66	1.81	2.16	0.00
1020	17.00	1.11	1.58	1.72	2.05	0.00
1030	17.17	1.07	1.52	1.66	1.97	0.00
1040	17.33	1.04	1.48	1.61	1.92	0.00
1050	17.50	1.03	1.45	1.58	1.88	0.00
1060	17.67	1.01	1.43	1.56	1.86	0.00
1070	17.83	1.00	1.42	1.55	1.84	0.00
1080	18.00	1.00	1.41	1.54	1.83	0.00
1090	18.17	0.99	1.40	1.53	1.82	0.00
1100	18.33	0.99	1.40	1.52	1.81	0.00
1110	18.50	0.99	1.40	1.52	1.81	0.00
1120	18.67	0.99	1.40	1.52	1.81	0.00
1130	18.83	0.99	1.40	1.52	1.81	0.00
1140	19.00	0.99	1.40	1.52	1.81	0.00
1150	19.17	0.99	1.40	1.52	1.81	0.00
1160	19.33	0.99	1.40	1.52	1.81	0.00
1170	19.50	1.00	1.40	1.52	1.81	0.00
1180	19.67	1.00	1.40	1.53	1.81	0.00
1190	19.83	1.00	1.41	1.53	1.81	0.00
1200	20.00	1.00	1.41	1.53	1.81	0.00
1210	20.17	1.00	1.41	1.53	1.82	0.00
1220	20.33	1.00	1.41	1.53	1.82	0.00
1230	20.50	1.01	1.41	1.53	1.82	0.00

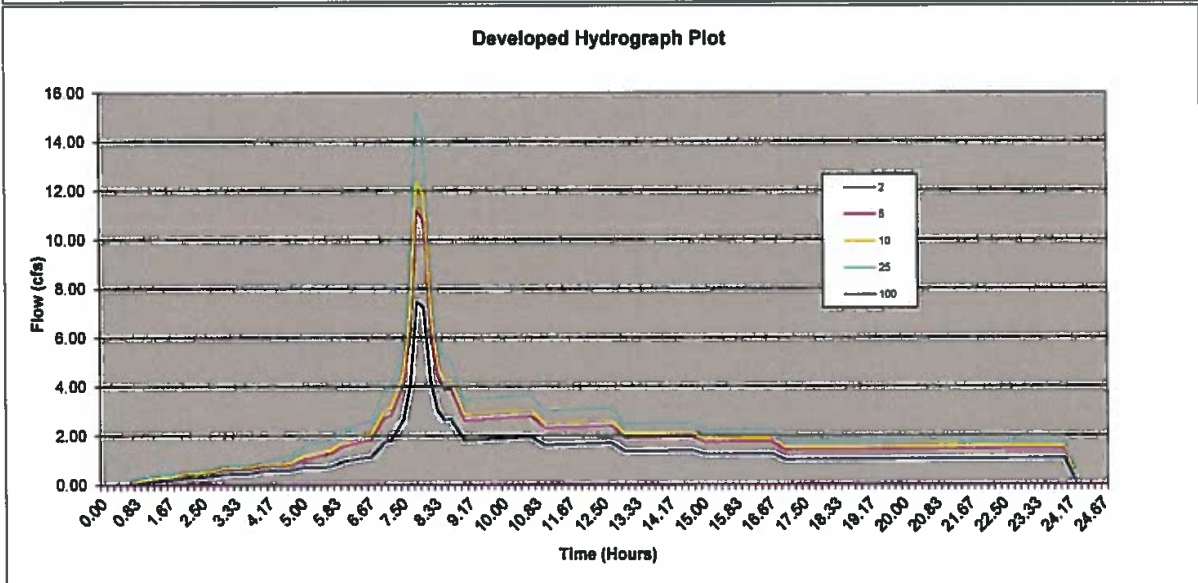
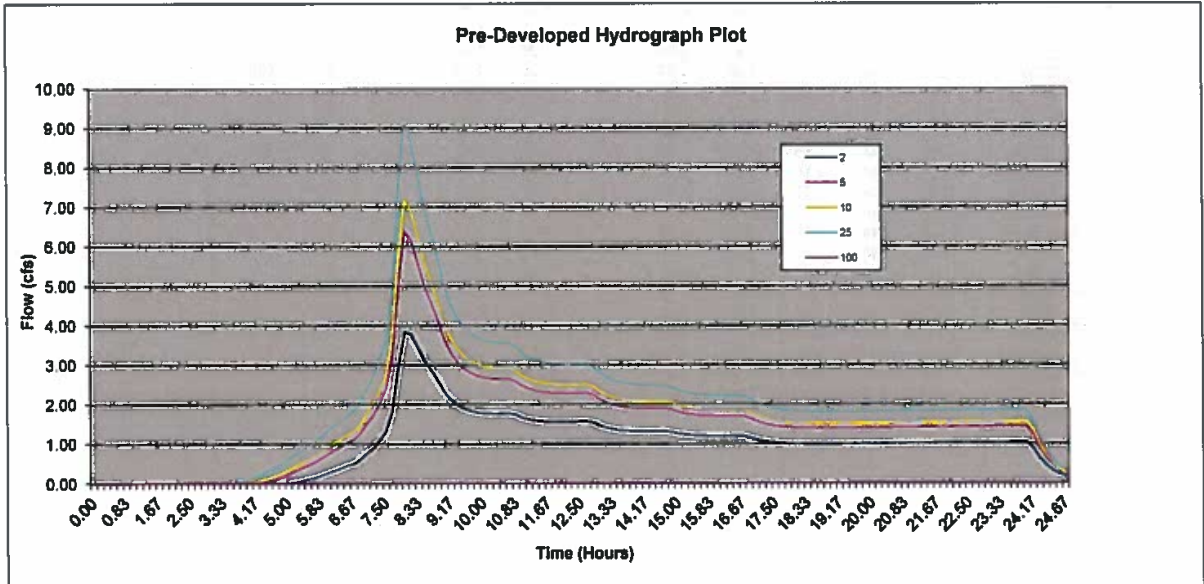
Developed Hydrographs					
	2	5	10	25	100
	7.46	11.21	12.39	15.21	0.00
Volume	109,099	158,947	171,629	207,283	-
Tpeak	470	470	470	470	10
Tpeak	7.83	7.83	7.83	7.83	0.17
Hydrograph Name=>	2	5	10	25	100
Time (min)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)	Hyd (cfs)
530	2.25	3.28	3.60	4.35	0.00
540	1.81	2.63	2.88	3.47	0.00
550	1.82	2.64	2.90	3.50	0.00
560	1.84	2.66	2.92	3.52	0.00
570	1.86	2.68	2.94	3.54	0.00
580	1.87	2.70	2.95	3.56	0.00
590	1.89	2.72	2.97	3.58	0.00
600	1.90	2.73	2.99	3.59	0.00
610	1.92	2.75	3.01	3.61	0.00
620	1.93	2.77	3.02	3.63	0.00
630	1.94	2.78	3.04	3.65	0.00
640	1.96	2.80	3.06	3.66	0.00
650	1.79	2.56	2.79	3.34	0.00
660	1.62	2.31	2.52	3.02	0.00
670	1.63	2.32	2.53	3.03	0.00
680	1.64	2.33	2.54	3.04	0.00
690	1.65	2.34	2.55	3.05	0.00
700	1.66	2.35	2.56	3.06	0.00
710	1.66	2.36	2.57	3.07	0.00
720	1.67	2.37	2.58	3.08	0.00
730	1.68	2.38	2.59	3.09	0.00
740	1.69	2.39	2.60	3.10	0.00
750	1.69	2.39	2.61	3.11	0.00
760	1.70	2.40	2.62	3.12	0.00
770	1.53	2.16	2.35	2.80	0.00
780	1.36	1.91	2.08	2.48	0.00
790	1.36	1.92	2.09	2.49	0.00
800	1.37	1.92	2.09	2.49	0.00
810	1.37	1.93	2.10	2.50	0.00
820	1.38	1.93	2.10	2.50	0.00
830	1.38	1.94	2.11	2.51	0.00
840	1.38	1.94	2.11	2.51	0.00
850	1.39	1.95	2.12	2.52	0.00
860	1.39	1.95	2.12	2.52	0.00
870	1.40	1.96	2.13	2.53	0.00
880	1.40	1.96	2.13	2.53	0.00
890	1.32	1.84	2.00	2.38	0.00
900	1.24	1.73	1.88	2.23	0.00
910	1.24	1.73	1.88	2.23	0.00
920	1.24	1.73	1.88	2.23	0.00
930	1.24	1.74	1.89	2.24	0.00
940	1.25	1.74	1.89	2.24	0.00
950	1.25	1.74	1.89	2.24	0.00
960	1.25	1.75	1.90	2.25	0.00
970	1.26	1.75	1.90	2.25	0.00
980	1.26	1.75	1.90	2.25	0.00
990	1.26	1.76	1.91	2.26	0.00
1000	1.26	1.76	1.91	2.26	0.00
1010	1.14	1.59	1.72	2.04	0.00
1020	1.02	1.41	1.53	1.81	0.00
1030	1.02	1.41	1.53	1.81	0.00
1040	1.02	1.41	1.53	1.82	0.00
1050	1.02	1.42	1.54	1.82	0.00
1060	1.02	1.42	1.54	1.82	0.00
1070	1.02	1.42	1.54	1.82	0.00
1080	1.03	1.42	1.54	1.82	0.00
1090	1.03	1.42	1.54	1.82	0.00
1100	1.03	1.43	1.55	1.83	0.00
1110	1.03	1.43	1.55	1.83	0.00
1120	1.03	1.43	1.55	1.83	0.00
1130	1.03	1.43	1.55	1.83	0.00
1140	1.03	1.43	1.55	1.83	0.00
1150	1.04	1.43	1.55	1.83	0.00
1160	1.04	1.44	1.56	1.84	0.00
1170	1.04	1.44	1.56	1.84	0.00
1180	1.04	1.44	1.56	1.84	0.00
1190	1.04	1.44	1.56	1.84	0.00
1200	1.04	1.44	1.56	1.84	0.00
1210	1.05	1.44	1.56	1.84	0.00
1220	1.05	1.45	1.57	1.85	0.00
1230	1.05	1.45	1.57	1.85	0.00





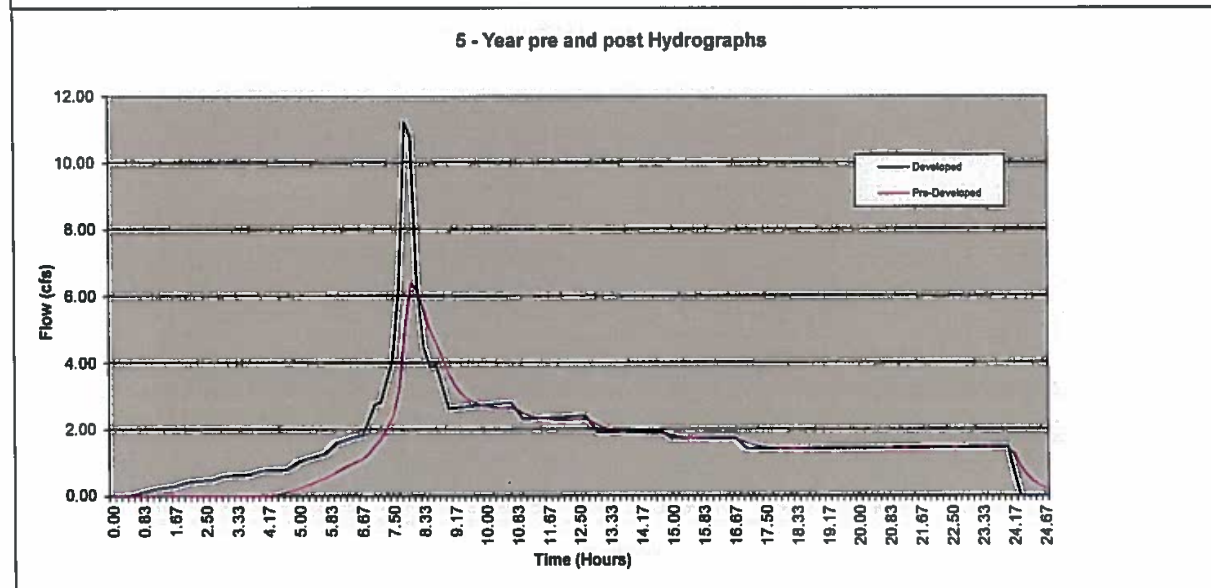
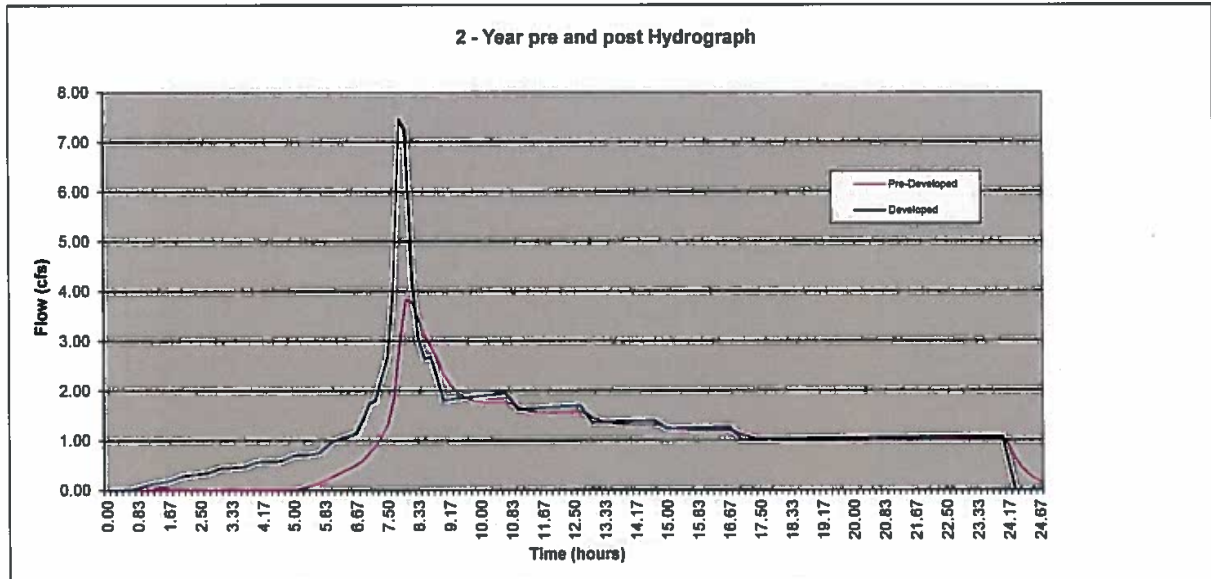
Pre-Developed Hydrographs					
Year	2	5	10	25	100
Qpeak	cfs => 3.84	6.37	7.17	8.09	0.00
Volume	cf => 80,144	196,837	151,461	186,400	-
Tpeak	min => 480	480	480	480	10
Tpeak	hr => 8.00	8.00	8.00	8.00	0.17
Hydrograph Name	2	5	10	25	100
Time	Time	Hyd	Hyd	Hyd	Hyd
(min)	(hr)	(cfs)	(cfs)	(cfs)	(cfs)

Developed Hydrographs				
2	5	10	25	100
7.46	11.21	12.39	15.21	0.00
109,099	156,947	171,829	207,283	-
470	470	470	470	10
7.83	7.83	7.83	7.83	0.17
2	5	10	25	100
Hyd	Hyd	Hyd	Hyd	Hyd
(cfs)	(cfs)	(cfs)	(cfs)	(cfs)



Pre-Developed Hydrographs					
Year	2	5	10	25	100
Cpeak	cfs => 3.84	6.37	7.17	9.09	0.00
Volume	cf => 90,144	138,637	151,461	188,400	-
Tpeak	min => 480	480	480	480	10
Tpeak	hr => 8.00	8.00	8.00	8.00	0.17
Hydrograph Name	2	5	10	25	100
Time	Time	Hyd	Hyd	Hyd	Hyd
(min)	(hr)	(cfs)	(cfs)	(cfs)	(cfs)

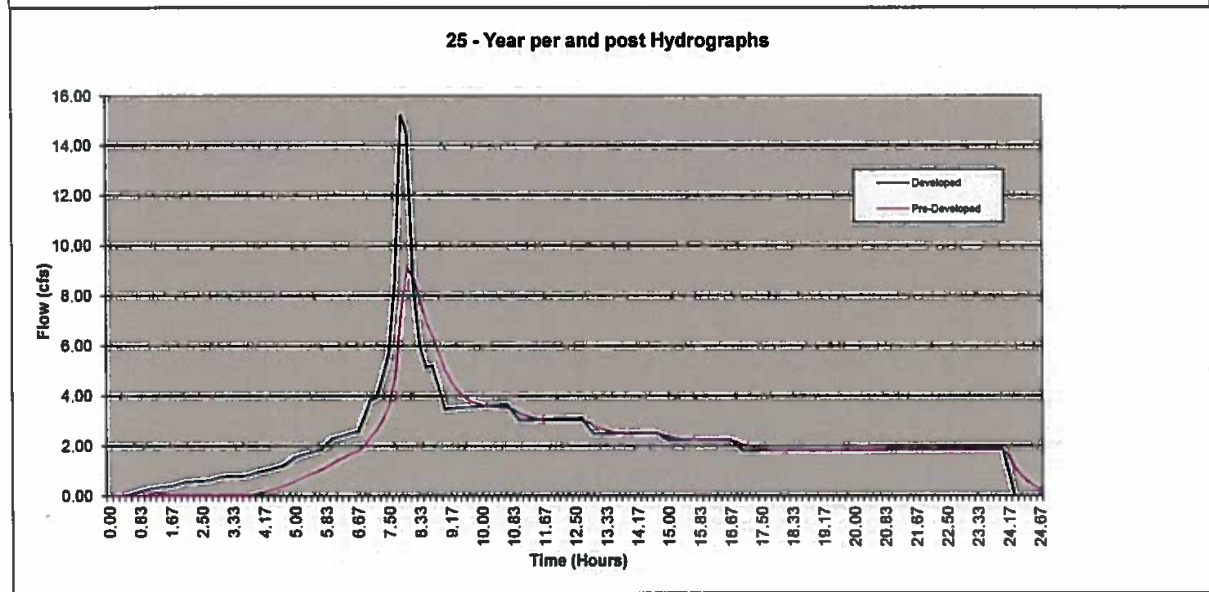
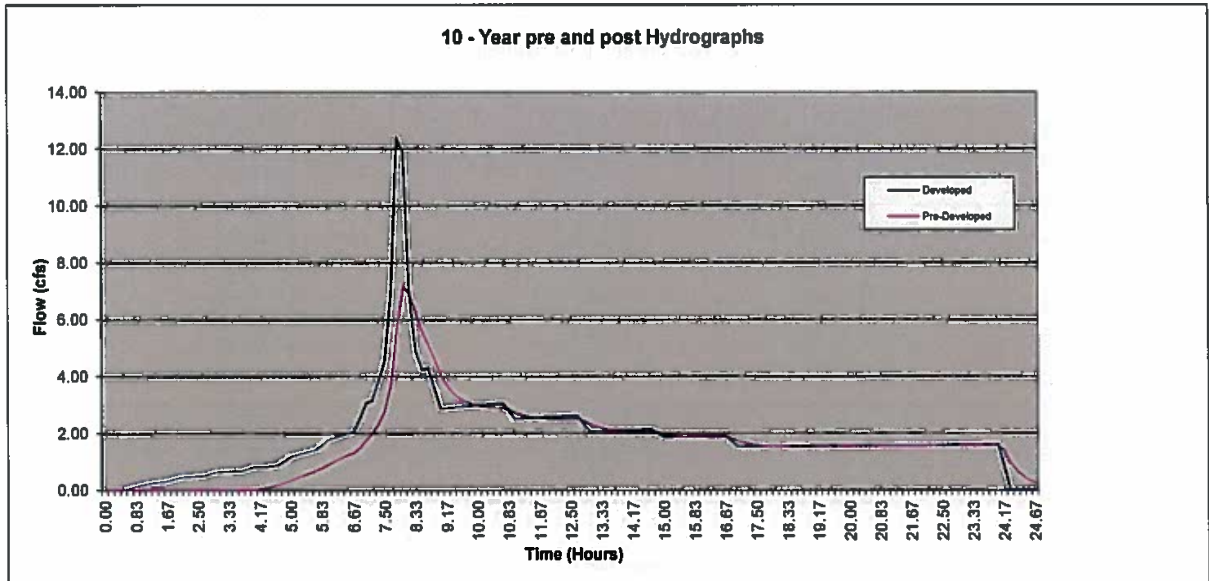
Developed Hydrographs					
Year	2	5	10	25	100
Cpeak	7.46	11.21	12.39	16.21	0.00
Volume	109,999	158,947	171,829	207,283	-
Tpeak	470	470	470	470	10
Tpeak	7.83	7.83	7.83	7.83	0.17
Hydrograph Name	2	5	10	25	100
Time	Hyd	Hyd	Hyd	Hyd	Hyd
(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)





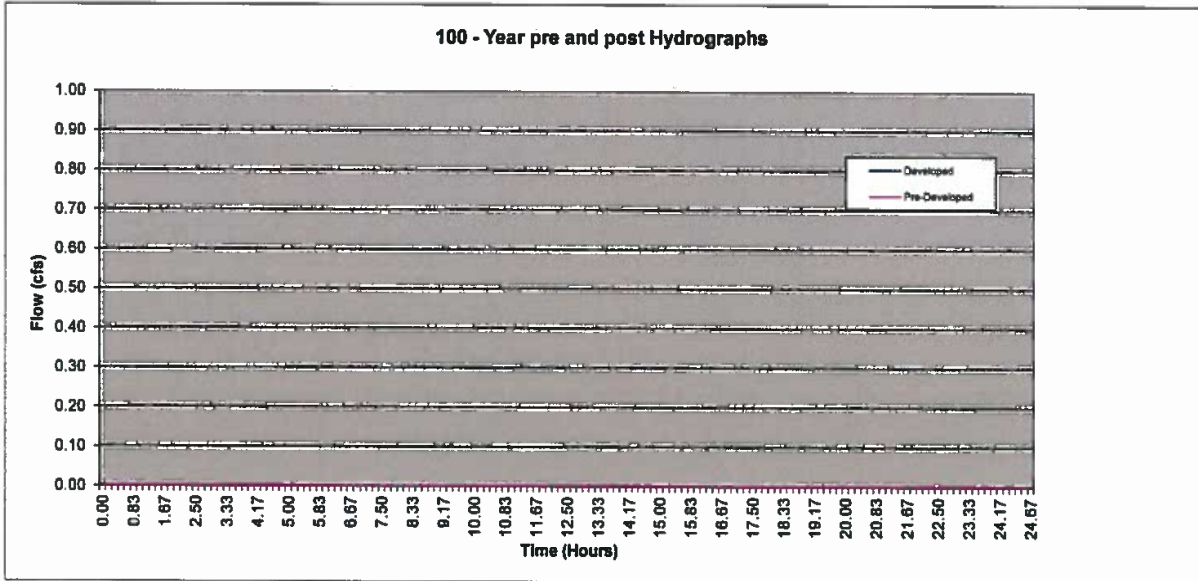
Pre-Developed Hydrographs					
Year	2	5	10	25	100
Qpeak	cfs => 3.84	6.37	7.17	9.09	0.00
Volume	cfs => 90,144	138,837	151,481	188,400	-
Tpeak	min => 480	480	480	480	10
Tpeak	hr => 8.00	8.00	8.00	8.00	0.17
Hydrograph Name	2	5	10	25	100
Time	Time	Hyd	Hyd	Hyd	Hyd
(min)	(hr)	(cfs)	(cfs)	(cfs)	(cfs)

Developed Hydrographs					
Year	2	5	10	25	100
Qpeak	7.46	11.21	12.39	15.21	0.00
Volume	109,099	156,947	171,828	207,283	-
Tpeak	470	470	470	470	10
Tpeak	7.83	7.83	7.83	7.83	0.17
Hydrograph Name	2	5	10	25	100
Time	Hyd	Hyd	Hyd	Hyd	Hyd
(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)



Pre-Developed Hydrographs						
Year	2	5	10	25	100	
Opeak	cfs	3.84	6.37	7.17	9.09	0.00
Volume	cf	90,144	136,837	151,461	166,400	-
Tpeak	min	480	480	480	480	10
Tpeak	hr	8.00	8.00	8.00	8.00	0.17
Hydrograph Name		2	5	10	25	100
Time	Time	Hyd	Hyd	Hyd	Hyd	Hyd
(min)	(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)

Developed Hydrographs						
Year	2	5	10	25	100	
Opeak	cfs	7.48	11.21	12.39	15.21	0.00
Volume	cf	108,099	156,947	171,829	207,283	-
Tpeak	min	470	470	470	470	10
Tpeak	hr	7.83	7.83	7.83	7.83	0.17
Hydrograph Name		2	5	10	25	100
Time	Time	Hyd	Hyd	Hyd	Hyd	Hyd
(min)	(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)



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**Project Name: Deer Meadows**  
**Detention System Summary**

Job # 19-035  
 Date: 5/28/2021

Note: The detention system design is based on the King County Model "Facility Design Routine".

**1) Detention Facility Design Input:**

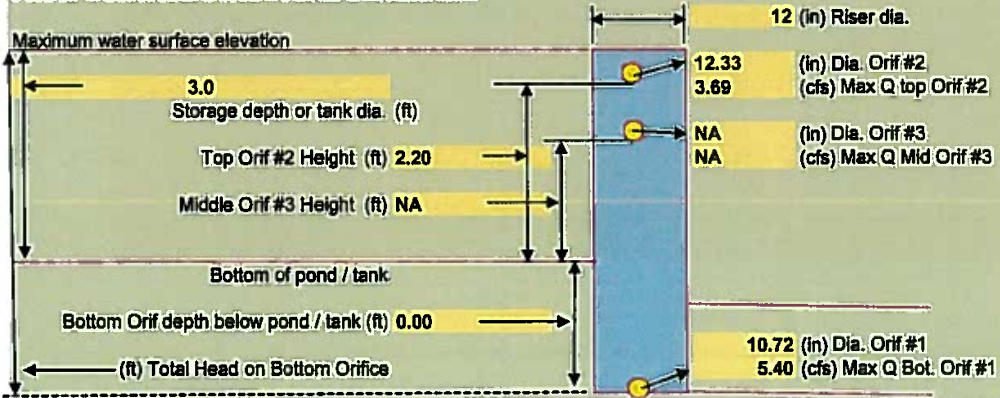
2) Type of facility:	DETENTION POND	
3) Pond side slopes:	3 to 1	
4) Pond storage depth:	3 ft. (from bottom of pond to overflow)	
5) Vertical permeability:	0 min/in	
6) Number of orifices:	2	
7) Riser dia. =>	12 in	
8) Orifice coefficient:	0.62 (typically 0.62)	
9) IE - bottom orifice:	0 ft (distance below bottom of pond - Negative #)	
10) Max Q Bottom Orif. #1	5.40 cfs	
11) Top Orif #2 Height =	2.2 ft	
12) Max Q Mid Orif. #3	0.00 cfs	Orifice not being used
13) Mid Orif #3 Height =	0.00 ft	Orifice not being used

**Detention Facility Design Results:**

Performance year	Developed Inflow cfs	Pre-Developed Outflow cfs	Actual Outflow cfs	Peak Stage ft	Storage cf
100	0	0	0	0	-
25	15.21	9.09	9.09	3.00	20,016
10	12.39	7.17	7.17	2.50	16,021
5	11.21	6.37	6.09	2.31	14,602
2	7.46	3.84	3.73	1.43	8,474
			Required Storage =====		20,016

	Bottom Orif.	Middle Orif.	Top Orif.	Optional Weir Design (for top orifice)
Total Q =	5.40	0.00	3.69	1.83 La (ft)
Head (ft) =	3.00	0.00	0.80	209.85 < deg.
Dist. from bottom of pond (ft) =	0.00	NA	2.20	Must Use Weir
Orif. Dia. (in) =	10.72	0.00	12.33	

**FLOW CONTROL STRUCTURE SCHEMATIC**



**Project Name: Deer Meadows**



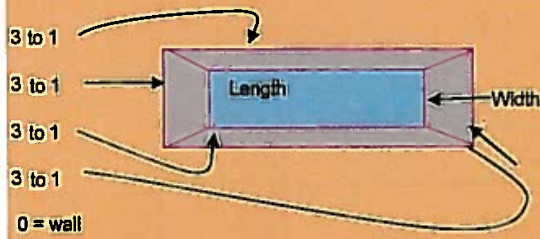
**Detention Facility Type**

Job # 19-035  
 Date: 5/28/2021

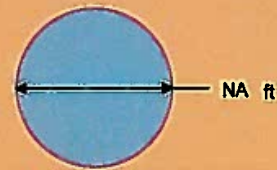
**Detention Facility Type:  
 DETENTION POND**

L = 72.5 ft  
 W = 72.5 ft  
 D = 3.0 ft  
 Pond Area = 5,259 sf

**DETENTION POND**



**DETENTION TANK  
 NA**



**USER DEFINED POND**

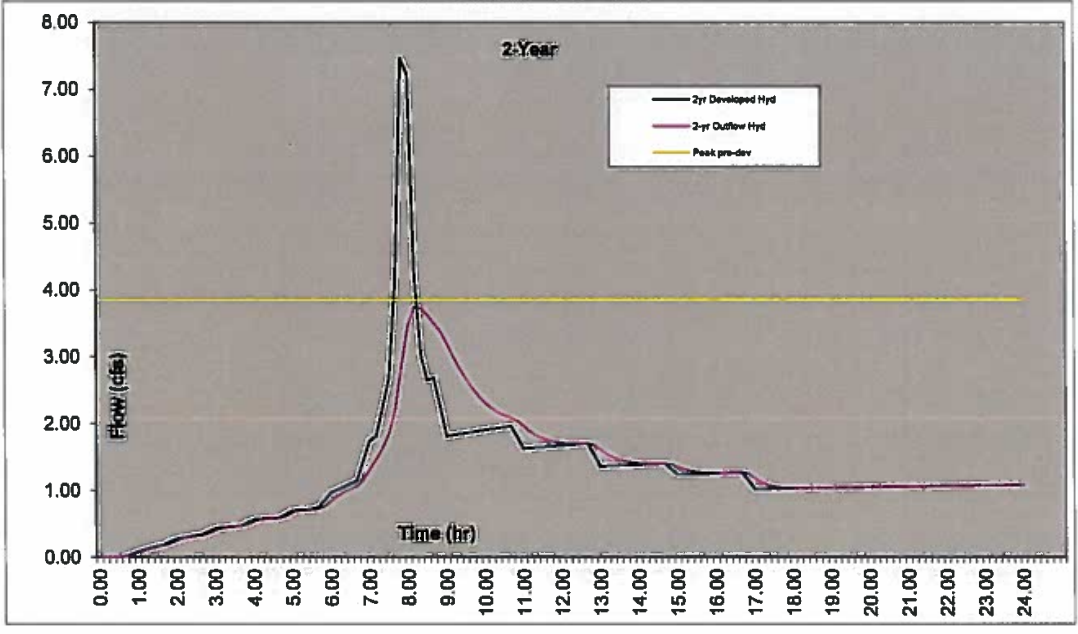
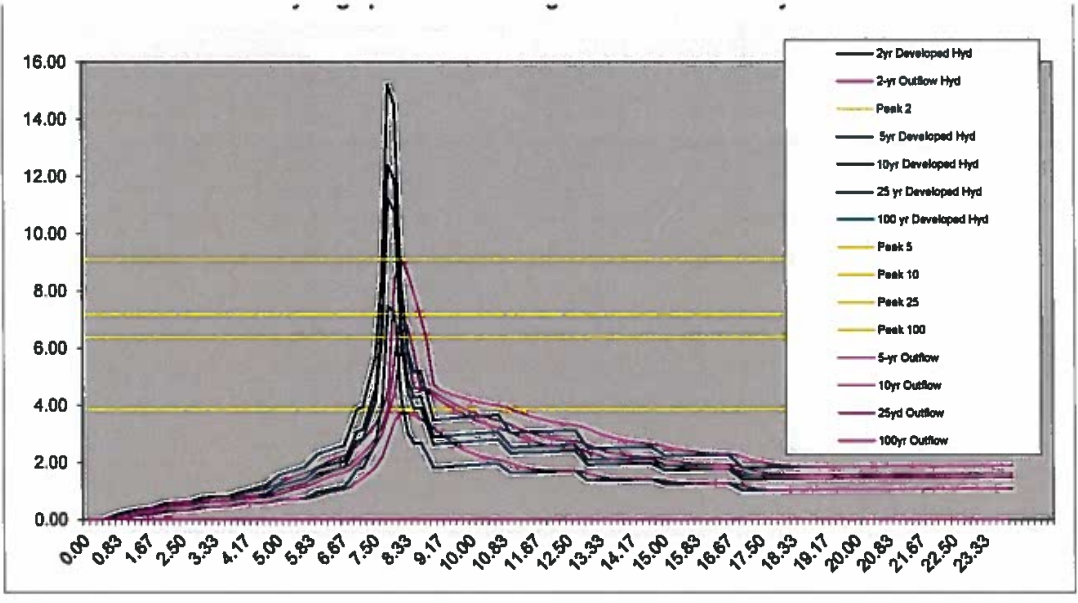
NA  
 Pond Geometry

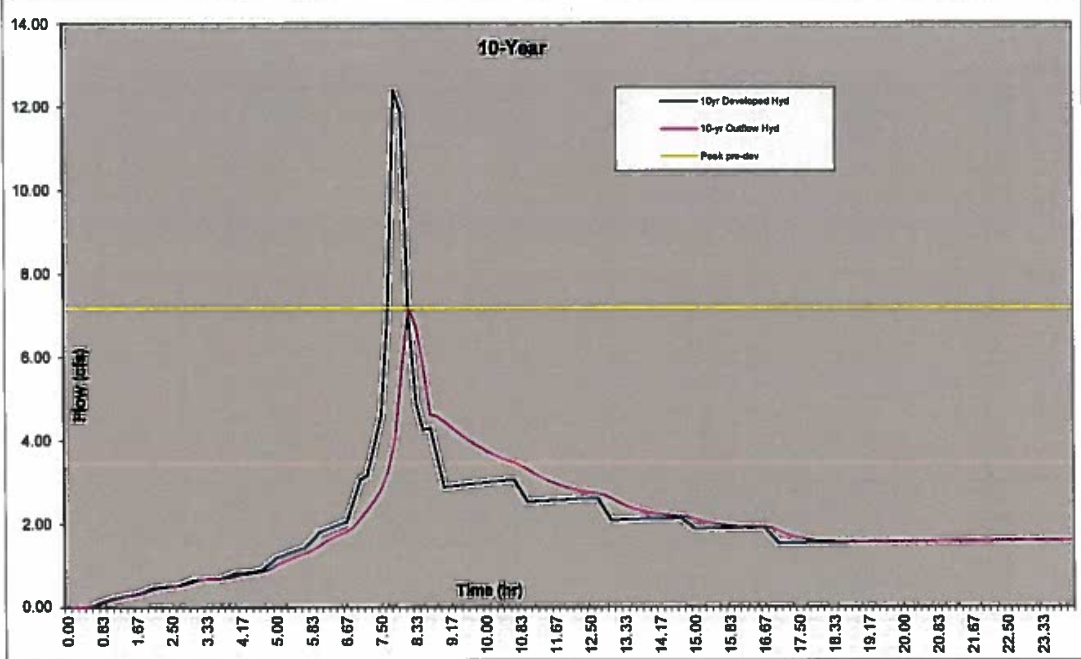
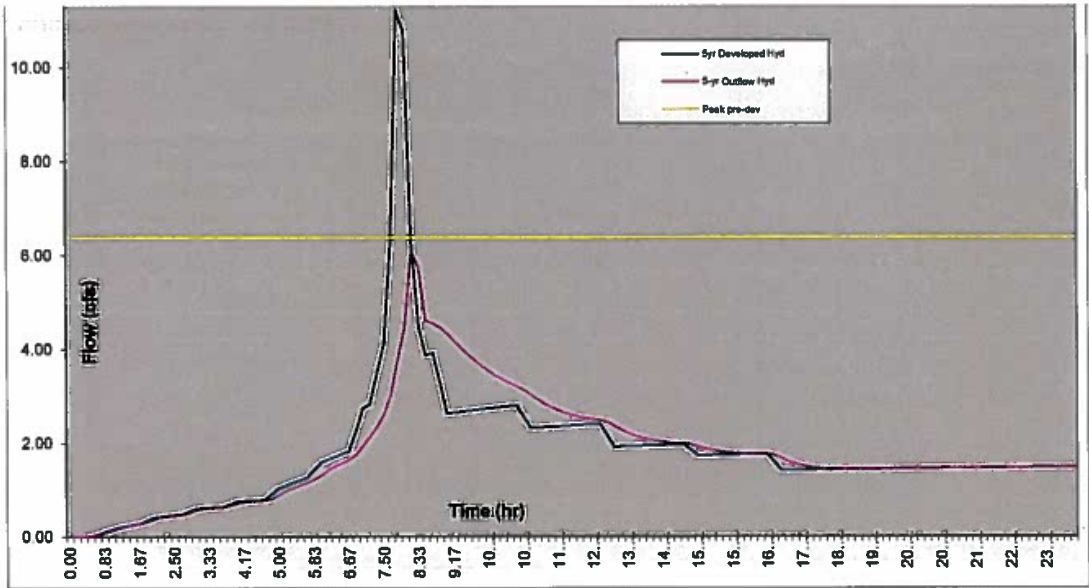
Stage (ft)	Area (sf)
0	NA
1	NA
2	NA
3	NA
4	NA
5	NA
6	NA
7	NA
8	NA
9	NA
10	NA
11	NA
12	NA
13	NA
14	NA
15	NA

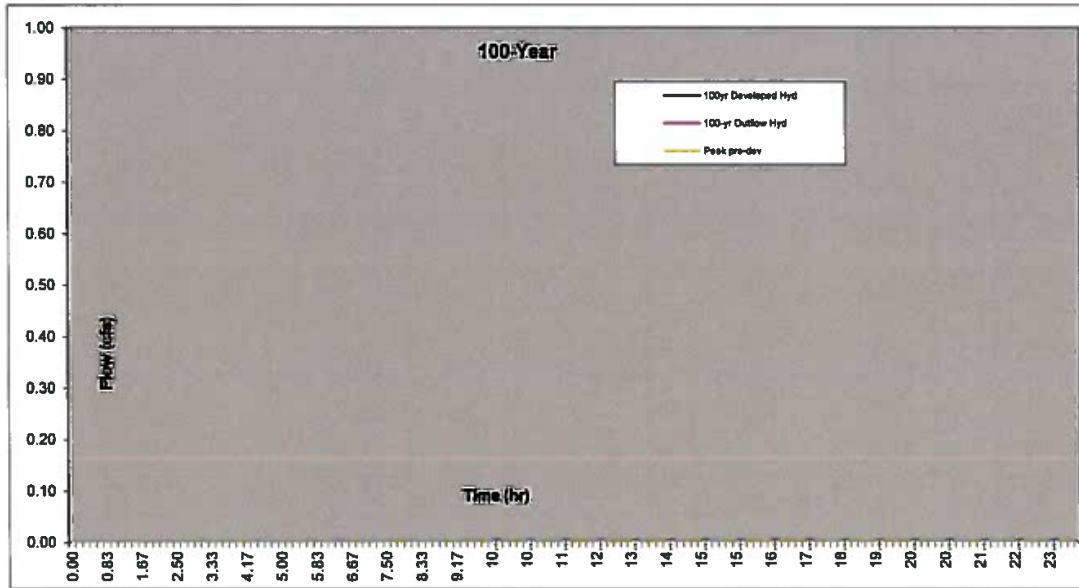
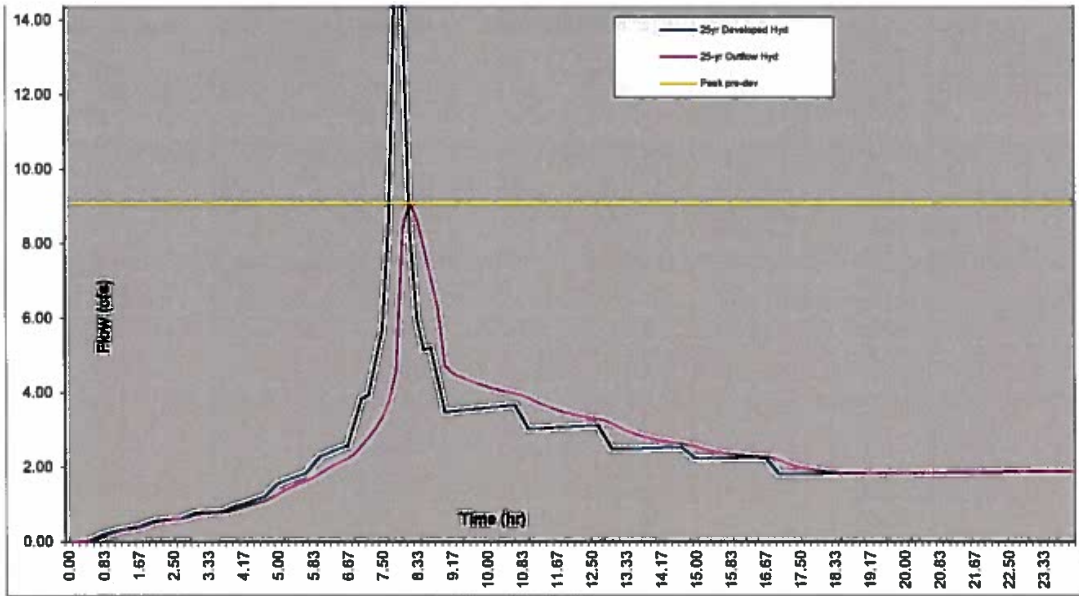


All Storm Hydrographs Routed Through The Detention Facility









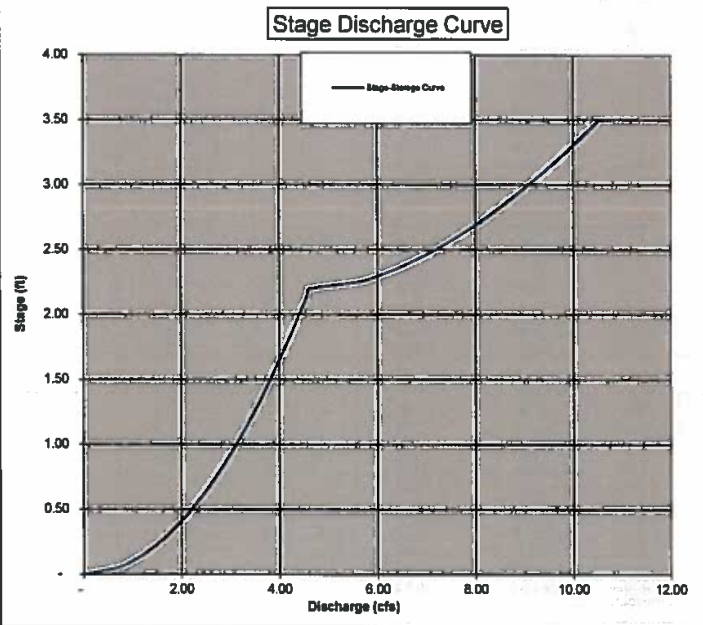
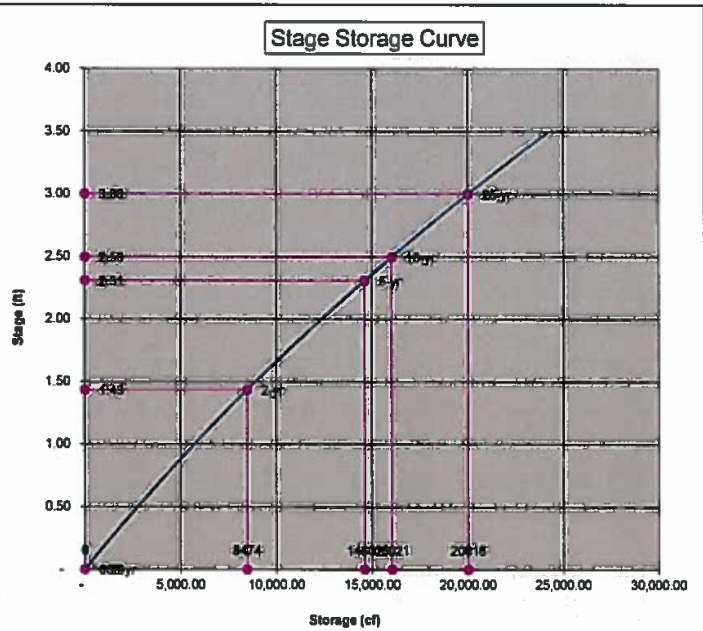
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**Project Name: Deer Meadows**

**Stage Storage Summary**

Job # 19-035  
Date: 5/28/2021

Stage ft	Storage cf	Discharge cfs
0.05	284.02	0.70
0.10	530.23	0.89
0.15	788.64	1.21
0.20	1,069.24	1.39
0.25	1,342.06	1.56
0.30	1,617.09	1.71
0.35	1,894.36	1.84
0.40	2,173.86	1.97
0.45	2,455.62	2.09
0.50	2,739.63	2.20
0.55	3,025.90	2.31
0.60	3,314.45	2.41
0.65	3,605.28	2.51
0.70	3,898.41	2.61
0.75	4,193.83	2.70
0.80	4,491.57	2.79
0.85	4,791.62	2.87
0.90	5,094.01	2.96
0.95	5,398.73	3.04
1.00	5,705.80	3.12
1.05	6,015.23	3.19
1.10	6,327.01	3.27
1.15	6,641.18	3.34
1.20	6,957.72	3.42
1.25	7,276.66	3.49
1.30	7,597.99	3.55
1.35	7,921.74	3.62
1.40	8,247.91	3.69
1.45	8,576.50	3.75
1.50	8,907.53	3.82
1.55	9,241.00	3.88
1.60	9,578.93	3.94
1.65	9,915.32	4.00
1.70	10,256.19	4.06
1.75	10,599.53	4.12
1.80	10,945.37	4.18
1.85	11,293.71	4.24
1.90	11,644.55	4.30
1.95	11,997.92	4.35
2.00	12,353.80	4.41
2.05	12,712.23	4.46
2.10	13,073.20	4.52
2.15	13,436.72	4.57
2.20	13,802.81	4.62
2.25	14,171.46	4.68
2.30	14,542.70	4.74
2.35	14,916.53	4.80
2.40	15,292.95	4.86
2.45	15,671.98	4.92
2.50	16,053.63	4.98
2.55	16,437.91	5.04
2.60	16,824.82	5.10
2.65	17,214.37	5.16
2.70	17,606.57	5.22
2.75	18,001.44	5.28
2.80	18,398.98	5.34
2.85	18,799.19	5.40
2.90	19,202.10	5.46
2.95	19,607.70	5.52
3.00	20,016.01	5.58
3.05	20,427.03	5.64
3.10	20,840.78	5.70
3.15	21,257.27	5.76
3.20	21,676.49	5.82
3.25	22,098.47	5.88













**Project Name: Deer Meadows**  
**Rectangular, Sharp Crested Weir Calculations**

Job # 19-035  
 Date: 5/28/2021

Weir Equation:  $Q = C(L-0.2H)H^{3/2}$

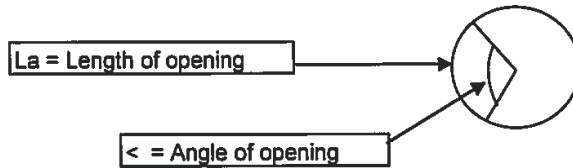
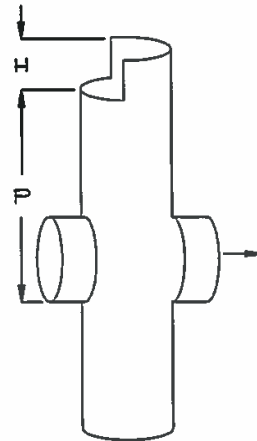
- Q = Flow over weir (cfs)
- C =  $3.27 + 0.40 H/P$  (ft)
- L = Adjusted length of weir ( $L_a - 0.1H \times 2$ ) this is to account for side constraints
- $L_a$  = Actual length of weir along pipes interior circumference (ft)
- H = Distance from bottom of weir to maximum head (ft)
- P = Distance from bottom of weir to outfall invert elevation (ft)
- D = Inside riser pipe diameter (in)
- < = Angle of opening for weir

**Given:**

Q	3.69	cfs
H	0.80	ft
P	2.20	ft
D	12	in

**Find:**

C	3.42	ft
L	1.67	ft
$L_a$	1.83	ft
<	210	degrees



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**Exhibit E**



**DEER MEADOWS SUBDIVISION  
TRAFFIC IMPACT STUDY**

**SANDY, OREGON**



EXPIRES: 12/31/2021

**PREPARED FOR:**  
Alex Reverman

**PREPARED BY:**  
Michael Ard, PE  
Ard Engineering

**DATE:**  
June 14, 2021

21370 SW Langer Farms Parkway, Suite 142, Sherwood, OR 97140 - (503)862-6960



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## **EXECUTIVE SUMMARY**

1. A property located on the south side of US Highway 26 opposite SE Vista Loop Drive in Sandy, Oregon is proposed for a 32-lot subdivision which will support up to 32 single-family homes and 120 apartment units. The site will take access via extensions of Dubarko Road and Fawn Street into the site.
2. Upon completion of residential development within the R-1, R-2, and C-3 zones, the subject property is projected to generate up to 79 site trips during the morning peak hour, 99 trips during the evening peak hour, and 1,180 daily site trips.
3. With conversion to all-way stop control, the intersection of Highway 211 at Dubarko Road is projected to operate acceptably under year 2023 traffic conditions. All other study intersections are projected to operate acceptably through year 2023 either with or without the addition of site trips from the proposed development. No other operational mitigations are necessary or recommended in conjunction with the proposed subdivision.
4. Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. This intersection meets all-way stop control warrants based on crash history, and conversion to all-way stop control would be expected to reduce the frequency and severity of right-angle and turning-movement collisions. It is therefore recommended that all-way stop control be installed at the intersection of Highway 211 and Dubarko Road. No other safety improvements are recommended.
5. Based on the warrant analysis, no new turn lanes or traffic signals are recommended in conjunction with the proposed subdivision.



## **PROJECT DESCRIPTION & LOCATION**

### ***INTRODUCTION***

A property located on the south side of US Highway 26 opposite SE Vista Loop Drive is proposed for development with 32 lots across R-1, R-2, and C-3 zoning. The site can support up to 30 single-family homes, 2 duplex units, and 120 apartment units. The portion of the site zoned C-3 is expected to ultimately include some form of commercial development; however, the nature of this future use has not yet been determined. Accordingly, a future traffic study will be required as part of the design review application for the future commercial site use. The site will take access via extensions of Dubarko Road and Fawn Street into the site. Dubarko Road will be extended to intersect a new north/south collector street within the site, which will stub to the south side of the property.

This report addresses the impacts of the proposed development on the surrounding street system. An operational and safety analysis was conducted for the proposed site access as well as the intersections of:

- Highway 26 at SE Ten Eyck Road;
- Highway 26 at SE Langensand Road;
- Highway 211 at Dubarko Road; and
- Dubarko Road at SE Langensand Road.

The purpose of this analysis is to determine whether the surrounding transportation system is capable of safely and efficiently supporting the proposed use and to identify any necessary improvements and mitigations.

### ***SITE LOCATION AND STUDY AREA DESCRIPTION***

The project site has an area of approximately 16 acres, which is currently undeveloped. The property is surrounded by a mixture of residential development, agricultural uses and undeveloped forested land.

The proposed development will include an extension of Dubarko Road into the site to intersect a new north/south collector roadway. The proposed development will connect to the existing street system via extensions of Dubarko Road and Fawn Street into the project site.

US Highway 26 (Mt. Hood Highway) is classified by the Oregon Department of Transportation as a Statewide Highway and a Freight Route. It has two through lanes in each direction and added turn lanes at intersections. Between SE Langensand Road and SE Vista Loop Drive it has a center two-way left-turn lane. It has a posted speed limit of 25 mph at SE Ten Eyck Road, 40 mph at SE Langensand Road, and 55 mph at SE Vista Loop Drive. West of SE Ten Eyck Road the highway divides into a couplet, with westbound traffic traveling on Proctor Boulevard and eastbound traffic traveling on Pioneer Boulevard.



SE Ten Eyck Road has one through lane in each direction and is striped to prohibit passing in the site vicinity. It has a basic rule speed limit of 55 mph and is classified by the City of Sandy as a Minor Arterial.

SE Langensand Road is also classified by the City of Sandy as a Minor Arterial. It has a two-lane cross-section with one through lane in each direction and a posted speed limit of 25 mph. Partial sidewalks are in place on both sides of the roadway, and on-street parking is available where sufficient paved width is provided.

Oregon Highway 211 (Eagle Creek Sandy Highway) is classified by the Oregon Department of Transportation as a District Highway. It has a two-lane cross-section with one through lane in each direction and added turn lanes at major intersections. It has a posted speed limit of 45 mph in the vicinity of Dubarko Road.

Dubarko Road is classified by the City of Sandy as a Minor Arterial. It generally has a two-lane cross-section with some added turn lanes at major intersections and bike lanes on each side of the roadway. Partial sidewalks are in place on each side of the roadway adjacent to developed properties. It has a posted residential speed limit of 25 mph.



## EXISTING CONDITIONS

The intersection of US Highway 26 at SE Ten Eyck Road/Wolf Drive is controlled by a traffic signal. The northbound and southbound approaches each have a single, shared lane for all turning movements. The westbound approach has a left-turn lane, two through lanes, and a short right-turn pocket. The eastbound approach has a left-turn lane, a dedicated through lane and a shared through/right lane. The northbound and southbound approaches operate with concurrent signal phasing. Protected phasing is provided for the eastbound and westbound left-turn movements. Bike lanes are provided along Highway 26 to the right of the through lanes.

The intersection of US Highway 26 at SE Langensand Road is a T- intersection controlled by a stop sign on the northbound Langensand Road approach. Through traffic traveling along Highway 26 does not stop. The northbound approach has a left-turn lane and a right-turn lane. The eastbound approach has two through lanes and a right-turn lane. The westbound approach has a left-turn lane and two through lanes. Bike lanes are provided along Highway 26 to the right of the through lanes.

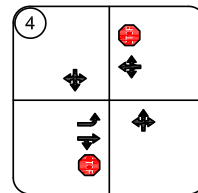
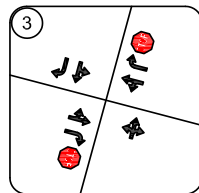
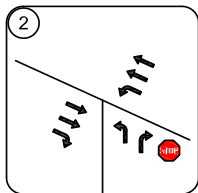
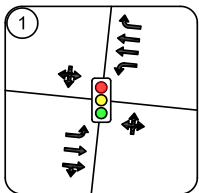
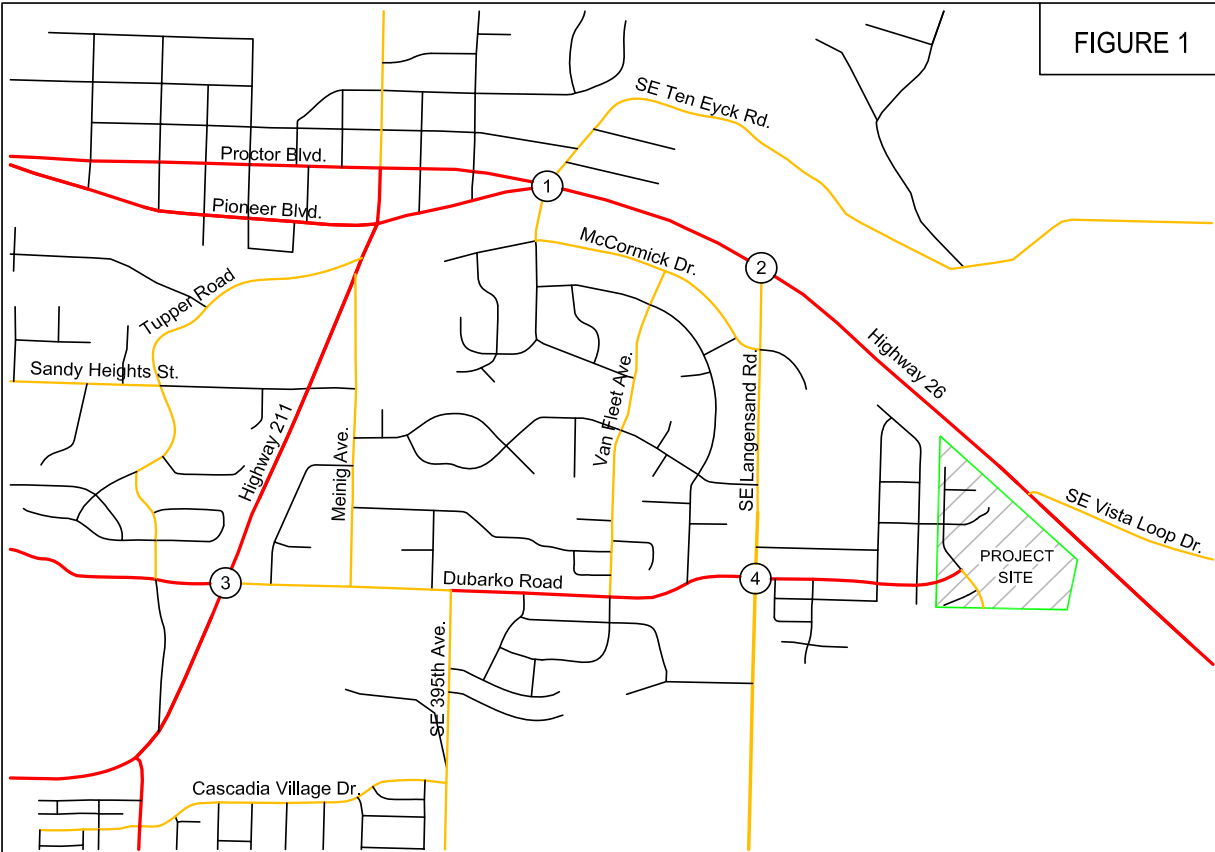
The intersection of Oregon Highway 211 at Dubarko Road is a four-way intersection controlled by stop signs on the eastbound and westbound Dubarko Road approaches. The southbound, eastbound and westbound approaches each have a shared through/left lane, a bike lane, and a dedicated right-turn lane. The northbound approach has a single, shared lane for all motorized turning movements and a bike lane.

The intersection of Dubarko Road at SE Langensand Road is a four-way intersection currently controlled by stop signs on the eastbound and westbound Dubarko Road approaches. Through traffic traveling along SE Langensand Road does not stop. The northbound and southbound approaches each have a single, shared lane for all turning movements. The westbound approach has a single, shared lane for all motor vehicle turning movements and a bike lane. The eastbound approach has a left-turn lane, a shared through/right lane and a bike lane.

A vicinity map displaying the project site, vicinity streets, and the study intersections including lane configurations is provided in Figure 1 on page 7.



FIGURE 1



LEGEND

- Study Intersection
- Traffic Signal
- Stop Sign



VICINITY MAP  
Study Intersections  
Lane Configurations and Traffic Control



### ***TRAFFIC COUNT DATA***

Traffic counts were conducted at the study intersections on Tuesday March 19<sup>th</sup>, 2019 from 4:00 to 6:00 PM and on Wednesday March 20<sup>th</sup>, 2019 from 7:00 to 9:00 AM. Data was used from the highest-volume hour during each analysis period. This historical data was used since it predates the impacts of the current COVID-19 pandemic, allowing conservative projections of future peak-hour traffic conditions once conditions return to normal.

Since the count data was collected during a non-peak period of the year, the observed traffic volumes were adjusted to account for seasonal traffic variations to represent the 30<sup>th</sup>-highest hour design volumes.

US Highway 26 serves local and commuter traffic as well as trips to and from Mt. Hood and beyond. These trip types would be expected to exhibit very different seasonal variations in travel demands over the course of the year, since local and commuter traffic volumes are relatively stable regardless of season, while travel volumes to and from Mt. Hood vary significantly based on the season.

To determine the portion of traffic attributable to each of the two primary travel types, data from ODOT's 2017 Highway Volume Tables was utilized. Specifically, the data used was collected at ODOT's Automatic Count Data station 03-006, located 0.30 miles east of Camp Creek Road in Rhododendron, Oregon. This site is located on Highway 26 approximately 21 miles east of SE Vista Loop Drive. Although the distance to the ATR station means the data cannot be used directly, the ATR data provides useful information regarding the variation in traffic volumes traveling to Mt. Hood and beyond during the time of the count data collection as well as during the peak season of the year. Accordingly, this data allows determination of the likely portion of highway traffic that falls into each of the two seasonal variation categories ("commuter" and "recreational summer/winter"), as well as providing information regarding the most appropriate seasonal adjustment factor for the recreational summer/winter traffic.

Based on the data, 6,763 vehicles per day (approximately 676 per hour during the peak hour) travel along Highway 26 to and from Mt. Hood at the Rhododendron permanent count station location during the month of March. This volume represents 45.3 percent of the through traffic volumes measured on Highway 26 east of SE Vista Loop Drive. Accordingly, it is expected that no more than 45.3 percent of the trips traveling along Highway 26 in the project vicinity are traveling to and from destinations beyond the Rhododendron count station. Since the remaining 54.7 percent of through traffic volumes on the Highway 26 at the study intersections never reach Mt. Hood, it was assumed that these traffic volumes represent more typical commuter and local trips.

The ODOT data also showed that 11,738 vehicles were measured per day (approximately 1174 per hour during the peak hour) during the peak-season month of August at the ATR station near Rhododendron. This indicates that the seasonal recreational traffic volumes along the Highway 26 corridor increased by no more than 4,975 vehicles per day (11,738 vehicles per day in August - 6,763 vehicles per day in March). This equates to roughly 498 additional vehicles per hour during the peak hour of the peak recreational season. It is expected that the increased recreational traffic flows will be somewhat directional, with approximately 55% traveling westbound during the evening peak hour.



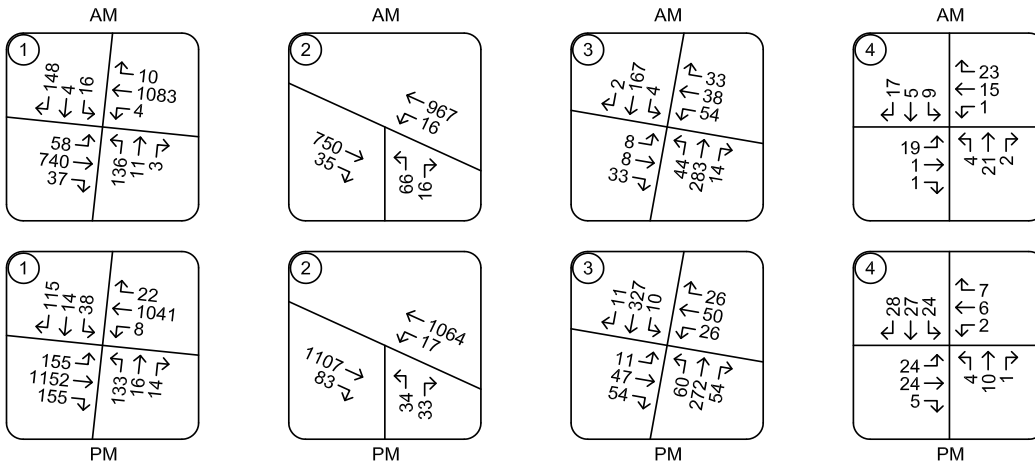
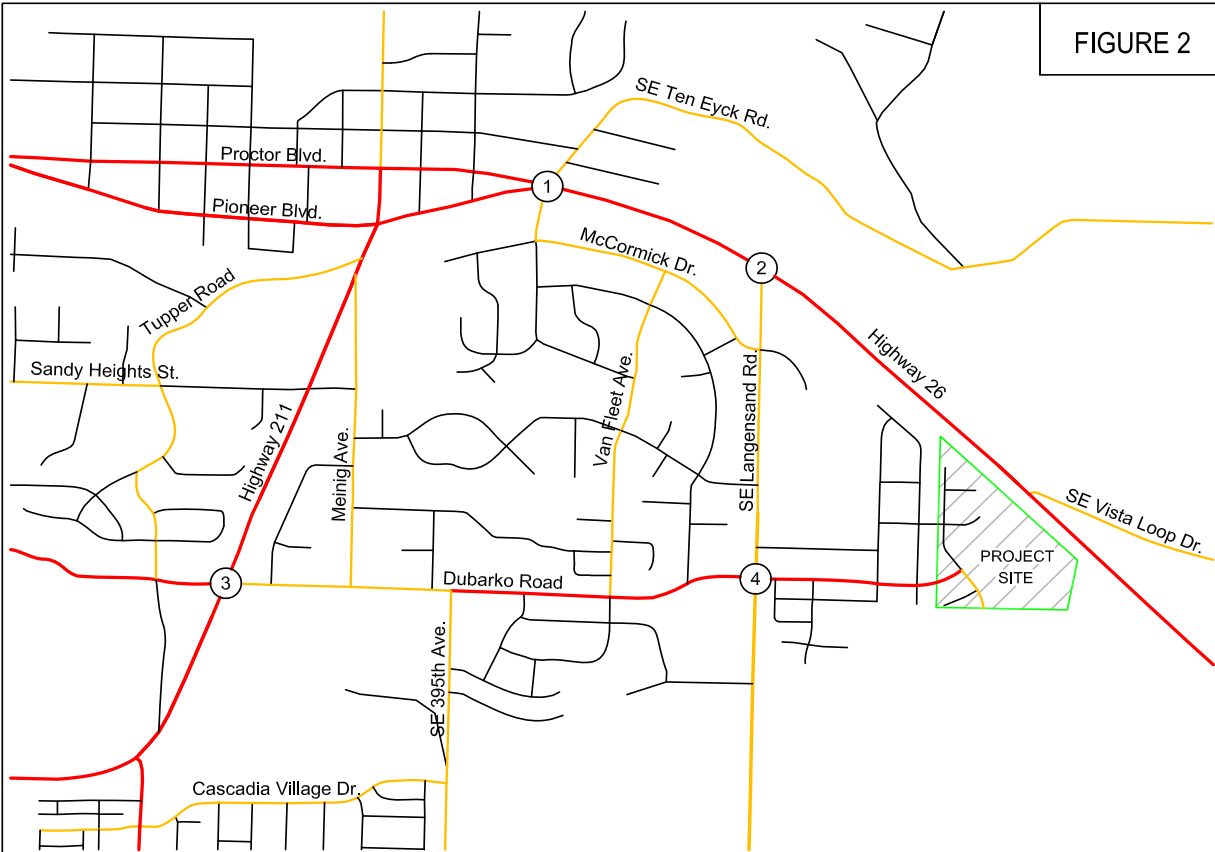
In order to seasonally adjust the local and commuter traffic volumes, the through traffic volumes were reduced by the amount of the assumed seasonal traffic (676 vehicles per hour during the evening peak hour), and a seasonal adjustment of 1.08 was applied to the remaining local and commuter traffic volumes. Following this adjustment, the 676 March recreational trips and the 498 peak-season through trips were added to determine the total peak-season traffic volumes. These calculated through traffic volumes represent the anticipated traffic levels for the intersections along Highway 26 during the 30<sup>th</sup>-highest hour in August. The morning peak hour traffic volumes along the highway were then increased by the same overall percentage as the evening peak hour volumes.

The observed traffic volumes along Highway 211 also had a seasonal adjustment of 1.08 applied to represent peak-season traffic volumes.

Following application of the seasonal adjustments, two years of growth was added to the year 2019 traffic count data to represent the expected year 2021 seasonal peak traffic conditions absent the impacts of the current COVID-19 pandemic. Based on data from ODOT's Future Volume Tables, the growth rate for traffic volumes on Highway 26 in the site vicinity was calculated to be 1.96 percent per year. The growth rate for traffic volumes on Highway 211 was calculated to be 3.13 percent per year. These growth rates were applied to the through traffic volumes on the highways. All other turning movements had a growth factor of 2 percent per year applied. The respective growth rates were applied over a period of two years to generate the year 2021 seasonal peak traffic volumes.

Figure 2 on page 10 shows the existing year 2021 30<sup>th</sup>-highest hour traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 2



**TRAFFIC VOLUMES**  
 2021 Existing 30th-Highest Hour (August) Conditions  
 Morning and Evening Peak Hours



### ***OPERATIONAL ANALYSIS***

An operational analysis was conducted for the study intersections using Synchro 10 software, with outputs calculated based on the *HIGHWAY CAPACITY MANUAL, 6<sup>th</sup> Edition*. The analysis was conducted for the weekday morning and evening peak hours.

The purpose of the existing conditions analysis is to establish how the study area intersections operate currently and allow for calibration of the operational analysis if required.

The results of the operational analysis are reported based on delay, Level of Service (LOS), and volume-to-capacity ratio (v/c). Delays are reported in seconds. Level of service is reported as a letter grade and can range from A to F, with level of service A representing nearly free-flow conditions and level of service F representing high but tolerable delays and severe congestion. A report of level of service D generally indicates moderately high but tolerable delays, and typically occurs prior to reaching intersection capacity. For unsignalized intersections, the v/c represents the portion of the available intersection capacity that is being utilized on the worst intersection approach. For signalized intersections, it indicates the portion of the overall intersection's capacity that is being used. A v/c ratio of 1.0 would indicate that the intersection is operating at capacity.

The Oregon Department of Transportation requires that the signalized intersection of Highway 26 at SE Ten Eyck Road operate with a v/c ratio of 0.85 or less during the peak hours. The intersection of Highway 26 at SE Langensand Road is required to operate with a v/c ratio of 0.80 or less on the major-street approaches and a v/c ratio of 0.90 or less on the minor-street approaches.

Intersections operating under the jurisdiction of the City of Sandy are required to operate at level of service D or better. This operational standard applies to the intersections of Dubarko Road at Langensand Road and Highway 211 at Dubarko Road.

A summary of the existing conditions operational analysis is provided in Table 1 on the following page. For the unsignalized intersections the reported delays and levels-of-service represent the approach lane which experiences the highest delays. The reported v/c ratios represent the highest ratio for the major-street and minor-street movements. For the signalized intersection of Highway 26 at SE Ten Eyck Road, the reported delays, levels-of-service and v/c ratios represent the operation of the overall intersection.

Based on the analysis, the study intersections are currently operating acceptably per the respective ODOT and City of Sandy standards. Detailed capacity analysis worksheets are provided in the technical appendix.



**Table 1 - Operational Analysis Summary: Year 2021 30th-Highest Hour Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c*	Delay	LOS	v/c*
Highway 26 at Ten Eyck Road	24.0	C	0.66	27.3	C	0.71
Highway 26 at Langensand Road	56.1	F	0.29 / 0.51	96.7	F	0.36 / 0.50
Highway 211 at Dubarko Road	18.9	C	0.22 / 0.28	27.0	D	0.23 / 0.33
Dubarko Road at Langensand Road	9.4	A	0.05	9.8	A	0.04

\*(major street v/c) / (minor-street v/c) is shown for unsignalized ODOT intersections.



## SITE TRIPS

### Proposed Development

The proposed subdivision will support development of 32 single-family homes as well as up to 120 apartment units. Although some commercial development is expected to occur within the C-3 zoned portion of the property in the longer-range future, a separate design review application and analysis will be required for future commercial development. To estimate the number of trips that will be generated by the potential residential development within the proposed subdivision, trip rates from the *TRIP GENERATION MANUAL, 10<sup>th</sup> EDITION* were used. Data from land-use code 210, *Single-Family Detached Housing*, and 220, *Multi-Family Housing*, were used. The trip estimates are based on the number of dwelling units.

A summary of the trip generation calculations is provided in Table 2 below. Detailed trip generation worksheets are also included in the technical appendix.

**Table 2 - Proposed Development Trip Generation Summary**

	AM Peak Hour			PM Peak Hour			Daily Total
	In	Out	Total	In	Out	Total	
32 Single-Family Homes	6	18	24	20	12	32	302
120 Multi-Family Dwelling Units	13	42	55	42	25	67	878
<b>Total Site Trips</b>	<b>19</b>	<b>60</b>	<b>79</b>	<b>62</b>	<b>37</b>	<b>99</b>	<b>1,180</b>

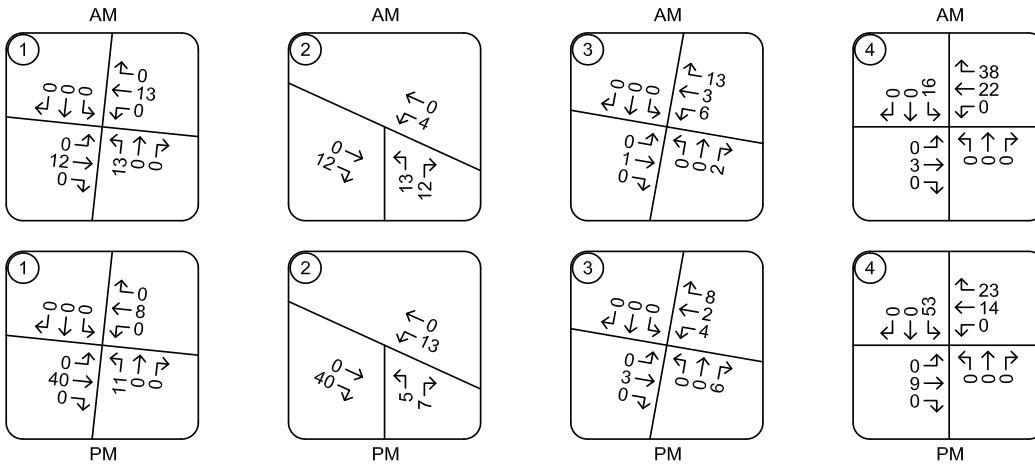
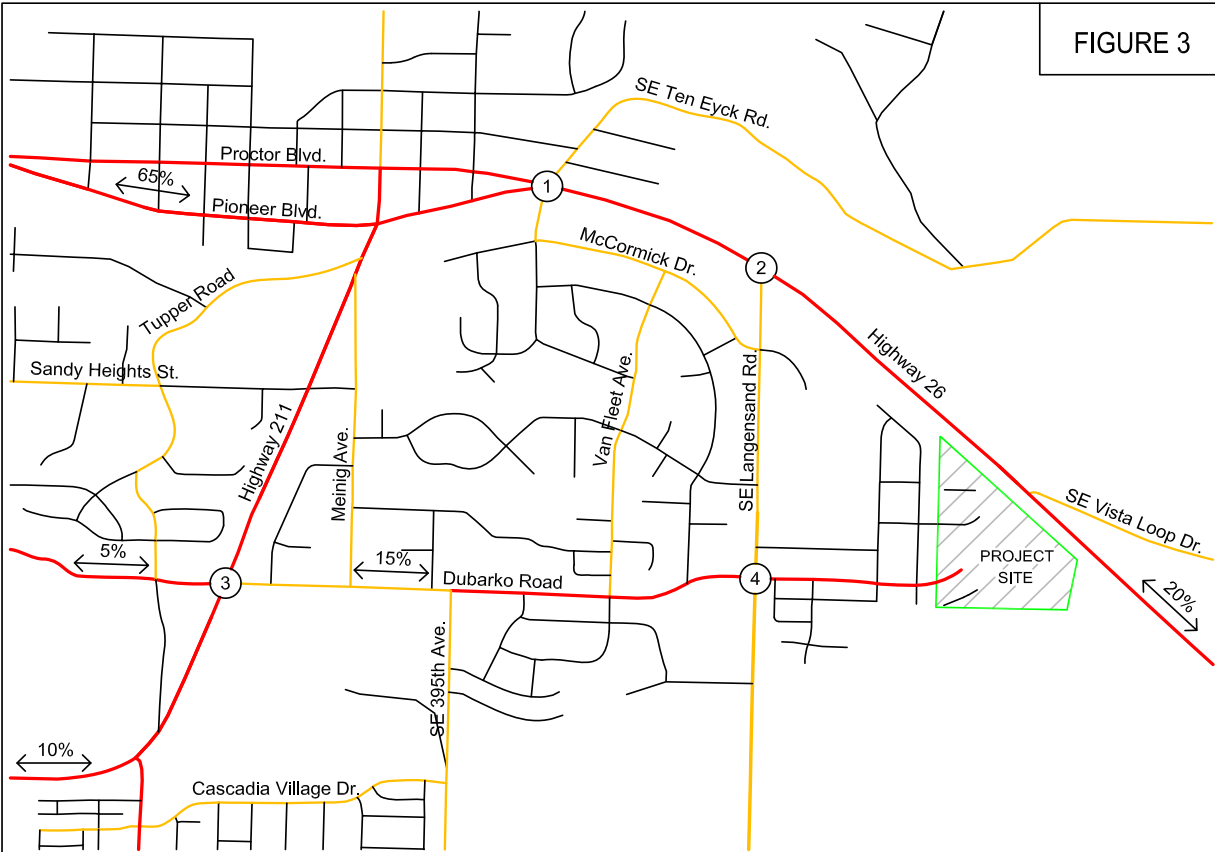
### TRIP DISTRIBUTION

The directional distribution of site trips to and from the project site was estimated based the existing travel patterns in the site vicinity, as well as the locations of likely trip destinations and major transportation routes. Overall, 65 percent of the anticipated site trips are projected to travel to and from the northwest on Highway 26, 20 percent are projected to travel to and from the southeast on Highway 26, and the remaining 15 percent of site trips are projected to travel to and from the west on Dubarko Road.

The trip distribution percentages and trip assignment for residential development within the proposed subdivision are shown in Figure 3 on page 14.



FIGURE 3



**TRAFFIC VOLUMES**  
 Proposed Development - Primary Site Trips  
 Morning and Evening Peak Hours



## **FUTURE CONDITIONS ANALYSIS**

### ***BACKGROUND VOLUMES***

In order to determine the expected impact of site trips on the study area intersections, it is necessary to compare traffic conditions both with and without the addition of the projected traffic from the proposed development. This comparison is made for future traffic conditions at the time of project completion. It is anticipated that the proposed use will be completed and occupied within two years. Accordingly, the analysis was conducted for year 2023 traffic conditions.

Prior to adding the projected site trips to the study intersections, the existing traffic volumes were adjusted to account for background traffic growth over time. Based on data from ODOT's Future Volume Tables, the growth rate for traffic volumes on Highway 26 in the site vicinity was calculated to be 1.96 percent per year (linear). The growth rate for traffic volumes on Highway 211 was calculated to be 3.13 percent per year (linear). These growth rates were applied to the through traffic volumes on the highways. All other turning movements had a growth factor of 2 percent per year (exponential) applied.

In addition to the background growth, future site trips associated with other anticipated developments within the City of Sandy were added to the background traffic volumes. These projects included the Clackamas County Health Clinic, Mt. Hood Senior Living, The Pad, The Views, Shaylee Meadows, Mt. View Ridge, Marshall Ridge, Jacoby Heights, Trimble PD, and Bornstedt Views. The projected site trips for these residential developments are shown in Figure 6 in the attached technical appendix.

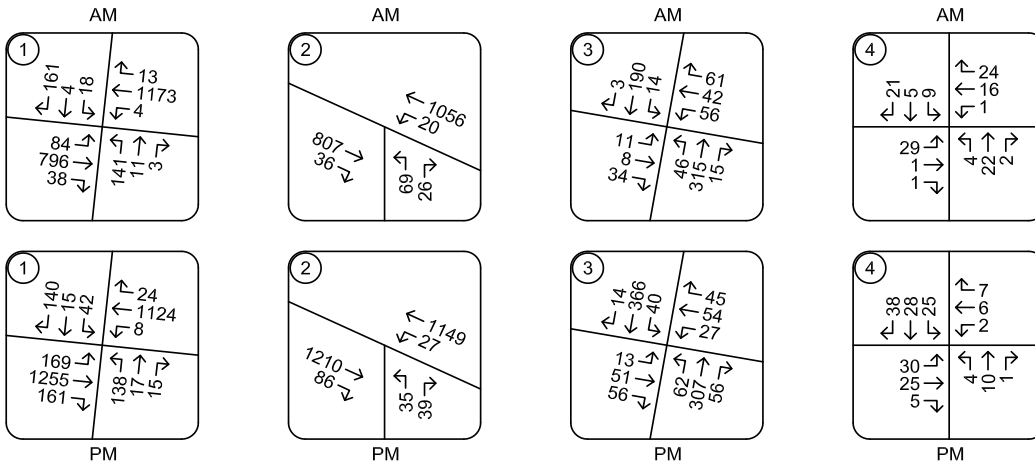
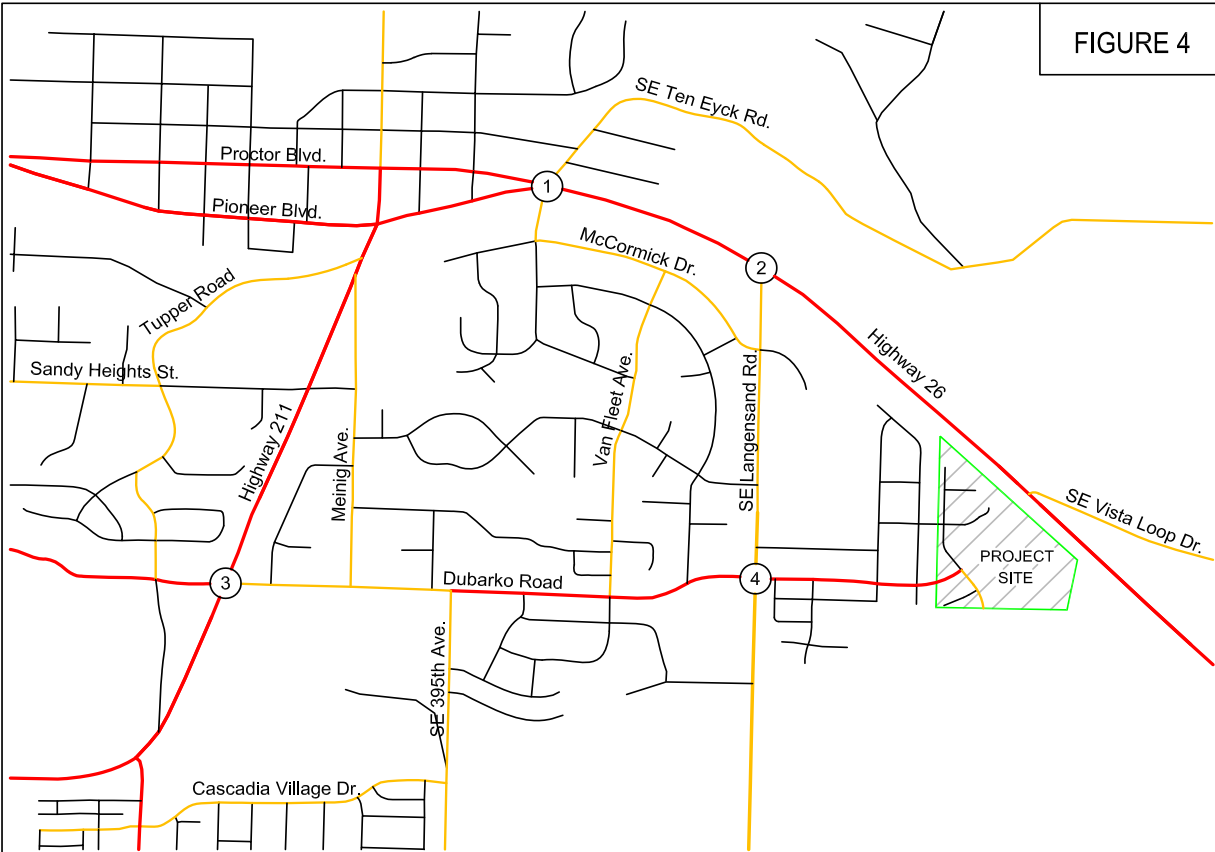
Figure 4 on page 16 shows the projected year 2023 background traffic volumes at the study intersections during the morning and evening peak hours.

### ***BACKGROUND VOLUMES PLUS SITE TRIPS***

Peak hour trips calculated to be generated by the proposed development were added to the projected year 2023 background traffic volumes to obtain the year 2023 total traffic volumes following completion of the proposed residential development.

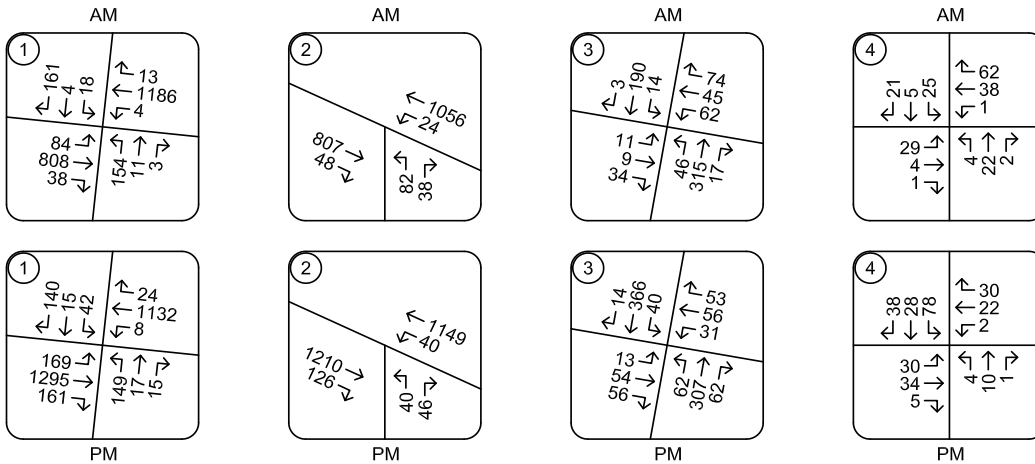
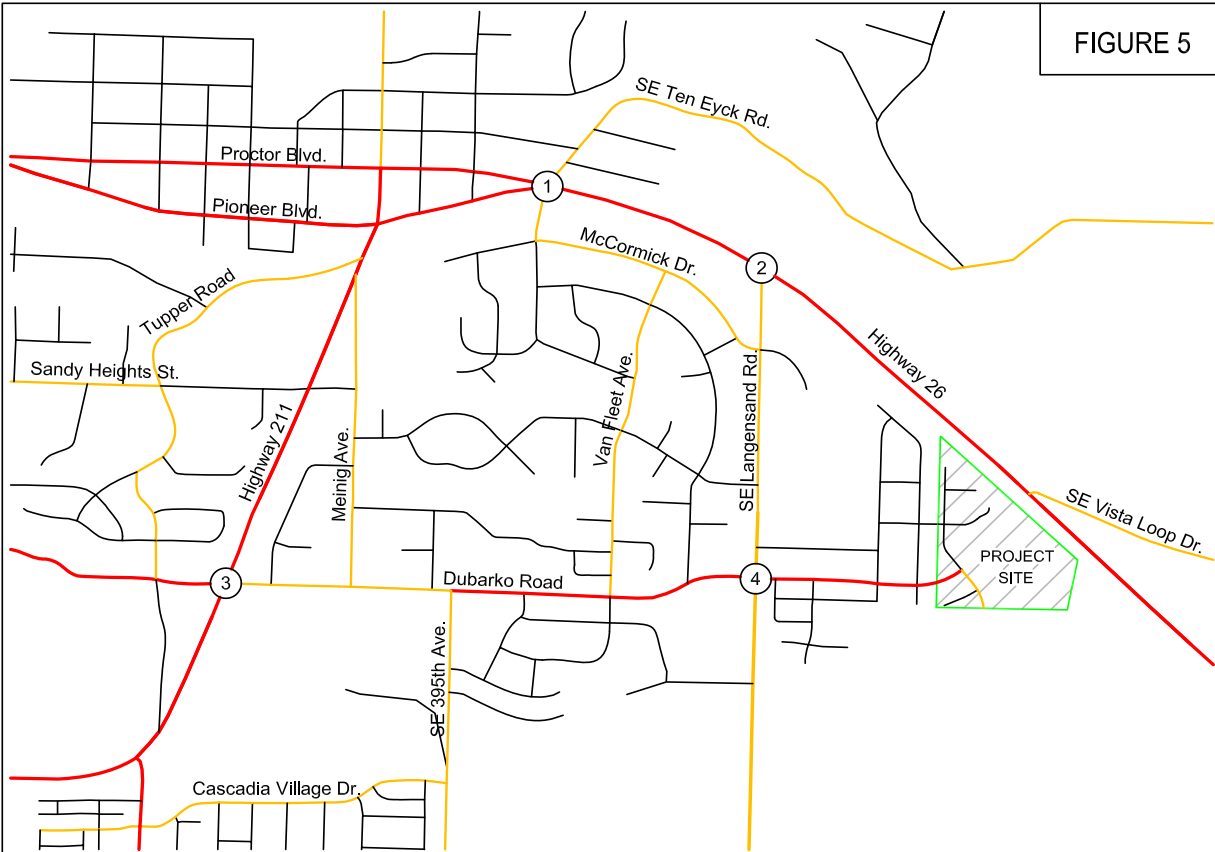
Figure 5 on page 17 shows the projected year 2023 peak hour volumes including background growth, and site trips from the proposed development for the morning and evening peak hours.

FIGURE 4



**TRAFFIC VOLUMES**  
 2023 Background Conditions  
 Morning and Evening Peak Hours

FIGURE 5



**TRAFFIC VOLUMES**  
 2023 Background Plus Site Trips  
 Morning and Evening Peak Hours



**OPERATIONAL ANALYSIS**

The operational analysis for future traffic conditions was again conducted using Synchro analysis software, with outputs based on the analysis methodologies contained in the *HIGHWAY CAPACITY MANUAL*. The analysis was prepared for the intersections’ morning and evening peak hours.

The results of the operational analysis are summarized in Table 4 below. Detailed analysis worksheets are also included in the technical appendix.

**Table 4 - Operational Analysis Summary: Year 2023 Future Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c*	Delay	LOS	v/c*
Highway 26 at Ten Eyck Road						
2023 Background Conditions	25.5	C	0.72	29.2	C	0.78
2023 Background plus Site	25.8	C	0.75	29.8	C	0.81
Highway 26 at Langensand Road						
2023 Background Conditions	76.4	F	0.32 / 0.62	160.1	F	0.39 / 0.68
2023 Background plus Site	97.3	F	0.32 / 0.75	210.4	F	0.40 / 0.84
Highway 211 at Dubarko Road						
2023 Background Conditions	22.8	C	0.35	39.4	E	0.46
2023 Background plus Site	23.9	C	0.39	43.3	E	0.50
2023 Background plus Site AWSC	19.5	C	0.67	29.6	D	0.79
Dubarko Road at Langensand Road						
2023 Background Conditions	9.5	A	0.05	9.9	A	0.04
2023 Background plus Site	10.5	B	0.13	11.3	B	0.08

\*(major street v/c) / (minor-street v/c) is shown for the unsignalized ODOT intersection.

AWSC = Mitigated conditions analysis with conversion to all-way stop control

The intersection of Oregon Highway 211 at Dubarko Road was previously under the jurisdiction of the Oregon Department of Transportation and subject to a volume-to-capacity ratio standard rather than level of service. The intersection would have met ODOT standards for operation, but with conversion to a city intersection it is projected to operate at level of service “E” either with or without the addition of site trips from the proposed development. If the intersection is converted to all-way stop control (as recommended in the safety analysis section of this report on page 20), the intersection is projected to operate at level of service D, thereby meeting the city’s operational standard.

All other intersections are projected to operate acceptably per the appropriate jurisdictional standards. No other operational mitigations are recommended in conjunction with the proposed development.



## **SAFETY ANALYSIS**

### ***CRASH DATA ANALYSIS***

Using data obtained from the Oregon Department of Transportation, a review of the five most recent years of available crash history (from January 2015 through December 2019) was performed for the study intersections. The crash data was evaluated based on the number, type, and severity of collisions, as well as the intersection crash rate. Crash rates allow comparison of relative safety risks at intersections with different lane configurations, volumes, and traffic control devices by accounting for both the number of crashes that occur during the study period and the number of vehicles that traveled through the intersection during that period. Crash rates are calculated using the standard assumption that evening peak hour volumes are approximately 10 percent of the average daily traffic volume at an intersection. The crash rates were compared to statewide crash rates for similar intersection types to identify any locations with crash rates in excess of the 90<sup>th</sup> percentile.

The intersection of Highway 26 at SE Ten Eyck Road had eight reported collisions during the five-year analysis period. These included four rear-end collisions, three turning movement collisions, and one angle collision. The crashes resulted in no serious injuries or fatalities and six reports of a “possible injury/complaint of pain”. The crash rate for the intersection was calculated to be 0.15 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.86 crashes per million entering vehicles for signalized, four-way urban intersections in Oregon.

The intersection of Highway 26 at SE Langensand Road had seven reported collisions during the five-year analysis period. These included five turning-movement collisions, one backing collision and one pedestrian collision. The pedestrian collision occurred when a pedestrian walking along the south side of Highway 26 crossing Langensand Road was struck by a driver making an eastbound right turn from the highway onto Langensand Road. The collision resulted in a report of a “possible injury/complaint of pain” by the pedestrian. Overall, the crashes resulted in one non-incapacitating injury and five reports of a “possible injury/complaint of pain”. The crash rate for the intersection was calculated to be 0.16 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.29 crashes per million entering vehicles for stop-controlled, three-way urban intersections in Oregon.

The intersection of Highway 211 at Dubarko Road had 27 reported crashes during the five-year analysis period. These included 16 angle collisions, 4 turning-movement collisions, 4 rear-end collisions, 1 backing collision, 1 sideswipe-overtaking collision, and 1 pedestrian collision. The crashes resulted in one incapacitating injury and no fatalities. There were 10 “non-incapacitating” injuries reported and 19 reports of a “possible injury/complaint of pain”. The incapacitating injury occurred when a westbound driver failed to yield to a southbound vehicle and was struck in the intersection. The pedestrian collision occurred when a southbound pedestrian was struck by a westbound driver that failed to yield right-of-way to the pedestrian crossing, resulting in a report of a possible injury/complaint of pain by the pedestrian. The crash rate for the intersection was calculated to be 1.56 crashes per million entering vehicles. This is above the 90<sup>th</sup> percentile crash rate of 1.08 crashes per million entering vehicles for rural unsignalized four-way intersections in the state of Oregon.

The Oregon Department of Transportation recently undertook safety improvements at this intersection, including re-alignment of the minor-street approaches to intersect at a 90-degree angle and the addition



of some striping and speed feedback signs along the major-street to increase driver awareness of speed. However, the crash data for subsequent years has shown no significant improvement in the crash frequency at this intersection. An examination of the current intersection configuration revealed no significant apparent hazards and adequate sight distance from the minor-street approaches, allowing drivers approaching the highway to select safe gaps when turning onto or crossing the highway.

As described in the Warrant Analysis section of this report below, the intersection currently meets all-way stop control warrants based on crash history. Accordingly, it is recommended that all-way stop control be installed at this intersection. No other safety mitigations are recommended at this time.

The intersection of Dubarko Road at SE Langensand Road had one reported collision during the five-year analysis period. It was an angle collision that resulted in property damage only. The crash rate for the intersection was calculated to be 0.34 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.408 crashes per million entering vehicles for stop-controlled, four-way urban intersections in Oregon.

Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. It is recommended that consideration be given to installing all-way stop control at this intersection. No other safety improvements are recommended for the study area intersections at this time.

#### ***TRAFFIC SIGNAL AND ALL-WAY STOP CONTROL WARRANT ANALYSIS***

Traffic signal warrants were examined for the unsignalized study intersections. Based on the projected traffic volumes, traffic signal warrants are not projected to be met for any of the unsignalized study intersections under any of the analysis scenarios.

All-way stop control can be installed where there are “Five or more crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.” Examination of the crash data shows that there were six angle collisions at the intersection in the most recent year for which complete data is available (2019). Accordingly, installation of all-way stop control is warranted based on crash history.

Consideration was also given to installing a roundabout at the intersection of Highway 211 and Dubarko Road. Installation of a roundabout would result in operation well within capacity and at level of service A. However, according to *Roundabouts: An Informational Guide*, published by the Federal Highway Administration, “It is generally not desirable to locate roundabouts in locations where grades through the intersection are greater than four percent. The installation of roundabouts on roadways with grades lower than three percent is generally not problematic.” In this instance, Highway 211 has a constant grade of approximately 6 percent through its intersection with Dubarko Road. Accordingly, installation of a roundabout would not be recommended absent significant re-grading of the approach roadways. The potential for snow and ice at the intersection compound this concern.





### ***TURN LANE WARRANT ANALYSIS***

Turn lane warrants were also examined for the major-street approaches to the unsignalized study intersections. Left-turn lane warrants are intended to evaluate whether a meaningful safety benefit may be expected if the turning vehicles are provided with turn lane within the street, allowing left-turning drivers to move out of the through travel lane so that following vehicles may pass without conflicts.

The intersection of Highway 26 at Langensand Road already has left and right turn lanes in place.

The intersection of Highway 211 at Dubarko Road currently meets ODOT warrants for a northbound left-turn lane and a northbound right-turn lane. However, the need for these turn lanes is not meaningfully related to the proposed development. Further, if all-way stop control is installed at the intersection as recommended based on the safety analysis, additional turn lanes will not be required for either safety or operations.

The intersection of Dubarko Road at Langensand Road is not projected to meet turn lane warrants under any analysis scenarios.



## **CONCLUSIONS**

With conversion to all-way stop control, the intersection of Highway 211 at Dubarko Road is projected to operate acceptably under year 2023 traffic conditions. All other study intersections are projected to operate acceptably through year 2023 either with or without the addition of site trips from the proposed development. No other operational mitigations are necessary or recommended in conjunction with the proposed subdivision.

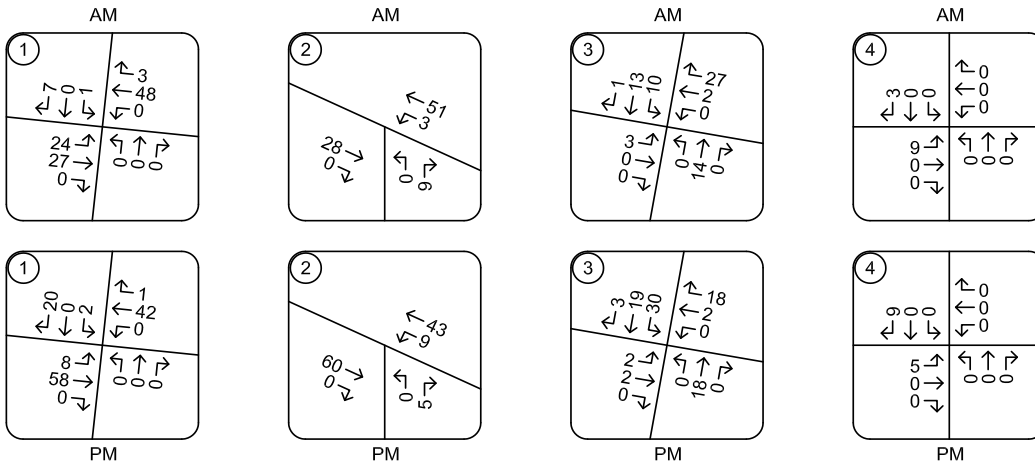
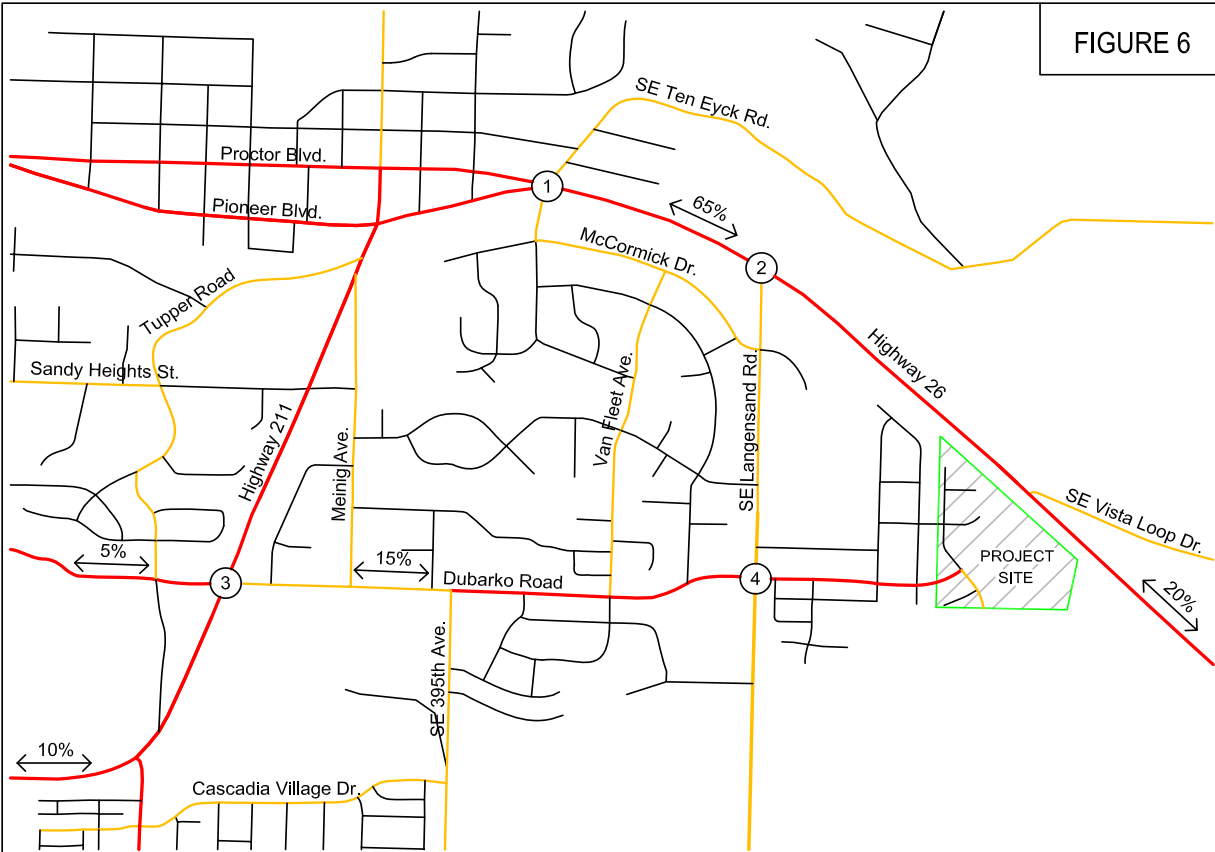
Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. This intersection meets all-way stop control warrants based on crash history, and conversion to all-way stop control would be expected to reduce the frequency and severity of right-angle and turning-movement collisions. It is therefore recommended that all-way stop control be installed at the intersection of Highway 211 and Dubarko Road. No other safety improvements are recommended.

Based on the warrant analysis, no new turn lanes or traffic signals are recommended in conjunction with the proposed subdivision.



## APPENDIX

FIGURE 6



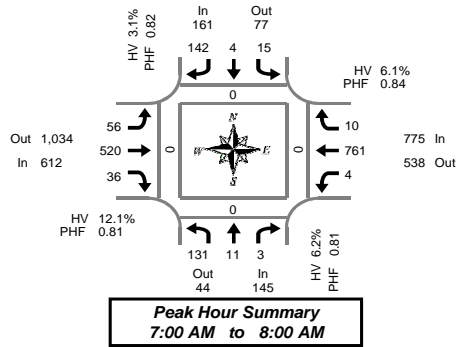
**TRAFFIC VOLUMES**  
 In-Process Development - Site Trips  
 Morning and Evening Peak Hours

PAGE  
 APP1

# Total Vehicle Summary



Clay Carney  
(603) 833-2740



## SE Ten Eyck Rd & Hwy 26

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

### 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	16	0	0	0	0	0	17	0	5	26	2	0	0	74	0	0	140	0	0	0	0
7:05 AM	10	0	1	0	1	0	10	0	2	18	3	0	1	65	2	0	113	0	0	0	0
7:10 AM	17	1	0	0	2	0	11	0	7	36	2	0	2	74	1	0	153	0	0	0	0
7:15 AM	12	0	0	0	1	2	9	0	9	40	2	0	1	84	1	0	161	0	0	0	0
7:20 AM	15	0	0	0	3	0	11	0	3	40	1	0	0	68	0	0	141	0	0	0	0
7:25 AM	14	1	0	0	1	1	16	0	2	40	4	0	0	70	1	0	150	0	0	0	0
7:30 AM	7	1	1	0	0	0	16	0	8	43	2	0	0	67	0	0	145	0	0	0	0
7:35 AM	12	2	0	0	3	0	12	0	0	56	5	0	0	57	1	0	148	0	0	0	0
7:40 AM	8	2	0	0	0	0	11	0	4	59	3	0	0	53	0	0	140	0	0	0	0
7:45 AM	12	1	1	0	2	0	11	0	4	53	3	0	0	45	2	0	134	0	0	0	0
7:50 AM	4	2	0	0	1	0	10	0	9	47	4	0	0	62	0	0	139	0	0	0	0
7:55 AM	4	1	0	0	1	1	8	0	3	62	5	0	0	42	2	0	129	0	0	0	0
8:00 AM	5	0	1	0	2	1	13	0	2	46	2	0	0	41	0	0	113	0	0	0	0
8:05 AM	6	0	0	0	1	1	5	0	8	50	2	0	0	42	2	0	117	0	0	0	0
8:10 AM	3	0	0	0	2	1	10	0	5	45	4	0	0	53	1	0	124	0	0	0	1
8:15 AM	12	0	0	0	2	0	7	0	3	38	1	0	0	34	1	0	98	0	0	0	0
8:20 AM	6	2	0	0	2	0	9	0	5	38	1	0	1	49	0	0	113	0	0	0	0
8:25 AM	8	0	0	0	1	0	11	0	4	44	3	0	0	39	2	0	112	0	0	0	1
8:30 AM	5	0	0	0	2	1	10	0	4	66	2	0	0	47	0	0	137	1	0	0	0
8:35 AM	10	0	0	0	3	0	13	0	6	59	5	0	0	45	1	0	142	0	0	0	0
8:40 AM	7	0	0	0	5	1	15	0	10	62	3	0	1	43	1	0	148	0	0	0	0
8:45 AM	5	0	0	0	1	0	12	0	5	69	5	0	0	63	0	0	160	0	0	0	0
8:50 AM	9	2	0	0	3	0	12	0	7	56	8	0	1	46	1	0	145	0	0	0	0
8:55 AM	8	1	0	0	2	0	13	0	6	51	8	0	2	44	1	0	136	0	0	0	0
Total Survey	215	16	4	0	41	9	272	0	121	1,144	80	0	9	1,307	20	0	3,238	1	0	0	2

### 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	43	1	1	0	3	0	38	0	14	80	7	0	3	213	3	0	406	0	0	0	0
7:15 AM	41	1	0	0	5	3	36	0	14	120	7	0	1	222	2	0	452	0	0	0	0
7:30 AM	27	5	1	0	3	0	39	0	12	158	10	0	0	177	1	0	433	0	0	0	0
7:45 AM	20	4	1	0	4	1	29	0	16	162	12	0	0	149	4	0	402	0	0	0	0
8:00 AM	14	0	1	0	5	3	28	0	15	141	8	0	0	136	3	0	354	0	0	0	1
8:15 AM	26	2	0	0	5	0	27	0	12	120	5	0	1	122	3	0	323	0	0	0	1
8:30 AM	22	0	0	0	10	2	38	0	20	187	10	0	1	135	2	0	427	1	0	0	0
8:45 AM	22	3	0	0	6	0	37	0	18	176	21	0	3	153	2	0	441	0	0	0	0
Total Survey	215	16	4	0	41	9	272	0	121	1,144	80	0	9	1,307	20	0	3,238	1	0	0	2

### Peak Hour Summary 7:00 AM to 8:00 AM

By Approach	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	145	44	189	0	161	77	238	0	612	1,034	1,646	0	775	538	1,313	0	1,693	0	0	0	0
%HV	6.2%				3.1%				12.1%				6.1%				8.0%				
PHF	0.81				0.82				0.81				0.84				0.93				

By Movement	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	131	11	3	145	15	4	142	161	56	520	36	612	4	761	10	775	1,693
%HV	6.9%	0.0%	0.0%	6.2%	13.3%	25.0%	1.4%	3.1%	8.9%	12.7%	8.3%	12.1%	75.0%	5.5%	20.0%	6.1%	8.0%
PHF	0.74	0.55	0.75	0.81	0.63	0.33	0.81	0.82	0.74	0.77	0.75	0.81	0.25	0.84	0.63	0.84	0.93

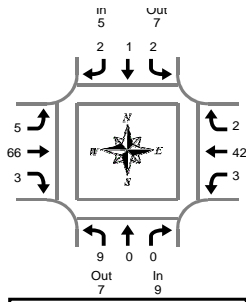
### Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	131	11	3	0	15	4	142	161	56	520	36	0	4	761	10	0	1,693	0	0	0	0
7:15 AM	102	10	3	0	17	7	132	0	57	581	37	0	1	684	10	0	1,641	0	0	0	1
7:30 AM	87	11	3	0	17	4	123	0	55	581	35	0	1	584	11	0	1,512	0	0	0	2
7:45 AM	82	6	2	0	24	6	122	0	63	610	35	0	2	542	12	0	1,506	1	0	0	2
8:00 AM	84	5	1	0	26	5	130	0	65	624	44	0	5	546	10	0	1,545	1	0	0	2

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



**Peak Hour Summary**  
7:00 AM to 8:00 AM

## SE Ten Eyck Rd & Hwy 26

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

### Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	0	0	1	0	0	0	0	1	6	1	8	0	6	0	6	15
7:05 AM	0	0	0	0	0	0	0	0	0	5	0	5	0	5	0	5	10
7:10 AM	3	0	0	3	0	0	0	0	0	3	0	3	2	2	1	5	11
7:15 AM	1	0	0	1	0	1	0	1	2	6	0	8	1	1	0	2	12
7:20 AM	2	0	0	2	1	0	0	1	0	5	0	5	0	1	0	1	9
7:25 AM	0	0	0	0	0	0	0	0	0	6	1	7	0	1	0	1	8
7:30 AM	0	0	0	0	0	0	0	0	0	7	0	7	0	7	0	7	14
7:35 AM	0	0	0	0	1	0	0	1	0	7	0	7	0	6	0	6	14
7:40 AM	0	0	0	0	0	0	0	0	1	8	0	9	0	1	0	1	10
7:45 AM	0	0	0	0	0	0	1	1	0	6	0	6	0	4	0	4	11
7:50 AM	0	0	0	0	0	0	1	1	0	3	0	3	0	7	0	7	11
7:55 AM	2	0	0	2	0	0	0	0	1	4	1	6	0	1	1	2	10
8:00 AM	1	0	0	1	0	0	1	1	0	10	1	11	0	2	0	2	15
8:05 AM	0	0	0	0	1	0	1	2	0	9	0	9	0	7	1	8	19
8:10 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	6	0	6	8
8:15 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	3	0	3	7
8:20 AM	0	0	0	0	0	0	1	1	0	5	0	5	1	2	0	3	9
8:25 AM	0	0	0	0	0	0	0	0	0	6	1	7	0	3	0	3	10
8:30 AM	0	0	0	0	1	0	0	1	2	6	0	8	0	3	0	3	12
8:35 AM	0	0	0	0	0	0	0	0	1	5	0	6	0	8	0	8	14
8:40 AM	0	0	0	0	0	0	1	1	0	5	0	5	0	1	0	1	7
8:45 AM	0	0	0	0	0	0	0	0	0	9	0	9	0	3	0	3	12
8:50 AM	0	0	0	0	0	0	0	0	1	4	0	5	1	8	0	9	14
8:55 AM	0	0	0	0	0	0	3	3	0	0	2	2	0	3	0	3	8
Total Survey	10	0	0	10	4	1	9	14	9	131	7	147	5	91	3	99	270

### Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	4	0	0	4	0	0	0	0	1	14	1	16	2	13	1	16	36
7:15 AM	3	0	0	3	1	1	0	2	2	17	1	20	1	3	0	4	29
7:30 AM	0	0	0	0	1	0	0	1	1	22	0	23	0	14	0	14	38
7:45 AM	2	0	0	2	0	0	2	2	1	13	1	15	0	12	1	13	32
8:00 AM	1	0	0	1	1	0	2	3	0	21	1	22	0	15	1	16	42
8:15 AM	0	0	0	0	0	0	1	1	0	15	1	16	1	8	0	9	26
8:30 AM	0	0	0	0	1	0	1	2	3	16	0	19	0	12	0	12	33
8:45 AM	0	0	0	0	0	0	3	3	1	13	2	16	1	14	0	15	34
Total Survey	10	0	0	10	4	1	9	14	9	131	7	147	5	91	3	99	270

### Heavy Vehicle Peak Hour Summary

7:00 AM to 8:00 AM

By Approach	Northbound SE Ten Eyck Rd			Southbound SE Ten Eyck Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	9	7	16	5	7	12	74	53	127	47	68	115	135
PHF	0.38			0.63			0.80			0.73			0.89

By Movement	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	0	0	9	2	1	2	5	5	66	3	74	3	42	2	47	135
PHF	0.38	0.00	0.00	0.38	0.50	0.25	0.25	0.63	0.63	0.75	0.75	0.80	0.25	0.75	0.50	0.73	0.89

### Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	9	0	0	9	2	1	2	5	5	66	3	74	3	42	2	47	135
7:15 AM	6	0	0	6	3	1	4	8	4	73	3	80	1	44	2	47	141
7:30 AM	3	0	0	3	2	0	5	7	2	71	3	76	1	49	2	52	138
7:45 AM	3	0	0	3	2	0	6	8	4	65	3	72	1	47	2	50	133
8:00 AM	1	0	0	1	2	0	7	9	4	65	4	73	2	49	1	52	135

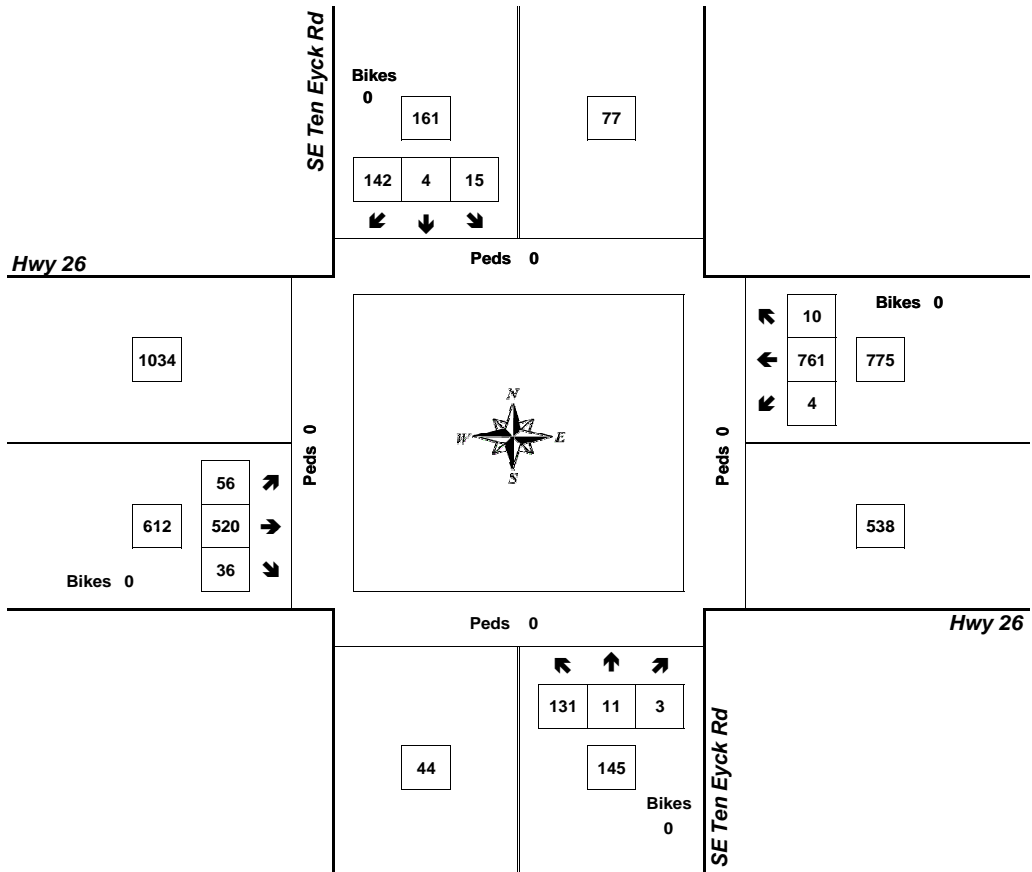
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**SE Ten Eyck Rd & Hwy 26**

7:00 AM to 8:00 AM  
Wednesday, March 20, 2019



Approach	PHF	HV%	Volume
EB	0.81	12.1%	612
WB	0.84	6.1%	775
NB	0.81	6.2%	145
SB	0.82	3.1%	161
<b>Intersection</b>	<b>0.93</b>	<b>8.0%</b>	<b>1,693</b>

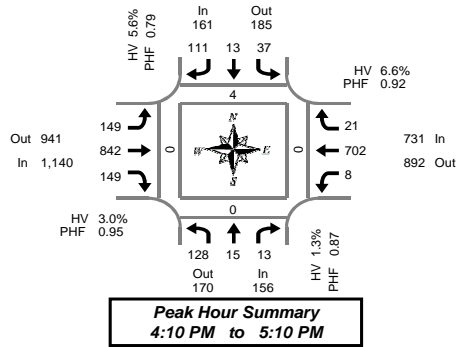
Count Period: 7:00 AM to 9:00 AM



# Total Vehicle Summary



Clay Carney  
(503) 833-2740



## SE Ten Eyck Rd & Hwy 26

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

### 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	4	0	2	0	4	3	11	0	8	58	12	0	1	49	2	0	154	0	1	0	0
4:05 PM	10	1	0	0	7	1	5	0	12	63	8	0	1	53	3	0	164	0	0	0	0
4:10 PM	7	2	3	0	1	0	17	0	12	76	11	0	0	65	1	0	195	0	0	0	0
4:15 PM	14	0	1	0	7	1	9	0	18	71	15	0	0	62	1	0	199	0	0	0	0
4:20 PM	9	0	1	0	4	1	11	0	9	75	10	0	0	62	7	0	189	0	0	0	0
4:25 PM	12	2	0	0	5	0	10	0	12	61	14	0	0	52	0	0	168	0	0	0	0
4:30 PM	11	1	4	0	3	2	12	0	17	87	16	1	1	58	1	0	213	0	0	0	0
4:35 PM	15	0	0	0	2	2	6	0	6	59	14	0	0	65	3	0	172	0	0	0	0
4:40 PM	7	1	1	0	3	0	7	0	7	54	9	0	1	57	0	0	147	1	0	0	0
4:45 PM	8	1	0	0	4	1	3	0	13	71	15	1	3	51	3	0	173	0	0	0	0
4:50 PM	13	2	1	0	1	1	6	0	19	74	8	0	0	56	0	0	181	0	0	0	0
4:55 PM	7	1	0	0	1	0	12	0	10	67	14	0	3	57	1	0	173	1	0	0	0
5:00 PM	13	3	1	0	2	2	14	0	12	81	12	0	0	49	1	0	190	2	0	0	0
5:05 PM	12	2	1	0	4	3	4	0	14	86	11	0	0	68	3	1	188	0	0	0	0
5:10 PM	8	0	0	0	6	2	10	0	13	60	12	0	0	68	2	0	181	2	0	0	0
5:15 PM	8	2	1	0	6	2	8	0	9	70	11	0	0	57	1	0	175	0	0	0	0
5:20 PM	8	1	1	1	1	4	10	0	15	73	10	0	0	43	1	0	167	0	1	0	0
5:25 PM	9	1	0	0	4	2	8	0	14	74	11	0	0	43	0	0	166	0	0	0	0
5:30 PM	5	0	1	0	4	0	5	0	15	64	10	0	0	44	0	0	148	1	0	0	0
5:35 PM	5	1	0	0	7	0	9	0	17	50	4	1	0	39	0	0	132	0	0	0	0
5:40 PM	4	0	0	0	2	1	5	0	11	56	7	0	0	30	1	0	117	2	0	0	2
5:45 PM	4	1	0	0	3	2	8	0	14	76	6	0	3	41	1	0	159	0	0	0	0
5:50 PM	7	1	0	0	0	1	6	0	14	69	8	0	0	42	0	0	148	0	0	0	0
5:55 PM	10	1	0	0	2	3	0	16	65	10	0	0	0	51	1	0	159	0	0	0	0
Total Survey	210	24	18	1	81	33	199	0	307	1,620	258	3	13	1,262	33	1	4,058	9	2	0	2

### 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	21	3	5	0	12	4	33	0	32	197	31	0	2	167	6	0	513	0	1	0	0
4:15 PM	35	2	2	0	16	2	30	0	39	207	39	0	0	176	8	0	556	0	0	0	0
4:30 PM	33	2	5	0	8	4	25	0	30	200	39	1	2	180	4	0	532	1	0	0	0
4:45 PM	28	4	1	0	6	2	21	0	42	212	37	1	6	164	4	0	527	1	0	0	0
5:00 PM	33	5	2	0	12	7	28	0	39	207	35	0	0	185	6	1	559	4	0	0	0
5:15 PM	25	4	2	1	11	8	26	0	38	217	32	0	0	143	2	0	508	0	1	0	0
5:30 PM	14	1	1	0	13	1	19	0	43	170	21	1	0	113	1	0	397	3	0	0	2
5:45 PM	21	3	0	0	3	5	17	0	44	210	24	0	3	134	2	0	466	0	0	0	0
Total Survey	210	24	18	1	81	33	199	0	307	1,620	258	3	13	1,262	33	1	4,058	9	2	0	2

### Peak Hour Summary 4:10 PM to 5:10 PM

By Approach	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	156	170	326	0	161	185	346	0	1,140	941	2,081	2	731	892	1,623	1	2,188	4	0	0	0
%HV	1.3%				5.6%				3.0%				6.6%				4.3%				
PHF	0.87				0.79				0.95				0.92				0.94				

By Movement	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	128	15	13	156	37	13	111	161	149	842	149	1,140	8	702	21	731	2,188
%HV	1.6%	0.0%	0.0%	1.3%	0.0%	0.0%	8.1%	5.6%	4.0%	3.0%	2.0%	3.0%	0.0%	6.7%	4.8%	6.6%	4.3%
PHF	0.84	0.63	0.65	0.87	0.58	0.65	0.75	0.79	0.89	0.94	0.85	0.95	0.33	0.93	0.58	0.92	0.94

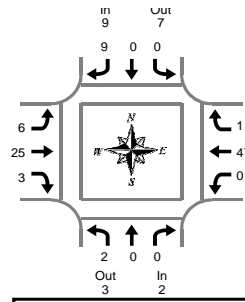
### Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	117	11	13	0	42	12	109	0	143	816	146	2	10	687	22	0	2,128	2	1	0	0
4:15 PM	129	13	10	0	42	15	104	0	150	826	150	2	8	705	22	1	2,174	6	0	0	0
4:30 PM	119	15	10	1	37	21	100	0	149	836	143	2	8	672	16	1	2,126	6	1	0	0
4:45 PM	100	14	6	1	42	18	94	0	162	806	125	2	6	605	13	1	1,991	8	1	0	2
5:00 PM	93	13	5	1	39	21	90	0	164	804	112	1	3	575	11	1	1,930	7	1	0	2

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



Out 58  
In 34

**Peak Hour Summary**  
4:10 PM to 5:10 PM

## SE Ten Eyck Rd & Hwy 26

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

### Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	4	0	0	4	0	10	1	11
4:05 PM	0	0	0	0	1	0	0	1	0	6	0	0	6	0	3	1	4
4:10 PM	0	0	0	0	0	0	0	0	0	2	0	0	2	0	8	0	8
4:15 PM	2	0	0	2	0	0	2	2	2	3	0	5	0	3	0	3	12
4:20 PM	0	0	0	0	0	0	2	2	1	3	0	4	0	5	1	6	12
4:25 PM	0	0	0	0	0	1	1	0	5	1	6	0	4	0	4	0	11
4:30 PM	0	0	0	0	0	2	2	1	0	0	1	0	3	0	3	0	6
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	5
4:40 PM	0	0	0	0	0	1	1	0	3	0	3	0	2	0	2	0	6
4:45 PM	0	0	0	0	0	0	0	1	1	0	2	0	4	0	4	0	6
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	7
4:55 PM	0	0	0	0	0	0	1	1	1	2	1	4	0	0	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	4	1	5	0	1	0	1	0	6
5:05 PM	0	0	0	0	0	0	0	0	2	0	2	0	5	0	5	0	7
5:10 PM	0	0	0	0	0	0	0	1	3	0	4	0	4	0	4	0	8
5:15 PM	0	0	0	0	0	0	0	1	1	0	2	0	2	0	2	0	4
5:20 PM	0	0	0	0	0	0	0	0	1	0	1	0	5	0	5	0	6
5:25 PM	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	0	3
5:30 PM	0	0	0	0	0	0	0	0	3	1	4	0	3	0	3	0	7
5:35 PM	0	0	0	0	0	0	0	1	1	0	2	0	4	0	4	0	6
5:40 PM	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
5:45 PM	1	0	0	1	0	0	0	0	2	0	2	0	3	0	3	0	6
5:50 PM	1	0	0	1	0	0	0	0	1	1	2	0	4	0	4	0	7
5:55 PM	0	0	0	0	0	0	0	1	2	0	3	0	5	0	5	0	8
Total Survey	4	0	0	4	1	0	9	10	10	53	5	68	0	91	3	94	176

### Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	1	0	0	1	0	12	0	12	0	21	2	23	36
4:15 PM	2	0	0	2	0	0	5	5	3	11	1	15	0	12	1	13	35
4:30 PM	0	0	0	0	0	0	3	3	1	3	0	4	0	10	0	10	17
4:45 PM	0	0	0	0	0	1	1	2	3	1	6	0	11	0	11	0	18
5:00 PM	0	0	0	0	0	0	0	1	9	1	11	0	10	0	10	0	21
5:15 PM	0	0	0	0	0	0	0	0	1	4	0	5	0	8	0	8	13
5:30 PM	0	0	0	0	0	0	0	0	1	6	1	8	0	7	0	7	15
5:45 PM	2	0	0	2	0	0	0	0	1	5	1	7	0	12	0	12	21
Total Survey	4	0	0	4	1	0	9	10	10	53	5	68	0	91	3	94	176

### Heavy Vehicle Peak Hour Summary 4:10 PM to 5:10 PM

By Approach	Northbound SE Ten Eyck Rd			Southbound SE Ten Eyck Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	3	5	9	7	16	34	58	92	48	25	73	93
PHF	0.25			0.45			0.57			0.71			0.66

By Movement	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	0	0	2	0	0	9	9	6	25	3	34	0	47	1	48	93
PHF	0.25	0.00	0.00	0.25	0.00	0.00	0.45	0.45	0.50	0.57	0.38	0.57	0.00	0.73	0.25	0.71	0.66

### Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Ten Eyck Rd				Southbound SE Ten Eyck Rd				Eastbound Hwy 26				Westbound Hwy 26				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	0	0	2	1	0	9	10	6	29	2	37	0	54	3	57	106
4:15 PM	2	0	0	2	0	0	9	9	7	26	3	36	0	43	1	44	91
4:30 PM	0	0	0	0	0	0	4	4	5	19	2	26	0	39	0	39	69
4:45 PM	0	0	0	0	0	1	1	5	22	3	30	0	36	0	36	0	67
5:00 PM	2	0	0	2	0	0	0	4	24	3	31	0	37	0	37	0	70

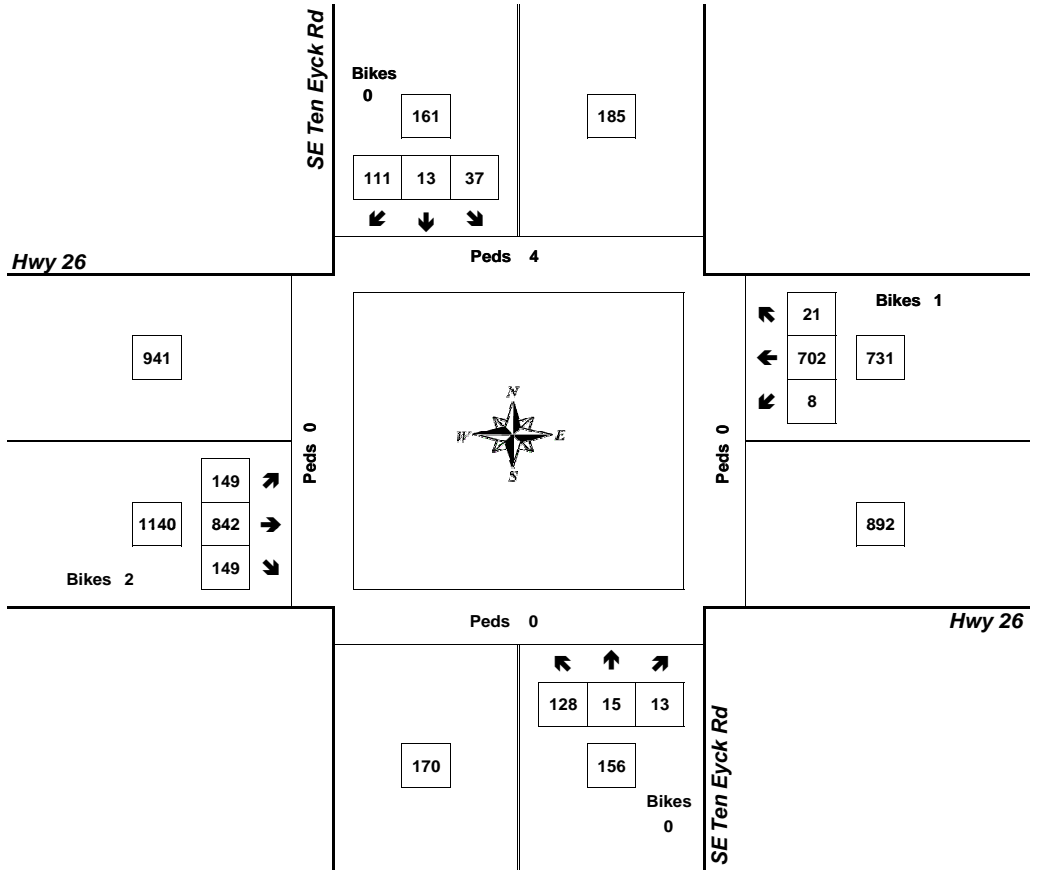
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**SE Ten Eyck Rd & Hwy 26**

4:10 PM to 5:10 PM  
Tuesday, March 19, 2019



Approach	PHF	HV%	Volume
EB	0.95	3.0%	1,140
WB	0.92	6.6%	731
NB	0.87	1.3%	156
SB	0.79	5.6%	161
<b>Intersection</b>	<b>0.94</b>	<b>4.3%</b>	<b>2,188</b>

Count Period: 4:00 PM to 6:00 PM

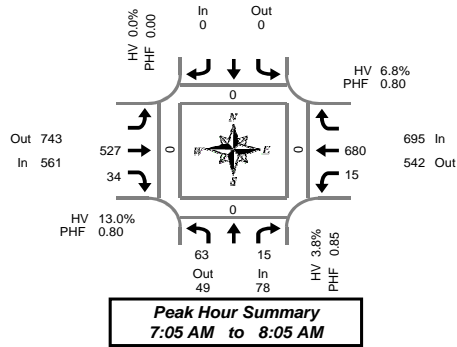
# Total Vehicle Summary



Clay Carney  
(603) 833-2740

## SE Langensand Rd & Hwy 26

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM



**Peak Hour Summary**  
7:05 AM to 8:05 AM

### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
7:00 AM	4	0	0			0	25	1	0	2	62	0	94	0	0	0	0
7:05 AM	9	0	0			0	24	2	0	2	65	0	102	0	0	0	0
7:10 AM	3	0	0			0	22	2	0	0	74	0	101	0	0	0	0
7:15 AM	4	2	0			0	33	3	0	1	71	0	114	0	0	0	0
7:20 AM	9	2	0			0	52	1	0	0	71	0	135	0	0	0	0
7:25 AM	4	1	0			0	31	3	0	4	67	0	110	0	0	0	0
7:30 AM	5	2	0			0	39	5	0	0	60	0	111	0	0	0	0
7:35 AM	4	1	0			0	52	1	0	2	54	0	114	0	0	0	0
7:40 AM	8	0	0			0	56	3	0	2	41	0	110	0	0	0	0
7:45 AM	1	2	0			0	49	8	0	3	42	0	105	0	0	0	0
7:50 AM	4	2	0			0	56	2	0	1	52	0	117	0	0	0	0
7:55 AM	7	1	0			0	59	2	0	0	45	0	114	0	0	0	0
8:00 AM	5	2	0			0	54	2	0	0	38	0	101	0	0	0	0
8:05 AM	2	2	0			0	44	3	0	1	41	0	93	0	0	0	0
8:10 AM	2	2	0			0	41	1	0	0	49	0	95	0	0	0	0
8:15 AM	4	1	0			0	46	0	0	2	34	0	87	0	0	0	0
8:20 AM	2	1	0			0	40	3	0	0	42	0	88	0	0	0	0
8:25 AM	4	2	0			0	39	2	0	1	43	0	91	0	0	0	0
8:30 AM	5	4	0			0	53	1	0	2	37	0	102	0	0	0	0
8:35 AM	2	3	0			0	56	1	0	0	53	0	115	0	0	0	0
8:40 AM	1	2	0			0	53	8	0	1	47	0	112	0	0	0	0
8:45 AM	6	2	0			0	77	5	0	0	53	0	143	0	0	0	0
8:50 AM	4	4	0			0	52	2	0	5	60	0	127	0	0	0	0
8:55 AM	5	0	0			0	60	0	0	1	42	0	108	0	0	0	0
Total Survey	104	38	0			0	1,113	61	0	30	1,243	0	2,589	0	0	0	0

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
7:00 AM	16	0	0			0	71	5	0	4	201	0	297	0	0	0	0
7:15 AM	17	5	0			0	116	7	0	5	209	0	359	0	0	0	0
7:30 AM	17	3	0			0	147	9	0	4	155	0	335	0	0	0	0
7:45 AM	12	5	0			0	164	12	0	4	139	0	336	0	0	0	0
8:00 AM	9	6	0			0	139	6	0	1	128	0	289	0	0	0	0
8:15 AM	10	4	0			0	125	5	0	3	119	0	266	0	0	0	0
8:30 AM	8	9	0			0	162	10	0	3	137	0	329	0	0	0	0
8:45 AM	15	6	0			0	189	7	0	6	155	0	378	0	0	0	0
Total Survey	104	38	0			0	1,113	61	0	30	1,243	0	2,589	0	0	0	0

### Peak Hour Summary

7:05 AM to 8:05 AM

By Approach	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Hwy 26				Westbound Hwy 26				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	78	49	127	0	0	0	0	0	561	743	1,304	0	695	542	1,237	0	1,334	0	0	0	0
%HV	3.8%				0.0%				13.0%				6.8%				9.2%				
PHF	0.85				0.00				0.80				0.80				0.93				

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	R	Total	Bikes			Total	Bikes	T	R	Total	Bikes	L	T	Total	Bikes	
Volume	63	15	78	0			0	0	527	34	561	0	15	680	695	1,334	
%HV	3.2%	NA	6.7%	3.8%	NA	NA	NA	0.0%	NA	13.1%	11.8%	13.0%	20.0%	6.5%	NA	6.8%	9.2%
PHF	0.88		0.75	0.85			0.00		0.78	0.65	0.80		0.54	0.79	0.80	0.93	

### Rolling Hour Summary

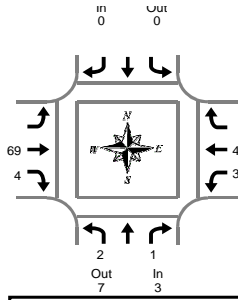
7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
7:00 AM	62	13	0			0	498	33	0	17	704	0	1,327	0	0	0	0
7:15 AM	55	19	0			0	566	34	0	14	631	0	1,319	0	0	0	0
7:30 AM	48	18	0			0	575	32	0	12	541	0	1,226	0	0	0	0
7:45 AM	39	24	0			0	590	33	0	11	523	0	1,220	0	0	0	0
8:00 AM	42	25	0			0	615	28	0	13	539	0	1,262	0	0	0	0

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



**Peak Hour Summary**  
7:05 AM to 8:05 AM

## SE Langensand Rd & Hwy 26

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

### Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
7:00 AM	0	0	0			0	6	1	7	0	6	6	13
7:05 AM	0	0	0			0	4	1	5	0	6	6	11
7:10 AM	0	0	0			0	2	0	2	0	3	3	5
7:15 AM	0	0	0			0	6	0	6	0	3	3	9
7:20 AM	0	0	0			0	7	0	7	0	0	0	7
7:25 AM	0	0	0			0	5	1	6	1	2	3	9
7:30 AM	0	0	0			0	6	0	6	0	6	6	12
7:35 AM	0	0	0			0	5	0	5	1	7	8	13
7:40 AM	1	0	1			0	7	0	7	0	2	2	10
7:45 AM	0	0	0			0	11	1	12	1	3	4	16
7:50 AM	0	1	1			0	4	1	5	0	5	5	11
7:55 AM	1	0	1			0	3	0	3	0	5	5	9
8:00 AM	0	0	0			0	9	0	9	0	2	2	11
8:05 AM	1	0	1			0	11	1	12	0	7	7	20
8:10 AM	0	0	0			0	2	0	2	0	5	5	7
8:15 AM	0	0	0			0	3	0	3	0	4	4	7
8:20 AM	0	0	0			0	4	1	5	0	2	2	7
8:25 AM	0	1	1			0	4	1	5	0	3	3	9
8:30 AM	0	2	2			0	9	0	9	1	3	4	15
8:35 AM	1	1	2			0	5	0	5	0	6	6	13
8:40 AM	0	0	0			0	5	0	5	0	3	3	8
8:45 AM	0	0	0			0	7	0	7	0	1	1	8
8:50 AM	0	0	0			0	3	0	3	0	9	9	12
8:55 AM	0	0	0			0	4	0	4	0	4	4	8
Total Survey	4	5	9			0	132	8	140	4	97	101	250

### Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
7:00 AM	0	0	0			0	12	2	14	0	15	15	29
7:15 AM	0	0	0			0	18	1	19	1	5	6	25
7:30 AM	1	0	1			0	18	0	18	1	15	16	35
7:45 AM	1	1	2			0	18	2	20	1	13	14	36
8:00 AM	1	0	1			0	22	1	23	0	14	14	38
8:15 AM	0	1	1			0	11	2	13	0	9	9	23
8:30 AM	1	3	4			0	19	0	19	1	12	13	36
8:45 AM	0	0	0			0	14	0	14	0	14	14	28
Total Survey	4	5	9			0	132	8	140	4	97	101	250

### Heavy Vehicle Peak Hour Summary

7:05 AM to 8:05 AM

By Approach	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	3	7	10	0	0	0	73	46	119	47	70	117	123
PHF	0.38			0.00			0.76			0.69			0.79

By Movement	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	L	R	Total			Total	T	R	Total	L	T	Total	
Volume	2	1	3			0	69	4	73	3	44	47	123
PHF	0.50	0.25	0.38			0.00	0.75	0.50	0.76	0.38	0.73	0.69	0.79

### Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
7:00 AM	2	1	3			0	66	5	71	3	48	51	125
7:15 AM	3	1	4			0	76	4	80	3	47	50	134
7:30 AM	3	2	5			0	69	5	74	2	51	53	132
7:45 AM	3	5	8			0	70	5	75	2	48	50	133
8:00 AM	2	4	6			0	66	3	69	1	49	50	125

**Peak Hour Summary**



Clay Carney  
(503) 833-2740

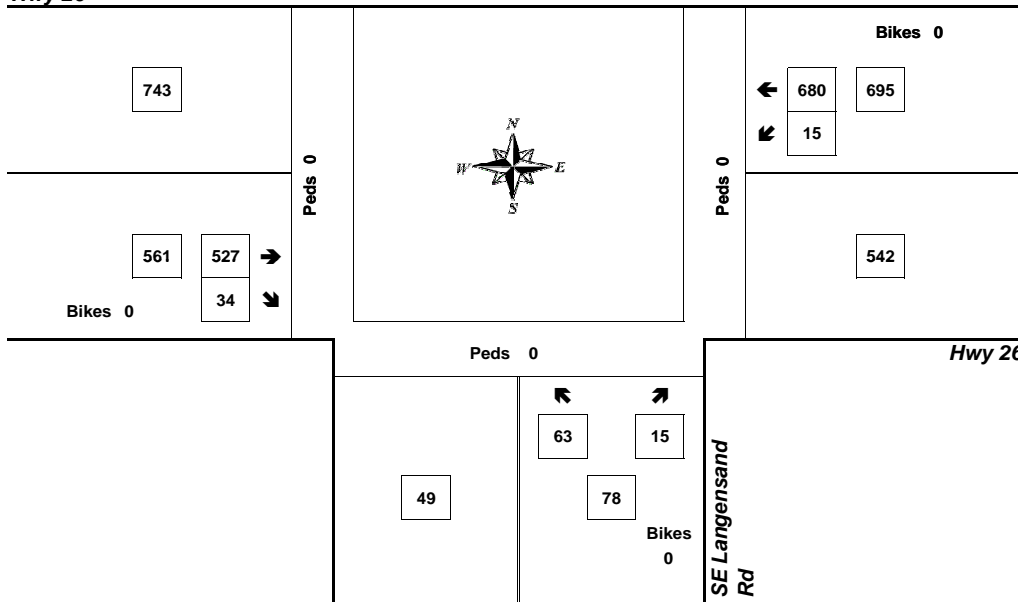
**SE Langensand Rd & Hwy 26**

7:05 AM to 8:05 AM  
Wednesday, March 20, 2019

Bikes  
0

**Hwy 26**

Peds 0



Approach	PHF	HV%	Volume
EB	0.80	13.0%	561
WB	0.80	6.8%	695
NB	0.85	3.8%	78
SB	0.00	0.0%	0
<b>Intersection</b>	<b>0.93</b>	<b>9.2%</b>	<b>1,334</b>

Count Period: 7:00 AM to 9:00 AM

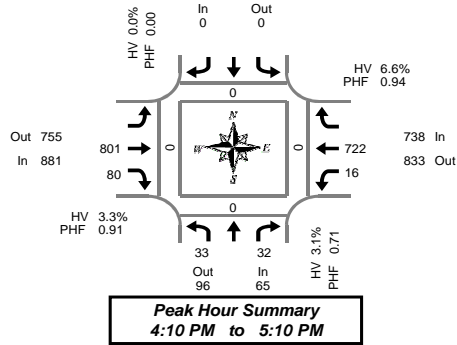
# Total Vehicle Summary



Clay Carney  
(503) 833-2740

## SE Langensand Rd & Hwy 26

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM



### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	2	4	0			0	62	9	0	5	50	0	132	0	0	0	0
4:05 PM	1	2	0			0	69	6	0	3	52	0	133	0	0	0	0
4:10 PM	1	3	0			0	61	3	0	1	74	0	143	0	0	0	0
4:15 PM	6	1	0			0	76	5	0	1	50	0	139	0	0	0	0
4:20 PM	5	5	0			0	79	9	0	1	70	0	169	0	0	0	0
4:25 PM	6	0	1			0	58	8	0	1	49	0	122	0	0	0	0
4:30 PM	0	3	0			0	75	12	0	1	56	0	147	0	0	0	0
4:35 PM	2	5	0			0	61	7	0	1	64	0	140	0	0	0	0
4:40 PM	0	1	0			0	59	1	0	1	55	0	117	0	0	0	0
4:45 PM	1	1	0			0	64	3	0	2	63	0	134	0	0	0	0
4:50 PM	6	5	0			0	62	6	0	0	54	0	133	0	0	0	0
4:55 PM	3	0	0			0	72	5	0	2	56	0	138	0	0	0	0
5:00 PM	1	5	0			0	62	10	0	1	55	0	134	0	0	0	0
5:05 PM	2	3	0			0	72	11	0	4	76	0	168	0	0	0	0
5:10 PM	2	3	0			0	58	14	0	1	65	0	143	0	0	0	0
5:15 PM	1	2	0			0	51	8	0	2	59	0	123	0	0	0	0
5:20 PM	2	4	0			0	78	7	0	2	43	0	136	0	0	0	0
5:25 PM	3	1	0			0	71	5	0	1	42	0	123	0	0	0	0
5:30 PM	2	2	0			0	67	7	0	3	38	0	119	0	0	0	0
5:35 PM	1	1	0			0	60	5	0	1	38	0	106	0	0	0	0
5:40 PM	0	4	0			0	49	7	0	0	34	0	94	0	0	0	0
5:45 PM	2	1	0			0	69	7	0	1	45	0	125	0	0	0	0
5:50 PM	0	3	0			0	60	4	0	0	43	0	110	0	0	0	0
5:55 PM	4	1	0			0	65	8	0	3	52	0	133	0	0	0	0
Total Survey	53	60	1			0	1,560	167	0	38	1,283	0	3,161	0	0	0	0

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	4	9	0			0	192	18	0	9	176	0	408	0	0	0	0
4:15 PM	17	6	1			0	213	22	0	3	169	0	430	0	0	0	0
4:30 PM	2	9	0			0	195	20	0	3	175	0	404	0	0	0	0
4:45 PM	10	6	0			0	198	14	0	4	173	0	405	0	0	0	0
5:00 PM	5	11	0			0	192	35	0	6	196	0	445	0	0	0	0
5:15 PM	6	7	0			0	200	20	0	5	144	0	382	0	0	0	0
5:30 PM	3	7	0			0	176	19	0	4	110	0	319	0	0	0	0
5:45 PM	6	5	0			0	194	19	0	4	140	0	368	0	0	0	0
Total Survey	53	60	1			0	1,560	167	0	38	1,283	0	3,161	0	0	0	0

### Peak Hour Summary

4:10 PM to 5:10 PM

By Approach	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Hwy 26				Westbound Hwy 26				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	65	96	161	1	0	0	0	0	881	755	1,636	0	738	833	1,571	0	1,684	0	0	0	0
%HV	3.1%				0.0%				3.3%				6.6%				4.8%				
PHF	0.71				0.00				0.91				0.94				0.93				

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Hwy 26				Westbound Hwy 26				Total
	L	R	Total	Bikes			Total	Bikes	T	R	Total	Bikes	L	T	Total	Bikes	
Volume	33	32	65	1			0	0	801	80	881	0	16	722	738	0	1,684
%HV	3.0%	NA	3.1%	3.1%	NA	NA	NA	0.0%	NA	3.4%	2.5%	3.3%	0.0%	6.8%	NA	6.6%	4.8%
PHF	0.49		0.80	0.71			0.00	0.00	0.93	0.69	0.91	0.57	0.57	0.93	0.94	0.93	0.93

### Rolling Hour Summary

4:00 PM to 6:00 PM

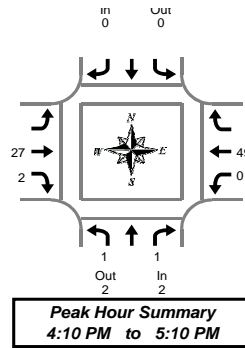
Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes			Bikes	T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	33	30	1			0	798	74	0	19	693	0	1,647	0	0	0	0
4:15 PM	34	32	1			0	798	91	0	16	713	0	1,684	0	0	0	0
4:30 PM	23	33	0			0	785	89	0	18	688	0	1,636	0	0	0	0
4:45 PM	24	31	0			0	766	88	0	19	623	0	1,551	0	0	0	0
5:00 PM	20	30	0			0	762	93	0	19	590	0	1,514	0	0	0	0



# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



## SE Langensand Rd & Hwy 26

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

### Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
4:00 PM	0	0	0			0	3	0	3	0	11	11	14
4:05 PM	0	0	0			0	8	0	8	0	5	5	13
4:10 PM	0	0	0			0	2	0	2	0	7	7	9
4:15 PM	0	0	0			0	5	0	5	0	4	4	9
4:20 PM	1	0	1			0	4	1	5	0	4	4	10
4:25 PM	0	0	0			0	3	0	3	0	5	5	8
4:30 PM	0	1	1			0	1	1	2	0	3	3	6
4:35 PM	0	0	0			0	1	0	1	0	4	4	5
4:40 PM	0	0	0			0	2	0	2	0	3	3	5
4:45 PM	0	0	0			0	1	0	1	0	4	4	5
4:50 PM	0	0	0			0	2	0	2	0	6	6	8
4:55 PM	0	0	0			0	1	0	1	0	2	2	3
5:00 PM	0	0	0			0	3	0	3	0	1	1	4
5:05 PM	0	0	0			0	2	0	2	0	6	6	8
5:10 PM	0	0	0			0	0	1	1	0	4	4	5
5:15 PM	0	0	0			0	2	0	2	0	3	3	5
5:20 PM	0	0	0			0	0	0	0	0	5	5	5
5:25 PM	0	0	0			0	1	0	1	0	1	1	2
5:30 PM	0	0	0			0	4	0	4	0	2	2	6
5:35 PM	0	0	0			0	0	0	0	1	2	3	3
5:40 PM	0	0	0			0	1	0	1	0	3	3	4
5:45 PM	0	0	0			0	4	0	4	0	3	3	7
5:50 PM	0	0	0			0	1	0	1	0	2	2	3
5:55 PM	0	0	0			0	2	0	2	0	7	7	9
Total Survey	1	1	2			0	53	3	56	1	97	98	156

### Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
4:00 PM	0	0	0			0	13	0	13	0	23	23	36
4:15 PM	1	0	1			0	12	1	13	0	13	13	27
4:30 PM	0	1	1			0	4	1	5	0	10	10	16
4:45 PM	0	0	0			0	4	0	4	0	12	12	16
5:00 PM	0	0	0			0	5	1	6	0	11	11	17
5:15 PM	0	0	0			0	3	0	3	0	9	9	12
5:30 PM	0	0	0			0	5	0	5	1	7	8	13
5:45 PM	0	0	0			0	7	0	7	0	12	12	19
Total Survey	1	1	2			0	53	3	56	1	97	98	156

### Heavy Vehicle Peak Hour Summary 4:10 PM to 5:10 PM

By Approach	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	2	4	0	0	0	29	50	79	49	28	77	80
PHF	0.25			0.00			0.56			0.82			0.71

By Movement	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Total
	L	R	Total			Total	T	R	Total	L	T	Total	
Volume	1		1	2		2	27	2	29	0	49	49	80
PHF	0.25		0.25	0.25		0.00	0.56	0.25	0.56	0.00	0.82	0.82	0.71

### Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Hwy 26			Westbound Hwy 26			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
4:00 PM	1		1	2		2	33	2	35	0	58	58	95
4:15 PM	1		1	2		2	25	3	28	0	46	46	76
4:30 PM	0		0	0		0	16	2	18	0	42	42	61
4:45 PM	0		0	0		0	17	1	18	1	39	40	58
5:00 PM	0		0	0		0	20	1	21	1	39	40	61

**Peak Hour Summary**

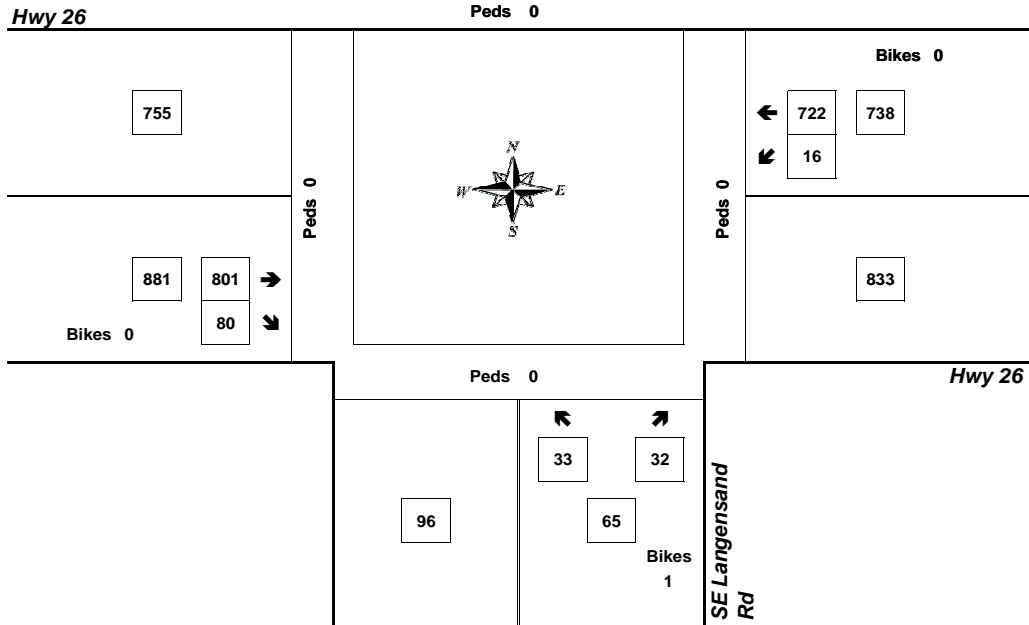


Clay Carney  
(503) 833-2740

**SE Langensand Rd & Hwy 26**

4:10 PM to 5:10 PM  
Tuesday, March 19, 2019

Bikes  
0



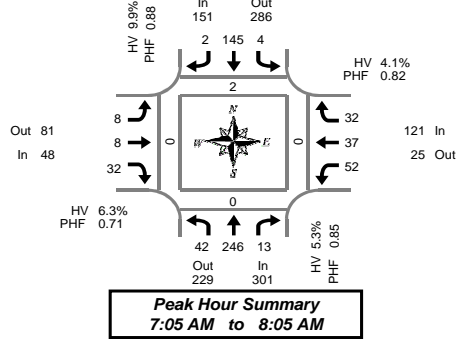
Approach	PHF	HV%	Volume
EB	0.91	3.3%	881
WB	0.94	6.6%	738
NB	0.71	3.1%	65
SB	0.00	0.0%	0
<b>Intersection</b>	<b>0.93</b>	<b>4.8%</b>	<b>1,684</b>

Count Period: 4:00 PM to 6:00 PM

# Total Vehicle Summary



Clay Carney  
(603) 833-2740



## Hwy 211 & Dubarko Rd

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

**Peak Hour Summary**  
7:05 AM to 8:05 AM

### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	2	18	1	0	0	8	0	0	0	0	0	0	4	5	0	0	38	0	1	0	0
7:05 AM	3	20	1	0	0	12	0	0	0	0	0	0	3	1	5	0	45	0	0	0	0
7:10 AM	5	23	0	0	0	12	0	0	2	2	4	0	4	3	9	0	64	0	0	0	0
7:15 AM	5	32	0	0	0	9	0	0	1	0	2	0	4	2	2	0	57	1	0	0	0
7:20 AM	8	13	0	0	2	13	1	0	0	0	2	0	5	3	5	0	52	0	0	0	0
7:25 AM	1	23	2	0	0	13	0	0	1	1	5	0	4	3	3	0	56	0	0	0	0
7:30 AM	3	17	0	0	1	12	0	0	0	0	3	0	4	9	1	0	50	1	0	0	0
7:35 AM	2	23	0	0	0	17	0	0	0	0	7	0	6	5	1	0	61	0	0	0	0
7:40 AM	2	23	1	0	0	6	1	0	1	2	4	0	6	4	1	0	51	0	0	0	0
7:45 AM	4	20	3	0	0	14	0	0	0	1	0	0	3	1	0	0	46	0	0	0	0
7:50 AM	5	15	3	0	0	10	0	0	1	1	1	0	5	4	2	0	47	0	0	0	0
7:55 AM	1	21	2	0	1	15	0	0	1	0	3	0	3	1	1	0	49	0	0	0	0
8:00 AM	3	16	1	0	0	12	0	0	1	1	1	0	5	1	2	0	43	0	0	0	0
8:05 AM	2	15	0	0	0	7	0	0	1	1	2	0	4	0	3	0	35	1	0	0	0
8:10 AM	2	19	1	0	1	8	0	0	3	1	2	0	3	4	1	0	45	1	0	0	0
8:15 AM	3	27	1	0	0	8	0	0	0	0	1	0	1	3	2	0	46	0	0	0	0
8:20 AM	0	19	0	0	0	10	0	0	0	1	0	0	1	3	0	0	34	0	0	0	0
8:25 AM	6	8	1	0	0	8	0	0	0	1	1	0	1	1	2	0	29	0	0	0	0
8:30 AM	3	27	2	0	0	10	0	0	0	1	1	0	2	2	5	0	53	0	0	0	0
8:35 AM	1	14	0	0	0	16	0	0	0	1	0	0	2	2	0	0	36	0	0	0	0
8:40 AM	0	19	1	0	0	15	0	0	0	1	1	0	1	3	1	0	42	0	0	0	0
8:45 AM	1	21	1	0	0	15	1	0	0	2	3	0	1	2	4	0	51	0	0	0	0
8:50 AM	0	21	0	0	0	9	0	0	0	2	0	0	3	3	2	0	40	0	0	0	0
8:55 AM	4	20	1	0	1	10	0	0	1	3	2	0	3	3	3	0	51	0	0	0	0
Total Survey	66	474	22	0	6	269	3	0	13	22	45	0	78	68	55	0	1,121	3	1	0	0

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	10	61	2	0	0	32	0	0	2	2	4	0	11	9	14	0	147	0	1	0	0
7:15 AM	14	68	2	0	2	35	1	0	2	1	9	0	13	8	10	0	165	1	0	0	0
7:30 AM	7	63	1	0	1	35	1	0	1	2	14	0	16	18	3	0	162	1	0	0	0
7:45 AM	10	56	8	0	1	39	0	0	2	2	4	0	11	6	3	0	142	0	0	0	0
8:00 AM	7	50	2	0	1	27	0	0	5	3	5	0	12	5	6	0	123	1	0	0	0
8:15 AM	9	54	2	0	0	26	0	0	0	2	2	0	3	7	4	0	109	0	0	0	0
8:30 AM	4	60	3	0	0	41	0	0	0	3	2	0	5	7	6	0	131	0	0	0	0
8:45 AM	5	62	2	0	1	34	1	0	1	7	5	0	7	8	9	0	142	0	0	0	0
Total Survey	66	474	22	0	6	269	3	0	13	22	45	0	78	68	55	0	1,121	3	1	0	0

### Peak Hour Summary

7:05 AM to 8:05 AM

By Approach	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	301	229	530	0	151	286	437	0	48	81	129	0	121	25	146	0	621	2	0	0	0
%HV	5.3%				9.9%				6.3%				4.1%				6.3%				
PHF	0.85				0.88				0.71				0.82				0.90				

By Movement	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	42	246	13	301	4	145	2	151	8	8	32	48	52	37	32	121	621
%HV	2.4%	5.7%	7.7%	5.3%	25.0%	9.7%	0.0%	9.9%	12.5%	0.0%	6.3%	6.3%	1.9%	0.0%	12.5%	4.1%	6.3%
PHF	0.58	0.82	0.41	0.85	0.33	0.86	0.50	0.88	0.67	0.50	0.53	0.71	0.81	0.51	0.50	0.82	0.90

### Rolling Hour Summary

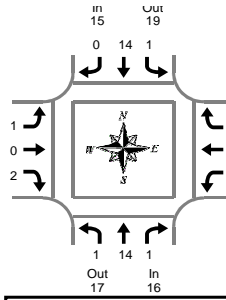
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	41	248	13	0	4	141	2	0	7	7	31	0	51	41	30	0	616	2	1	0	0
7:15 AM	38	237	13	0	5	136	2	0	10	8	32	0	52	37	22	0	592	3	0	0	0
7:30 AM	33	223	13	0	3	127	1	0	8	9	25	0	42	36	16	0	536	2	0	0	0
7:45 AM	30	220	15	0	2	133	0	0	7	10	13	0	31	25	19	0	505	1	0	0	0
8:00 AM	25	226	9	0	2	128	1	0	6	15	14	0	27	27	25	0	505	1	0	0	0

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



Out 1  
In 3

## Hwy 211 & Dubarko Rd

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

**Peak Hour Summary**  
7:05 AM to 8:05 AM

### Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
7:05 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
7:10 AM	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	3
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
7:20 AM	0	0	0	0	1	1	0	2	0	0	0	0	1	0	0	0	1	0	0	1	3
7:25 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	3
7:30 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
7:35 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
7:40 AM	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	5
7:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	1	0	0	1	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4
8:00 AM	0	6	0	6	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	8
8:05 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	0	1	0	0	1	4
8:10 AM	0	2	0	2	0	0	0	0	0	0	0	0	1	1	0	0	2	4	0	0	4
8:15 AM	1	2	0	3	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
8:20 AM	0	2	0	2	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	5
8:25 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
8:35 AM	0	3	0	3	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	7
8:40 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:50 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:55 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	1	0	1	0	1	3	3
Total Survey	2	31	1	34	1	31	0	32	1	1	2	4	3	3	4	10	80				

### Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
7:00 AM	0	2	0	2	0	1	0	1	0	0	1	1	0	1	1	0	2	6			
7:15 AM	0	1	0	1	1	1	0	2	1	0	1	2	1	0	2	3	8				
7:30 AM	0	5	1	6	0	4	0	4	0	0	0	0	0	0	1	1	11				
7:45 AM	1	0	0	1	0	6	0	6	0	0	0	0	0	0	0	0	7				
8:00 AM	0	8	0	8	0	5	0	5	0	0	0	0	2	1	0	3	16				
8:15 AM	1	6	0	7	0	4	0	4	0	1	0	1	0	0	0	0	12				
8:30 AM	0	7	0	7	0	7	0	7	0	0	0	0	0	0	0	0	14				
8:45 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	1	0	1	6				
Total Survey	2	31	1	34	1	31	0	32	1	1	2	4	3	3	4	10	80				

### Heavy Vehicle Peak Hour Summary 7:05 AM to 8:05 AM

By Approach	Northbound Hwy 211			Southbound Hwy 211			Eastbound Dubarko Rd			Westbound Dubarko Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	16	17	33	15	19	34	3	1	4	5	2	7	39
PHF	0.57			0.63			0.38			0.42			0.81

By Movement	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	14	1	16	1	14	0	15	1	0	2	3	1	0	4	5	39
PHF	0.25	0.58	0.25	0.57	0.25	0.58	0.00	0.63	0.25	0.00	0.25	0.38	0.25	0.00	0.50	0.42	0.81

### Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	8	1	10	1	12	0	13	1	0	2	3	1	1	4	6	32
7:15 AM	1	14	1	16	1	16	0	17	1	0	1	2	3	1	3	7	42
7:30 AM	2	19	1	22	0	19	0	19	0	1	0	1	2	1	1	4	46
7:45 AM	2	21	0	23	0	22	0	22	0	1	0	1	2	1	0	3	49
8:00 AM	1	23	0	24	0	19	0	19	0	1	0	1	2	2	0	4	48

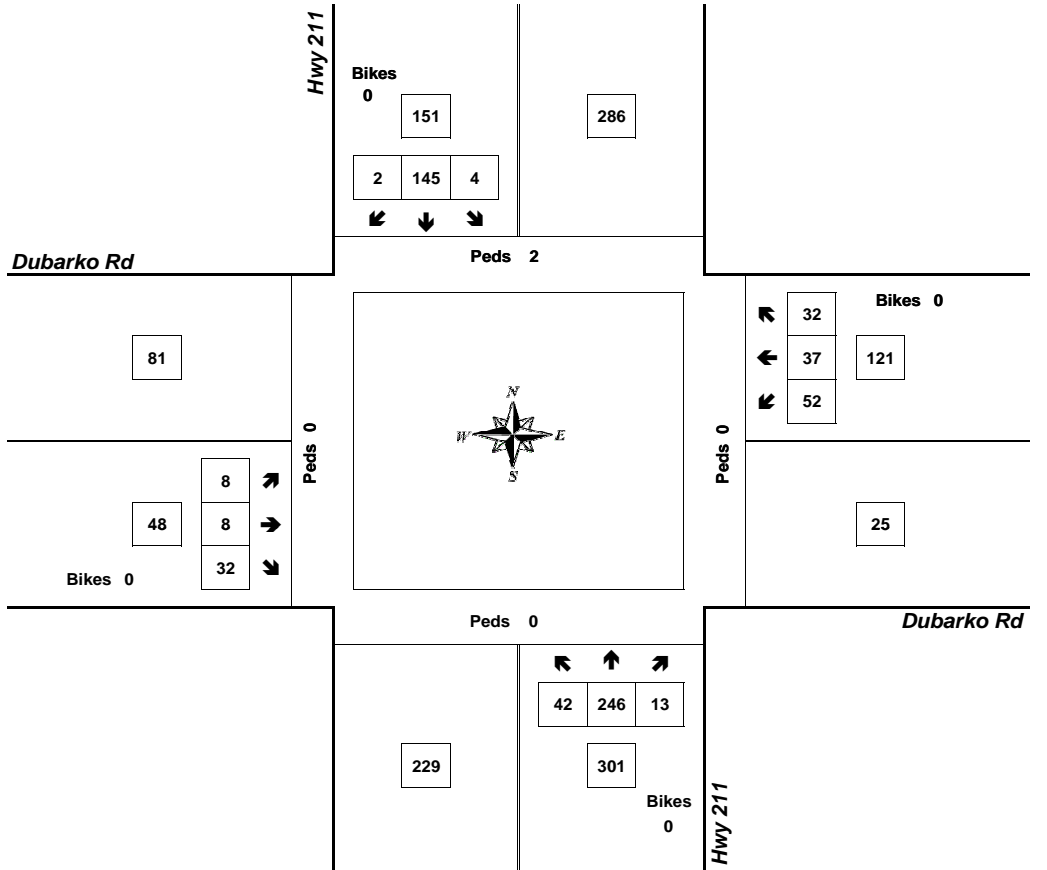
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**Hwy 211 & Dubarko Rd**

7:05 AM to 8:05 AM  
Wednesday, March 20, 2019



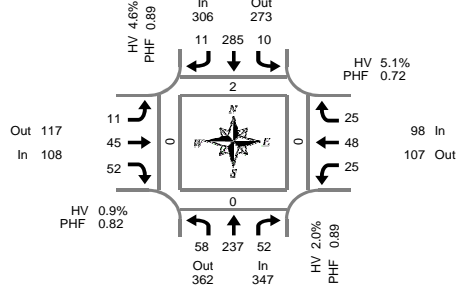
Approach	PHF	HV%	Volume
EB	0.71	6.3%	48
WB	0.82	4.1%	121
NB	0.85	5.3%	301
SB	0.88	9.9%	151
<b>Intersection</b>	<b>0.90</b>	<b>6.3%</b>	<b>621</b>

Count Period: 7:00 AM to 9:00 AM

# Total Vehicle Summary



Clay Carney  
(603) 833-2740



## Hwy 211 & Dubarko Rd

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

**Peak Hour Summary**  
4:05 PM to 5:05 PM

### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk								
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West					
4:00 PM	4	14	0	0	2	25	1	0	0	3	3	0	2	3	3	0	2	3	3	0	60	0	0	1	0	
4:05 PM	4	28	3	0	1	31	0	0	1	7	6	0	2	6	2	0	91	0	0	0	0	91	0	0	0	0
4:10 PM	10	17	2	0	1	19	0	0	0	4	3	0	3	4	3	0	66	0	0	0	0	66	0	0	0	0
4:15 PM	4	20	6	0	2	20	1	0	2	7	3	1	1	5	1	0	72	0	0	0	0	72	0	0	0	0
4:20 PM	6	12	1	0	1	14	1	0	2	3	4	0	5	7	4	0	60	1	0	0	0	60	1	0	0	0
4:25 PM	5	16	4	0	1	21	1	0	3	3	4	0	2	4	1	0	65	0	0	0	0	65	0	0	0	0
4:30 PM	4	22	3	0	0	19	3	0	1	2	2	0	5	5	1	0	67	1	0	0	0	67	1	0	0	0
4:35 PM	2	23	7	0	0	29	1	0	1	2	1	0	0	1	3	0	70	0	0	0	0	70	0	0	0	0
4:40 PM	2	17	4	0	0	22	0	0	0	2	1	0	1	3	3	0	55	0	0	0	0	55	0	0	0	0
4:45 PM	10	23	7	0	2	29	1	0	0	6	8	0	3	2	0	0	91	0	0	0	0	91	0	0	0	0
4:50 PM	3	22	6	0	1	19	1	0	1	0	4	0	1	1	2	0	61	0	0	0	0	61	0	0	0	0
4:55 PM	4	20	3	0	0	20	2	0	0	6	2	0	1	6	1	0	65	0	0	0	0	65	0	0	0	0
5:00 PM	4	17	6	0	1	42	0	0	0	3	14	0	1	4	4	0	96	0	0	0	0	96	0	0	0	0
5:05 PM	2	24	5	0	0	20	0	0	0	4	5	0	1	2	3	0	66	0	0	0	0	66	0	0	0	0
5:10 PM	8	24	4	0	1	13	1	0	1	8	2	0	2	1	3	0	68	0	0	0	0	68	0	0	0	0
5:15 PM	4	13	4	0	1	19	1	0	0	4	3	0	5	3	0	0	57	0	0	0	0	57	0	0	0	0
5:20 PM	1	19	6	0	1	29	1	0	1	2	2	0	1	4	0	0	67	0	0	0	0	67	0	0	0	0
5:25 PM	5	14	6	0	0	17	1	0	1	3	9	0	2	4	3	0	65	0	0	0	0	65	0	0	0	0
5:30 PM	5	19	6	0	0	19	1	0	1	5	5	0	0	2	3	0	66	0	0	0	0	66	0	0	0	0
5:35 PM	5	15	1	0	2	24	0	0	1	5	6	0	1	2	1	0	63	0	0	0	0	63	0	0	0	0
5:40 PM	5	19	7	0	0	29	1	0	0	8	3	0	1	2	0	1	75	0	0	0	0	75	0	0	0	0
5:45 PM	4	15	8	0	0	16	1	0	0	7	3	0	3	0	0	0	57	0	0	0	0	57	0	0	0	0
5:50 PM	4	13	2	0	0	20	3	0	2	5	3	0	0	5	3	0	60	0	0	0	0	60	0	0	0	0
5:55 PM	5	13	2	0	1	18	0	0	0	2	3	0	2	1	1	0	48	0	0	0	0	48	0	0	0	0
Total Survey	110	439	103	0	18	534	22	0	18	101	99	1	45	77	45	1	1,611	2	0	1	0					

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk								
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West					
4:00 PM	18	59	5	0	4	75	1	0	1	14	12	0	7	13	8	0	217	0	0	1	0					
4:15 PM	15	48	11	0	4	55	3	0	7	13	11	1	8	16	6	0	197	1	0	0	0					
4:30 PM	8	62	14	0	0	70	4	0	2	6	4	0	6	9	7	0	192	1	0	0	0					
4:45 PM	17	65	16	0	3	68	4	0	1	12	14	0	5	9	3	0	217	0	0	0	0					
5:00 PM	14	65	15	0	2	75	1	0	1	15	21	0	4	7	10	0	230	0	0	0	0					
5:15 PM	10	46	16	0	2	65	3	0	2	9	14	0	8	11	3	0	189	0	0	0	0					
5:30 PM	15	53	14	0	2	72	2	0	2	18	14	0	2	6	4	1	204	0	0	0	0					
5:45 PM	13	41	12	0	1	54	4	0	2	14	9	0	5	6	4	0	165	0	0	0	0					
Total Survey	110	439	103	0	18	534	22	0	18	101	99	1	45	77	45	1	1,611	2	0	1	0					

### Peak Hour Summary

4:05 PM to 5:05 PM

By Approach	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total	Pedestrians Crosswalk								
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West					
Volume	347	362	709	0	306	273	579	0	108	117	225	1	98	107	205	0	859	2	0	0	0					
%HV	2.0%				4.6%				0.9%				5.1%				3.1%									
PHF	0.89				0.89				0.82				0.72				0.94									

By Movement	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	58	237	52	347	10	285	11	306	11	45	52	108	25	48	25	98	859
%HV	3.4%	1.7%	1.9%	2.0%	0.0%	4.9%	0.0%	4.6%	0.0%	0.0%	1.9%	0.9%	4.0%	2.1%	12.0%	5.1%	3.1%
PHF	0.73	0.91	0.72	0.89	0.63	0.88	0.55	0.89	0.39	0.63	0.65	0.82	0.52	0.75	0.78	0.72	0.94

### Rolling Hour Summary

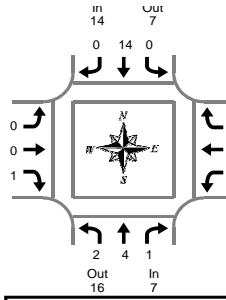
4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk								
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West					
4:00 PM	58	234	46	0	11	288	12	0	11	45	41	1	26	47	24	0	823	2	0	1	0					
4:15 PM	54	240	56	0	9	288	12	0	11	46	50	1	23	41	26	0	836	2	0	0	0					
4:30 PM	49	238	61	0	7	278	12	0	6	42	53	0	23	36	23	0	828	1	0	0	0					
4:45 PM	56	229	61	0	9	280	10	0	6	54	63	0	19	33	20	1	840	0	0	0	0					
5:00 PM	52	205	57	0	7	266	10	0	7	56	58	0	19	30	21	1	788	0	0	0	0					

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



Out 3  
In 1

## Hwy 211 & Dubarko Rd

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

**Peak Hour Summary**  
4:05 PM to 5:05 PM

### Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	0	4	0	4	0	0	1	1	0	0	0	1	7
4:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:10 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	3
4:15 PM	0	1	0	1	0	4	0	4	0	0	0	0	0	0	0	0	5
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
4:25 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	1	1	3
4:35 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	3
4:40 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
4:50 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:55 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
5:05 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:10 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:20 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:25 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:40 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	0	0	0	0	2	0	2	0	0	1	1	1	0	0	1	4
Total Survey	3	9	2	14	0	23	0	23	0	0	3	3	3	1	3	7	47

### Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	1	0	3	0	5	0	5	0	0	1	1	1	0	1	2	11
4:15 PM	0	1	0	1	0	6	0	6	0	0	0	0	1	1	0	2	9
4:30 PM	0	1	0	1	0	4	0	4	0	0	0	0	0	0	2	2	7
4:45 PM	0	1	1	2	0	1	0	1	0	0	1	1	0	0	0	0	4
5:00 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
5:15 PM	1	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	3	0	3	0	0	1	1	1	0	0	1	5
Total Survey	3	9	2	14	0	23	0	23	0	0	3	3	3	1	3	7	47

### Heavy Vehicle Peak Hour Summary 4:05 PM to 5:05 PM

By Approach	Northbound Hwy 211			Southbound Hwy 211			Eastbound Dubarko Rd			Westbound Dubarko Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	7	16	23	14	7	21	1	3	4	5	1	6	27
PHF	0.58			0.58			0.25			0.42			0.68

By Movement	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	4	1	7	0	14	0	14	0	0	1	1	1	1	3	5	27
PHF	0.25	0.50	0.25	0.58	0.00	0.58	0.00	0.58	0.00	0.00	0.25	0.25	0.25	0.25	0.38	0.42	0.68

### Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 211				Southbound Hwy 211				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	4	1	7	0	16	0	16	0	0	2	2	2	1	3	6	31
4:15 PM	0	5	1	6	0	14	0	14	0	0	1	1	1	1	2	4	25
4:30 PM	1	6	2	9	0	8	0	8	0	0	1	1	0	0	2	2	20
4:45 PM	1	6	2	9	0	5	0	5	0	0	1	1	0	0	0	0	15
5:00 PM	1	5	1	7	0	7	0	7	0	0	1	1	1	0	0	1	16



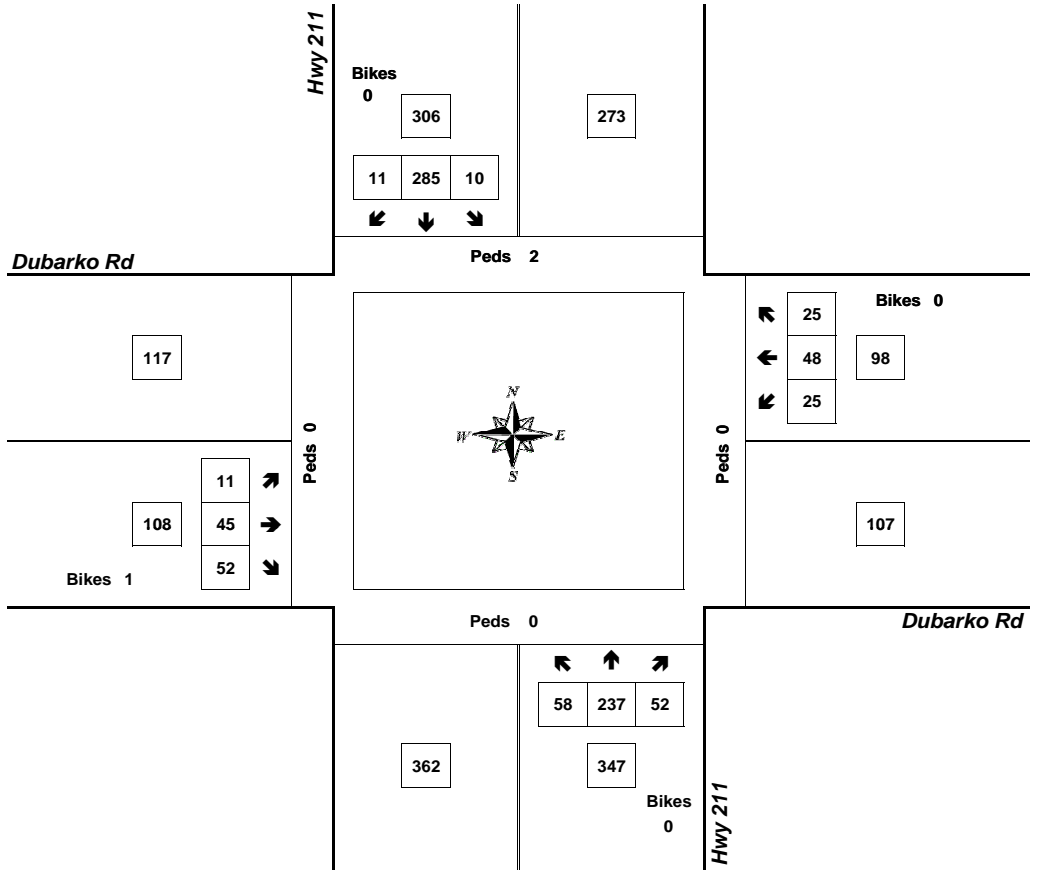
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**Hwy 211 & Dubarko Rd**

4:05 PM to 5:05 PM  
Tuesday, March 19, 2019



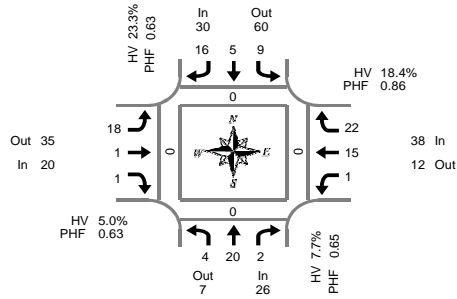
Approach	PHF	HV%	Volume
EB	0.82	0.9%	108
WB	0.72	5.1%	98
NB	0.89	2.0%	347
SB	0.89	4.6%	306
<b>Intersection</b>	<b>0.94</b>	<b>3.1%</b>	<b>859</b>

Count Period: 4:00 PM to 6:00 PM

# Total Vehicle Summary



Clay Carney  
(503) 833-2740



**Peak Hour Summary**  
7:05 AM to 8:05 AM

## SE Langensand Rd & Dubarko Rd

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:05 AM	2	1	0	0	1	0	3	0	1	1	0	0	0	2	3	0	0	0	0	0	
7:10 AM	0	0	0	0	1	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	
7:15 AM	0	2	1	0	0	1	1	0	2	0	0	0	0	0	1	0	0	0	0	0	
7:20 AM	0	0	0	0	0	0	0	0	3	0	0	0	1	3	2	0	0	0	0	0	
7:25 AM	0	0	0	0	2	2	3	0	1	0	0	0	0	1	2	0	0	0	0	0	
7:30 AM	0	6	0	0	0	0	3	0	0	0	0	0	1	1	0	0	0	0	0	0	
7:35 AM	1	2	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	
7:40 AM	0	0	1	0	2	1	3	0	0	0	0	0	0	2	2	0	0	0	0	0	
7:45 AM	0	1	0	0	2	0	1	0	2	0	0	0	0	0	3	0	0	0	0	0	
7:50 AM	1	1	0	0	1	0	2	0	3	0	0	0	0	1	3	0	0	0	0	0	
7:55 AM	0	4	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	
8:00 AM	0	3	0	0	0	1	0	0	2	0	0	0	0	2	1	0	0	0	0	0	
8:05 AM	0	1	0	0	0	1	1	0	3	0	0	0	0	3	1	0	0	0	0	0	
8:10 AM	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	2	0	0	0	0	1	0	3	0	0	0	0	1	1	0	0	0	0	0	
8:20 AM	1	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	
8:25 AM	1	0	0	0	0	1	1	0	3	0	1	0	0	0	1	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	2	2	0	0	1	2	1	0	0	0	0	0	
8:35 AM	1	0	0	0	1	0	0	0	1	1	1	0	1	2	0	0	0	0	0	0	
8:40 AM	1	1	0	0	0	3	2	0	1	0	0	0	1	1	0	0	0	0	0	0	
8:45 AM	1	3	0	0	0	1	2	0	3	0	2	0	1	2	1	0	0	0	0	0	
8:50 AM	1	4	1	0	0	1	2	0	2	0	0	0	1	3	0	0	0	0	0	0	
8:55 AM	1	2	1	0	0	0	1	0	1	0	0	0	0	2	1	0	0	0	0	0	
Total Survey	12	35	4	0	11	14	29	0	38	5	5	0	4	31	31	0	1	0	1	0	

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	3	2	0	0	2	1	4	0	2	1	0	0	0	5	5	0	0	0	0	0	
7:15 AM	0	2	1	0	2	3	4	0	6	0	0	0	1	4	5	0	0	0	0	0	
7:30 AM	1	8	1	0	2	1	6	0	0	0	1	0	0	5	3	0	0	0	0	0	
7:45 AM	1	6	0	0	3	0	3	0	8	0	0	0	0	1	8	0	0	0	0	0	
8:00 AM	0	5	0	0	1	2	2	0	5	0	0	0	0	5	2	0	0	0	0	0	
8:15 AM	2	2	0	0	0	2	3	0	7	1	1	0	0	1	2	0	0	0	1	0	
8:30 AM	2	1	0	0	1	3	2	0	4	3	1	0	2	5	1	0	0	0	0	0	
8:45 AM	3	9	2	0	0	2	5	0	6	0	2	0	1	5	5	0	0	0	0	0	
Total Survey	12	35	4	0	11	14	29	0	38	5	5	0	4	31	31	0	1	0	1	0	

### Peak Hour Summary

7:05 AM to 8:05 AM

By Approach	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	26	7	33	0	30	60	90	0	20	35	55	0	38	12	50	0	114	0	0	0	0
%HV	7.7%				23.3%				5.0%				18.4%				14.9%				
PHF	0.65				0.63				0.63				0.86				0.89				

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	20	2	26	9	5	16	30	18	1	1	20	1	15	22	38	114
%HV	25.0%	0.0%	50.0%	7.7%	22.2%	20.0%	25.0%	23.3%	5.6%	0.0%	0.0%	5.0%	0.0%	26.7%	13.6%	18.4%	14.9%
PHF	0.50	0.63	0.50	0.65	0.45	0.42	0.67	0.63	0.56	0.25	0.25	0.63	0.25	0.75	0.69	0.86	0.89

### Rolling Hour Summary

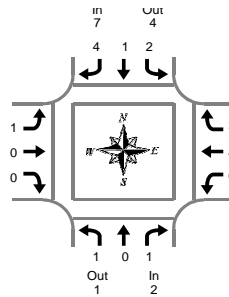
7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	5	18	2	0	9	5	17	0	16	1	1	0	1	15	21	0	111	0	0	0	0
7:15 AM	2	21	2	0	8	6	15	0	19	0	1	0	1	15	18	0	108	1	0	0	0
7:30 AM	4	21	1	0	6	5	14	0	20	1	2	0	0	12	15	0	101	1	0	1	0
7:45 AM	5	14	0	0	5	7	10	0	24	4	2	0	2	12	13	0	98	1	0	1	0
8:00 AM	7	17	2	0	2	9	12	0	22	4	4	0	3	16	10	0	108	1	0	1	0

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



Out 9  
In 1

**Peak Hour Summary**  
7:05 AM to 8:05 AM

## SE Langensand Rd & Dubarko Rd

Wednesday, March 20, 2019  
7:00 AM to 9:00 AM

### Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
7:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2
7:25 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2	2
7:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	2	2
7:50 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	1	1	2	4	4
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2	2
8:05 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:10 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:25 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
8:35 AM	1	0	0	1	0	0	0	0	1	0	0	1	1	0	0	1	3	3
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	1	1	4	2	1	5	8	3	0	3	2	4	3	9	24	24	24

### Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total		
7:00 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1	3	3
7:15 AM	0	0	1	1	0	0	1	1	0	0	0	0	0	3	0	3	5	5
7:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
7:45 AM	0	0	0	0	2	0	1	3	1	0	0	1	0	1	1	2	6	6
8:00 AM	0	1	0	1	0	1	1	2	0	0	0	0	0	1	1	1	4	4
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1
8:30 AM	1	0	0	1	0	0	0	0	1	0	0	1	2	0	0	2	4	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	1	1	4	2	1	5	8	3	0	3	2	4	3	9	24	24	24

### Heavy Vehicle Peak Hour Summary

7:05 AM to 8:05 AM

By Approach	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Dubarko Rd			Westbound Dubarko Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	1	3	7	4	11	1	9	10	7	3	10	17
PHF	0.25			0.58			0.25			0.58			0.71

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	0	1	2	2	1	4	7	1	0	0	1	0	4	3	7	17
PHF	0.25	0.00	0.25	0.25	0.25	0.25	0.50	0.58	0.25	0.00	0.00	0.25	0.00	0.33	0.38	0.58	0.71

### Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total		
7:00 AM	1	0	1	2	2	0	4	6	1	0	0	1	0	4	2	6	15	15
7:15 AM	0	1	1	2	2	1	4	7	1	0	0	1	0	4	2	6	16	16
7:30 AM	0	1	0	1	2	1	3	6	2	0	0	2	0	1	2	3	12	12
7:45 AM	1	1	0	2	2	1	2	5	3	0	0	3	2	1	2	5	15	15
8:00 AM	1	1	0	2	0	1	1	2	2	0	0	2	2	0	1	3	9	9

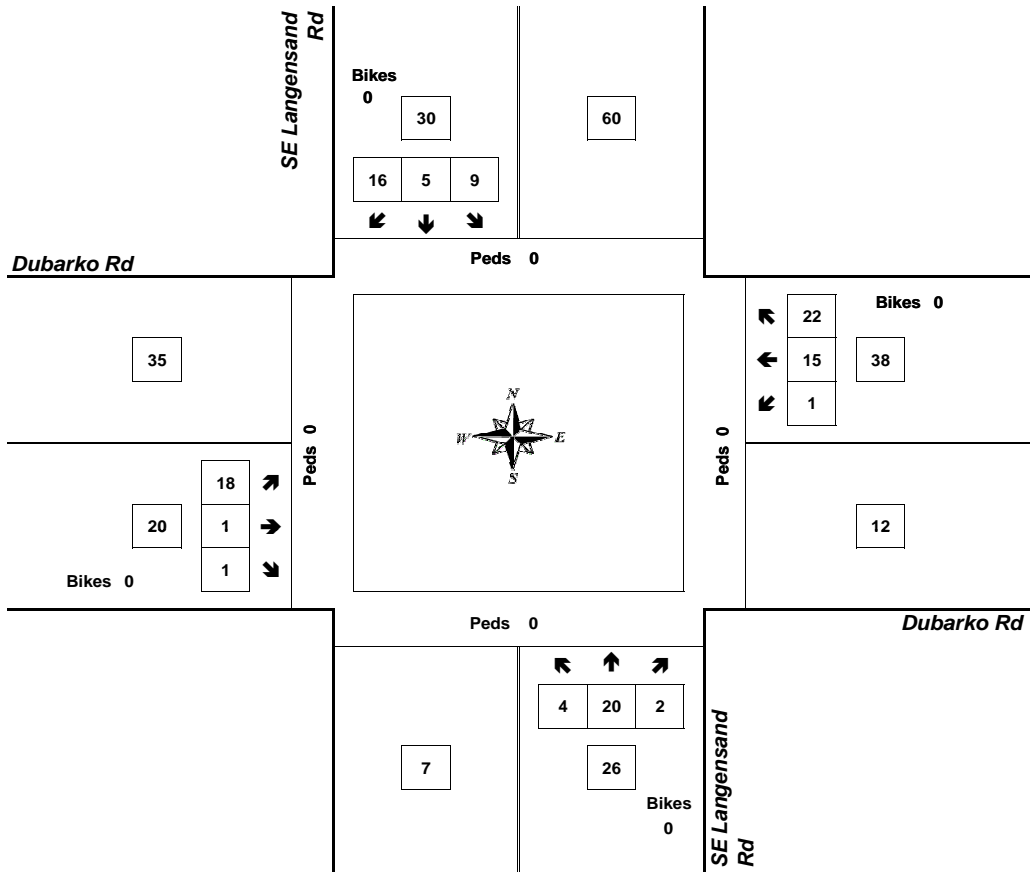
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**SE Langensand Rd & Dubarko Rd**

7:05 AM to 8:05 AM  
Wednesday, March 20, 2019



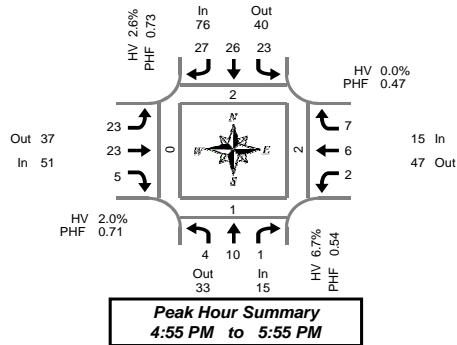
Approach	PHF	HV%	Volume
EB	0.63	5.0%	20
WB	0.86	18.4%	38
NB	0.65	7.7%	26
SB	0.63	23.3%	30
<b>Intersection</b>	<b>0.89</b>	<b>14.9%</b>	<b>114</b>

Count Period: 7:00 AM to 9:00 AM

# Total Vehicle Summary



Clay Carney  
(503) 833-2740



## SE Langensand Rd & Dubarko Rd

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	1	2	1	0	1	0	5	0	3	2	0	0	0	0	0	0	0	0	0	0	
4:05 PM	2	1	1	0	0	2	2	0	1	1	0	0	0	2	0	0	0	0	0	0	
4:10 PM	2	0	0	0	2	0	0	0	1	1	2	0	0	0	1	0	0	0	1	0	
4:15 PM	3	2	0	0	1	1	3	0	4	0	0	0	0	1	1	0	0	1	0	0	
4:20 PM	0	0	0	0	1	3	2	0	3	2	0	0	0	2	1	0	0	0	1	0	
4:25 PM	0	3	0	0	1	2	1	0	1	0	0	1	0	3	1	0	0	0	0	0	
4:30 PM	0	2	0	0	0	1	3	2	4	0	0	0	2	0	0	0	2	0	3	0	
4:35 PM	0	1	0	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	1	0	
4:40 PM	0	2	0	0	0	2	1	0	1	0	1	0	0	1	1	0	0	0	0	0	
4:45 PM	0	2	0	0	0	2	1	0	3	2	1	0	0	1	1	0	0	0	0	0	
4:50 PM	0	0	0	0	2	4	0	0	1	2	0	0	0	1	2	0	0	0	0	0	
4:55 PM	1	2	0	0	1	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	1	3	0	0	3	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	
5:05 PM	0	0	0	0	1	4	4	0	4	2	0	0	0	0	0	0	0	0	0	0	
5:10 PM	0	0	0	0	2	2	4	0	1	2	0	0	0	0	0	0	0	1	0	0	
5:15 PM	0	1	0	0	3	3	3	0	3	1	0	0	0	1	1	0	0	0	1	0	
5:20 PM	1	1	0	0	1	1	4	0	0	1	1	0	0	0	2	0	0	0	0	0	
5:25 PM	0	0	0	0	3	0	2	0	2	2	0	0	2	0	1	0	0	1	0	0	
5:30 PM	0	0	0	0	1	2	3	0	0	3	0	0	0	3	0	0	0	0	0	0	
5:35 PM	0	0	0	1	3	1	0	0	3	1	0	0	0	1	1	0	0	1	0	0	
5:40 PM	0	1	1	0	1	1	1	1	2	4	0	0	0	1	0	0	0	0	1	0	
5:45 PM	1	0	0	0	2	3	2	0	4	2	1	0	0	0	0	0	0	0	0	0	
5:50 PM	0	2	0	0	2	4	1	0	1	3	1	0	0	0	2	0	0	0	0	0	
5:55 PM	1	0	0	0	1	0	3	0	1	1	0	0	0	1	0	0	0	0	0	0	
Total Survey	13	25	3	1	32	45	48	3	47	34	10	1	2	20	15	0	294	5	1	8	0

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	5	3	2	0	3	2	7	0	5	4	2	0	0	2	1	0	0	0	0	0	
4:15 PM	3	5	0	0	3	6	6	0	8	2	0	1	0	6	3	0	0	1	0	0	
4:30 PM	0	5	0	0	0	5	4	2	6	0	2	0	0	3	1	0	0	2	0	0	
4:45 PM	1	4	0	0	3	8	3	0	6	4	1	0	0	2	3	0	0	0	0	0	
5:00 PM	1	3	0	0	6	9	9	0	6	6	0	0	0	0	0	0	0	0	1	0	
5:15 PM	1	2	0	0	7	4	9	0	5	4	3	0	2	1	4	0	0	1	0	0	
5:30 PM	0	1	1	1	5	4	4	1	5	8	0	0	0	5	1	0	0	1	0	0	
5:45 PM	2	2	0	0	5	7	6	0	6	6	2	0	0	1	2	0	0	0	0	0	
Total Survey	13	25	3	1	32	45	48	3	47	34	10	1	2	20	15	0	294	5	1	8	0

### Peak Hour Summary

4:55 PM to 5:55 PM

By Approach	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	15	33	48	1	76	40	116	1	51	37	88	0	15	47	62	0	157	2	1	2	0
%HV	6.7%				2.6%				2.0%				0.0%				2.5%				
PHF	0.54				0.73				0.71				0.47				0.91				

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	10	1	15	23	26	27	76	23	23	5	51	2	6	7	15	157
%HV	25.0%	0.0%	0.0%	6.7%	0.0%	0.0%	7.4%	2.6%	4.3%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	2.5%
PHF	0.50	0.50	0.25	0.54	0.82	0.72	0.61	0.73	0.64	0.64	0.42	0.71	0.25	0.30	0.44	0.47	0.91

### Rolling Hour Summary

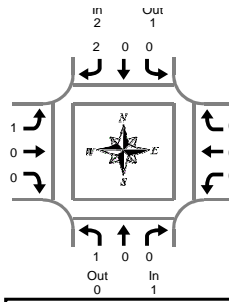
4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	9	17	2	0	9	21	20	2	25	10	5	1	0	13	8	0	139	3	0	6	0
4:15 PM	5	17	0	0	12	28	22	2	26	12	3	1	0	11	7	0	143	3	1	5	0
4:30 PM	3	14	0	0	16	26	25	2	23	14	6	0	2	6	8	0	143	3	1	5	0
4:45 PM	3	10	1	1	21	25	25	1	22	22	4	0	2	8	8	0	151	2	1	2	0
5:00 PM	4	8	1	1	23	24	28	1	22	24	5	0	2	7	7	0	155	2	1	2	0

# Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



## SE Langensand Rd & Dubarko Rd

Tuesday, March 19, 2019  
4:00 PM to 6:00 PM

**Peak Hour Summary**  
4:55 PM to 5:55 PM

### Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:20 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
5:50 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	0	1	2	1	1	3	5	2	0	0	2	0	1	0	1	10

### Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	1	1	0	2	1	0	0	1	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	1	0	0	1	1	1	0	0	1	0	0	0	0	3
Total Survey	1	0	1	2	1	1	3	5	2	0	0	2	0	1	0	1	10

### Heavy Vehicle Peak Hour Summary 4:55 PM to 5:55 PM

By Approach	Northbound SE Langensand Rd			Southbound SE Langensand Rd			Eastbound Dubarko Rd			Westbound Dubarko Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	0	1	2	1	3	1	3	4	0	0	0	4
PHF	0.25			0.50			0.25			0.00			0.33

By Movement	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	0	0	1	0	0	2	2	1	0	0	1	0	0	0	0	4
PHF	0.25	0.00	0.00	0.25	0.00	0.00	0.50	0.50	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.33

### Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SE Langensand Rd				Southbound SE Langensand Rd				Eastbound Dubarko Rd				Westbound Dubarko Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	1	1	1	1	1	3	1	0	0	1	0	1	0	1	6
4:15 PM	0	0	0	0	1	1	1	3	1	0	0	1	0	1	0	1	5
4:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5:00 PM	1	0	0	1	0	0	2	2	1	0	0	1	0	0	0	0	4

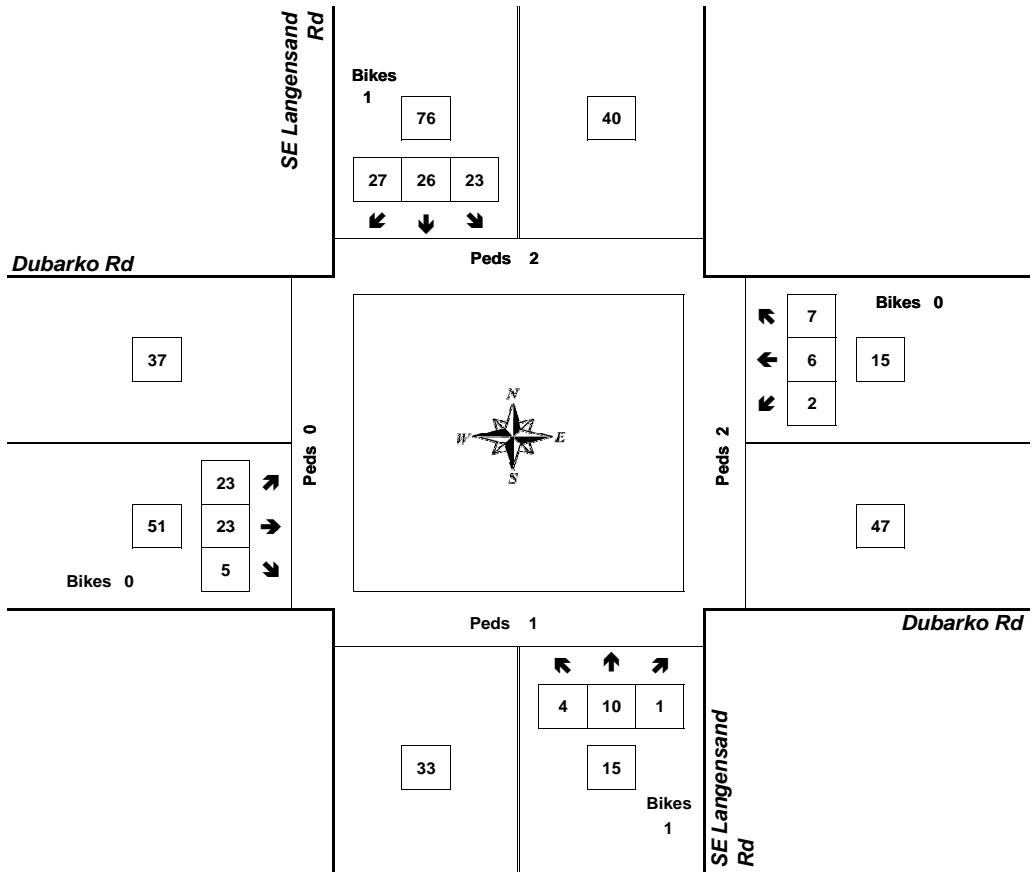
**Peak Hour Summary**



Clay Carney  
(503) 833-2740

**SE Langensand Rd & Dubarko Rd**

4:55 PM to 5:55 PM  
Tuesday, March 19, 2019



Approach	PHF	HV%	Volume
EB	0.71	2.0%	51
WB	0.47	0.0%	15
NB	0.54	6.7%	15
SB	0.73	2.6%	76
<b>Intersection</b>	<b>0.91</b>	<b>2.5%</b>	<b>157</b>

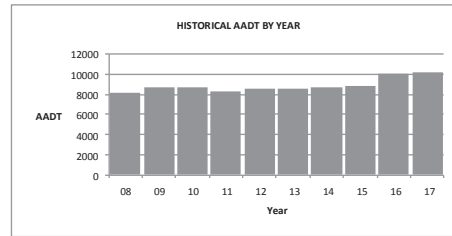
Count Period: 4:00 PM to 6:00 PM



<b>Location:</b>	US26; MP 46.38; MT. HOOD HIGHWAY NO. 26; 0.30 mile east of Camp Creek Rd	<b>Site Name:</b>	Rhododendron (03-006)
	(USFS 28)		<b>Installed:</b>

**HISTORICAL TRAFFIC DATA**

Year	AADT	Percent of AADT				
		Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
2008	8162	233	22.9	20.1	19.1	18.2
2009	8737	197	22.3	19.6	18.4	17.8
2010	8714	207	21.6	19.8	18.9	18.5
2011	8330	214	24.7	20.0	18.6	18.1
2012	8480	227	24.0	21.0	20.2	19.4
2013	8527	213	23.4	21.1	20.3	19.1
2014	8652	216	23.2	21.1	20.3	19.2
2015	8861	242	21.4	20.3	19.4	18.7
2016	10071	208	22.9	19.6	18.8	17.9
2017	10223	200	19.9	19.1	18.1	17.5



**2017 TRAFFIC DATA**

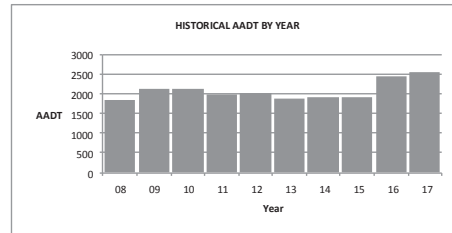
	Average Weekday Traffic	Percent of AADT	Average Daily Traffic	Percent of AADT
January	6744	66	9080	89
February	6533	64	9496	93
March	6763	66	9337	91
April	6166	60	8675	85
May	7675	75	9598	94
June	8568	84	10695	105
July	11291	110	13874	136
August	11738	115	13623	133
September	11300	111	12734	125
October	6589	64	8087	79
November	5493	54	7313	72
December	8753	86	10161	99

For Vehicle Classification data near your project, please go to the following web page:  
[https://www.oregon.gov/ODOT/Data/Documents/TVT\\_2017.xlsx](https://www.oregon.gov/ODOT/Data/Documents/TVT_2017.xlsx)

<b>Location:</b>	OR35; MP 57.79; MT. HOOD HIGHWAY NO. 26; 0.02 mile east of Warm Springs Highway No. 53 (US26)	<b>Site Name:</b>	Mt. Hood Meadows (03-007)
			<b>Installed:</b>

**HISTORICAL TRAFFIC DATA**

Year	AADT	Percent of AADT				
		Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
2008	1854	398	56.8	44.2	39.9	36.1
2009	2130	***	***	***	***	***
2010	2145	374	49.2	39.5	34.8	33.2
2011	1976	476	79.2	49.1	45.0	39.1
2012	2023	452	65.4	43.4	40.3	37.7
2013	1868	427	68.1	48.7	42.0	37.1
2014	1908	400	60.0	41.9	37.4	33.6
2015	1931	393	50.4	38.6	34.4	32.6
2016	2455	366	55.9	38.3	33.1	31.2
2017	2565	340	52.1	37.7	32.5	31.3



**2017 TRAFFIC DATA**

	Average Weekday Traffic	Percent of AADT	Average Daily Traffic	Percent of AADT
January	2449	95	3616	141
February	1978	77	3362	131
March	1781	69	2833	110
April	1116	44	2050	80
May	1202	47	1609	63
June	1794	70	2070	81
July	2405	94	2837	111
August	2302	90	2614	102
September	3956	154	3993	156
October	1387	54	1614	63
November	768	30	1156	45
December	2499	97	2966	116

For Vehicle Classification data near your project, please go to the following web page:  
[https://www.oregon.gov/ODOT/Data/Documents/TVT\\_2017.xlsx](https://www.oregon.gov/ODOT/Data/Documents/TVT_2017.xlsx)

Site id	HWY	MP	DIR	HS	Description	2017	2018	2019	2039	RSQ
1778	026	22.72	1		0.02 mile northwest of SE 362nd Drive, west city limits of Sandy		33700		47300	MODEL
1779	026	23.85	1		0.02 mile west of Bluff Road		33300		47100	MODEL
1780	026	23.89	1		0.02 mile east of Bluff Road		15700		22400	MODEL
1781	026	24.02	1		0.02 mile west of Beers Avenue		16200		23100	MODEL
1782	026	24.35	1		0.05 mile west of Eagle Creek-Sandy Highway (OR211)		16000		23400	MODEL
1783	026	24.42	1		0.02 mile east of Eagle Creek-Sandy Highway (OR211)		12400		17700	MODEL
1784	026	24.59	1		0.02 mile west of Ten Eyck Road		12500		17800	MODEL
1785	026	23.89	2		0.02 mile east of Bluff Road		16600		23300	MODEL
1786	026	24.04	2		0.02 mile west of Beers Avenue		18300		25600	MODEL
1787	026	24.36	2		0.05 mile west of Eagle Creek-Sandy Highway (OR211)		15900		22700	MODEL
1788	026	24.40	2		0.02 mile east of Eagle Creek-Sandy Highway (OR211)		13700		19200	MODEL
1789	026	24.61	2		0.02 mile west of Ten Eyck Road		12600		17600	MODEL
1790	026	25.10	1		0.02 mile west of Langensand Road		20700		29200	MODEL
1791	026	25.66	1		0.10 mile east of Vista Loop Drive		23500		32900	MODEL

Site id	HWY	MP	DIR	HS	Description	2017	2018	2019	2039	RSQ
3563	172	-0.13	1		0.10 mile east of Clackamas Highway (OR224)			6000	9400	MODEL
3564	172	1.45	1		0.10 mile southwest of Judd Road			7100	11200	MODEL
3565	172	1.65	1		0.10 mile northeast of Judd Road			7400	11400	MODEL
3566	172	3.65	1		0.05 mile west of 362nd Drive			8000	12200	MODEL
3567	172	3.75	1		0.05 mile east of 362nd Drive			5900	8800	MODEL
3568	172	5.07	1		0.10 mile west of Bornstedt Road			4600	7600	MODEL
3569	172	5.29	1		0.10 mile south of Dubarko Road			6300	10300	MODEL
3570	172	5.50	1		0.11 mile north of Dubarko Road			5700	9200	MODEL
3571	172	5.83	1		0.05 mile south of Mt. Hood Highway (US26-EB)			7500	12100	MODEL
3572	172	5.92	1		0.02 mile south of Mt. Hood Highway (US26-WB)			4400	7100	MODEL

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

05/31/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	740	37	4	1083	10	136	11	3	16	4	148
Future Volume (vph)	58	740	37	4	1083	10	136	11	3	16	4	148
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00			0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			1.00	
Satd. Flow (prot)	1484	2945		1568	3137	1356		1575			1464	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.55			0.97	
Satd. Flow (perm)	1484	2945		1568	3137	1356		902			1423	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	62	787	39	4	1152	11	145	12	3	17	4	157
RTOR Reduction (vph)	0	3	0	0	0	5	0	1	0	0	109	0
Lane Group Flow (vph)	62	823	0	4	1152	6	0	159	0	0	69	0
Confl. Peds. (#/hr)						4						4
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	12%	12%	12%	6%	6%	6%	6%	6%	6%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	8.4	68.9		1.1	61.6	61.6		36.5			36.5	
Effective Green, g (s)	8.4	68.9		1.1	61.6	61.6		36.5			36.5	
Actuated g/C Ratio	0.07	0.57		0.01	0.51	0.51		0.30			0.30	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	103	1690		14	1610	696		274			432	
v/s Ratio Prot	c0.04	0.28		0.00	c0.37							
v/s Ratio Perm						0.00		c0.18			0.05	
v/c Ratio	0.60	0.49		0.29	0.72	0.01		0.58			0.16	
Uniform Delay, d1	54.2	15.1		59.1	22.5	14.3		35.3			30.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	9.5	1.0		10.9	2.8	0.0		8.7			0.2	
Delay (s)	63.7	16.1		70.0	25.2	14.3		44.0			30.7	
Level of Service	E	B		E	C	B		D			C	
Approach Delay (s)		19.4			25.3			44.0			30.7	
Approach LOS		B			C			D			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		24.8										C
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		120.0						13.5				
Intersection Capacity Utilization		72.6%										C
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

05/31/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	740	37	4	1083	10	136	11	3	16	4	148
Future Volume (veh/h)	58	740	37	4	1083	10	136	11	3	16	4	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1586	1586	1586	1668	1668	1668	1668	1668	1668	1709	1709	1709
Adj Flow Rate, veh/h	62	787	39	4	1152	11	145	12	3	17	4	157
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	12	12	12	6	6	6	6	6	6	3	3	3
Cap, veh/h	76	1687	84	8	1689	735	323	25	6	57	29	396
Arrive On Green	0.05	0.58	0.58	0.01	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1511	2919	145	1589	3169	1379	874	82	18	80	94	1300
Grp Volume(v), veh/h	62	406	420	4	1152	11	160	0	0	178	0	0
Grp Sat Flow(s),veh/h/ln	1511	1507	1556	1589	1585	1379	974	0	0	1474	0	0
Q Serve(g_s), s	4.9	18.7	18.7	0.3	32.0	0.5	8.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.9	18.7	18.7	0.3	32.0	0.5	19.6	0.0	0.0	11.5	0.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	0.91		0.02	0.10		0.88
Lane Grp Cap(c), veh/h	76	871	900	8	1689	735	353	0	0	481	0	0
V/C Ratio(X)	0.82	0.47	0.47	0.48	0.68	0.01	0.45	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	145	871	900	73	1689	735	353	0	0	481	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.4	14.6	14.6	59.5	20.6	13.2	37.0	0.0	0.0	33.1	0.0	0.0
Incr Delay (d2), s/veh	18.5	1.8	1.7	38.0	2.2	0.0	4.1	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.8	7.0	0.2	12.2	0.2	4.5	0.0	0.0	4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.9	16.4	16.4	97.5	22.8	13.2	41.1	0.0	0.0	33.5	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	C	A	A
Approach Vol, veh/h		888			1167			160				178
Approach Delay, s/veh		20.5			23.0			41.1				33.5
Approach LOS		C			C			D				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	73.9		41.0	10.5	68.5		41.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	64.5		36.5	11.5	58.5		36.5				
Max Q Clear Time (g_c+I1), s	2.3	20.7		21.6	6.9	34.0		13.5				
Green Ext Time (p_c), s	0.0	6.8		0.8	0.0	10.0		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.0								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

05/31/2021

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	750	35	16	967	66	16
Future Vol, veh/h	750	35	16	967	66	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	13	13	7	7	4	4
Mvmt Flow	798	37	17	1029	70	17
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	835	0	1347	399
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	549	-
Critical Hdwy	-	-	4.24	-	6.88	6.98
Critical Hdwy Stg 1	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	5.88	-
Follow-up Hdwy	-	-	2.27	-	3.54	3.34
Pot Cap-1 Maneuver	-	-	763	-	140	595
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	763	-	137	595
Mov Cap-2 Maneuver	-	-	-	-	137	-
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	525	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	47.3			
HCM LOS			E			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	137	595	-	-	763	-
HCM Lane V/C Ratio	0.513	0.029	-	-	0.022	-
HCM Control Delay (s)	56.1	11.2	-	-	9.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

05/31/2021

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	8	8	33	54	38	33	44	283	14	4	167	2
Future Vol, veh/h	8	8	33	54	38	33	44	283	14	4	167	2
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	9	9	37	60	42	37	49	314	16	4	186	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	658	626	188	640	620	326	190	0	0	332	0	0
Stage 1	196	196	-	422	422	-	-	-	-	-	-	-
Stage 2	462	430	-	218	198	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	379	402	857	384	400	708	1384	-	-	1211	-	-
Stage 1	808	740	-	604	583	-	-	-	-	-	-	-
Stage 2	582	585	-	778	732	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	316	381	855	347	379	705	1381	-	-	1209	-	-
Mov Cap-2 Maneuver	316	381	-	347	379	-	-	-	-	-	-	-
Stage 1	771	736	-	576	556	-	-	-	-	-	-	-
Stage 2	486	558	-	733	728	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	11.6		16.7			1			0.2			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1381	-	-	345	855	360	705	1209	-	-		
HCM Lane V/C Ratio	0.035	-	-	0.052	0.043	0.284	0.052	0.004	-	-		
HCM Control Delay (s)	7.7	0	-	16	9.4	18.9	10.4	8	0	-		
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	1.1	0.2	0	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

05/31/2021

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	19	1	1	1	15	23	4	21	2	9	5	17
Future Vol, veh/h	19	1	1	1	15	23	4	21	2	9	5	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	18	18	18	8	8	8	23	23	23
Mvmt Flow	21	1	1	1	17	26	4	24	2	10	6	19

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	91	70	16	70	78	25	25	0	0	26	0	0
Stage 1	36	36	-	33	33	-	-	-	-	-	-	-
Stage 2	55	34	-	37	45	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.28	6.68	6.38	4.18	-	-	4.33	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.662	4.162	3.462	2.272	-	-	2.407	-	-
Pot Cap-1 Maneuver	886	815	1055	884	783	1007	1551	-	-	1462	-	-
Stage 1	972	859	-	944	837	-	-	-	-	-	-	-
Stage 2	950	861	-	939	827	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	843	807	1055	875	775	1007	1551	-	-	1462	-	-
Mov Cap-2 Maneuver	843	807	-	875	775	-	-	-	-	-	-	-
Stage 1	969	853	-	941	834	-	-	-	-	-	-	-
Stage 2	904	858	-	930	821	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.4		9.2		1.1		2.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	843	914	900	1462	-	-
HCM Lane V/C Ratio	0.003	-	-	0.025	0.002	0.049	0.007	-	-
HCM Control Delay (s)	7.3	0	-	9.4	8.9	9.2	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.2	0	-	-



HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

05/31/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1152	155	8	1041	22	133	16	14	38	14	115
Future Volume (vph)	155	1152	155	8	1041	22	133	16	14	38	14	115
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.99			0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1614	3163		1554	3107	1343		1645			1461	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.57			0.91	
Satd. Flow (perm)	1614	3163		1554	3107	1343		983			1340	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	1213	163	8	1096	23	140	17	15	40	15	121
RTOR Reduction (vph)	0	8	0	0	0	12	0	3	0	0	66	0
Lane Group Flow (vph)	163	1368	0	8	1096	11	0	169	0	0	110	0
Confl. Peds. (#/hr)						4						4
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	1%	1%	1%	6%	6%	6%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	16.3	73.0		1.0	57.7	57.7		32.5			32.5	
Effective Green, g (s)	16.3	73.0		1.0	57.7	57.7		32.5			32.5	
Actuated g/C Ratio	0.14	0.61		0.01	0.48	0.48		0.27			0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	219	1924		12	1493	645		266			362	
v/s Ratio Prot	c0.10	c0.43		0.01	0.35							
v/s Ratio Perm						0.01		c0.17			0.08	
v/c Ratio	0.74	0.71		0.67	0.73	0.02		0.64			0.30	
Uniform Delay, d1	49.8	16.2		59.3	25.0	16.3		38.5			34.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	12.8	2.3		89.5	3.2	0.0		11.1			0.5	
Delay (s)	62.7	18.5		148.8	28.2	16.4		49.6			35.2	
Level of Service	E	B		F	C	B		D			D	
Approach Delay (s)		23.2			28.8			49.6			35.2	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.5									C
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		13.5				
Intersection Capacity Utilization			80.5%			ICU Level of Service						D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

05/31/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	1152	155	8	1041	22	133	16	14	38	14	115
Future Volume (veh/h)	155	1152	155	8	1041	22	133	16	14	38	14	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1709	1709	1654	1654	1654	1736	1736	1736	1668	1668	1668
Adj Flow Rate, veh/h	163	1213	163	8	1096	23	140	17	15	40	15	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	7	7	7	1	1	1	6	6	6
Cap, veh/h	189	1742	233	15	1573	684	290	35	26	109	53	275
Arrive On Green	0.12	0.61	0.61	0.01	0.50	0.50	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1628	2870	384	1576	3143	1368	869	128	95	266	195	1014
Grp Volume(v), veh/h	163	684	692	8	1096	23	172	0	0	176	0	0
Grp Sat Flow(s),veh/h/ln	1628	1624	1630	1576	1572	1368	1092	0	0	1475	0	0
Q Serve(g_s), s	11.8	34.3	34.8	0.6	32.1	1.0	7.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.8	34.3	34.8	0.6	32.1	1.0	18.4	0.0	0.0	11.4	0.0	0.0
Prop In Lane	1.00		0.24	1.00		1.00	0.81		0.09	0.23		0.69
Lane Grp Cap(c), veh/h	189	985	989	15	1573	684	350	0	0	436	0	0
V/C Ratio(X)	0.86	0.69	0.70	0.52	0.70	0.03	0.49	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	264	985	989	67	1573	684	350	0	0	436	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.1	16.0	16.1	59.1	23.0	15.2	39.2	0.0	0.0	36.1	0.0	0.0
Incr Delay (d2), s/veh	18.3	4.0	4.1	24.7	2.6	0.1	4.9	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	13.4	13.7	0.3	12.3	0.3	5.0	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	20.0	20.2	83.8	25.6	15.3	44.1	0.0	0.0	36.7	0.0	0.0
LnGrp LOS	E	C	C	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1539			1127			172				176
Approach Delay, s/veh		25.5			25.8			44.1				36.7
Approach LOS		C			C			D				D
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	77.3		37.0	18.4	64.6		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	68.9		32.5	19.5	54.5		32.5				
Max Q Clear Time (g_c+I1), s	2.6	36.8		20.4	13.8	34.1		13.4				
Green Ext Time (p_c), s	0.0	13.3		0.8	0.2	8.7		1.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				27.3								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

05/31/2021

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	1107	83	17	1064	34	33
Future Vol, veh/h	1107	83	17	1064	34	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	7	7	3	3
Mvmt Flow	1165	87	18	1120	36	35
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1252	0	1761	583
Stage 1	-	-	-	-	1165	-
Stage 2	-	-	-	-	596	-
Critical Hdwy	-	-	4.24	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.27	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	525	-	75	453
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	525	-	72	453
Mov Cap-2 Maneuver	-	-	-	-	72	-
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	493	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	55.8			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	72	453	-	-	525	-
HCM Lane V/C Ratio	0.497	0.077	-	-	0.034	-
HCM Control Delay (s)	96.7	13.6	-	-	12.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	2	0.2	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

05/31/2021

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	11	47	54	26	50	26	60	272	54	10	327	11
Future Vol, veh/h	11	47	54	26	50	26	60	272	54	10	327	11
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	12	50	57	28	53	28	64	289	57	11	348	12
Major/Minor	Minor2	Minor1				Major1			Major2			
Conflicting Flow All	860	848	350	878	832	322	362	0	0	348	0	0
Stage 1	372	372	-	448	448	-	-	-	-	-	-	-
Stage 2	488	476	-	430	384	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	277	299	696	265	301	712	1197	-	-	1194	-	-
Stage 1	651	621	-	584	568	-	-	-	-	-	-	-
Stage 2	563	558	-	598	606	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	213	274	695	197	276	709	1195	-	-	1192	-	-
Mov Cap-2 Maneuver	213	274	-	197	276	-	-	-	-	-	-	-
Stage 1	606	612	-	544	529	-	-	-	-	-	-	-
Stage 2	453	519	-	498	598	-	-	-	-	-	-	-
Approach	EB	WB				NB			SB			
HCM Control Delay, s	17.1	22.7				1.3			0.2			
HCM LOS	C	C										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1195	-	-	260	695	243	709	1192	-	-		
HCM Lane V/C Ratio	0.053	-	-	0.237	0.083	0.333	0.039	0.009	-	-		
HCM Control Delay (s)	8.2	0	-	23.1	10.6	27	10.3	8	0	-		
HCM Lane LOS	A	A	-	C	B	D	B	A	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.3	1.4	0.1	0	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

05/31/2021

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔				↕				↕		↕	
Traffic Vol, veh/h	24	24	5	2	6	7	4	10	1	24	27	28
Future Vol, veh/h	24	24	5	2	6	7	4	10	1	24	27	28
Conflicting Peds, #/hr	2	0	1	3	0	4	1	0	3	4	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	7	7	7	3	3	3
Mvmt Flow	26	26	5	2	7	8	4	11	1	26	30	31
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	131	124	51	140	139	20	63	0	0	16	0	0
Stage 1	100	100	-	24	24	-	-	-	-	-	-	-
Stage 2	31	24	-	116	115	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.17	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.263	-	-	2.227	-	-
Pot Cap-1 Maneuver	841	766	1017	830	752	1058	1508	-	-	1595	-	-
Stage 1	906	812	-	994	875	-	-	-	-	-	-	-
Stage 2	986	875	-	889	800	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	812	746	1012	786	732	1050	1505	-	-	1589	-	-
Mov Cap-2 Maneuver	812	746	-	786	732	-	-	-	-	-	-	-
Stage 1	901	797	-	987	869	-	-	-	-	-	-	-
Stage 2	965	869	-	838	785	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.7			9.3			2			2.2		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1505	-	-	812	781	862	1589	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.032	0.041	0.019	0.017	-	-			
HCM Control Delay (s)	7.4	0	-	9.6	9.8	9.3	7.3	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0.1	-	-			

# Trip Generation Calculation Worksheet



Land Use Description: Single-Family Detached Housing  
ITE Land Use Code: 210  
Independent Variable: Dwelling Units  
Quantity: 32 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.74 trips per dwelling unit  
Directional Distribution: 25% Entering 75% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.99 trips per dwelling unit  
Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 9.44 trips per dwelling unit  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

32 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	6	18	24
PM Peak Hour	20	12	32
Weekday	151	151	302

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017

# Trip Generation Calculation Worksheet



Land Use Description: Multi-Family Housing (Low-Rise)  
ITE Land Use Code: 220  
Independent Variable: Dwelling Units  
Quantity: 120 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.46 trips per dwelling unit  
Directional Distribution: 23% Entering 77% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.56 trips per dwelling unit  
Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 7.32 trips per dwelling unit  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

120 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	13	42	55
PM Peak Hour	42	25	67
Weekday	439	439	878

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	796	38	4	1173	13	141	11	3	18	4	161
Future Volume (vph)	84	796	38	4	1173	13	141	11	3	18	4	161
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00			0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			1.00	
Satd. Flow (prot)	1484	2946		1568	3137	1356		1575			1464	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.52			0.96	
Satd. Flow (perm)	1484	2946		1568	3137	1356		854			1418	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	838	40	4	1235	14	148	12	3	19	4	169
RTOR Reduction (vph)	0	2	0	0	0	7	0	1	0	0	115	0
Lane Group Flow (vph)	88	876	0	4	1235	7	0	162	0	0	77	0
Confl. Peds. (#/hr)						4						4
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	12%	12%	12%	6%	6%	6%	6%	6%	6%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	11.0	71.0		1.0	61.0	61.0		34.5			34.5	
Effective Green, g (s)	11.0	71.0		1.0	61.0	61.0		34.5			34.5	
Actuated g/C Ratio	0.09	0.59		0.01	0.51	0.51		0.29			0.29	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	136	1743		13	1594	689		245			407	
v/s Ratio Prot	c0.06	0.30		0.00	c0.39							
v/s Ratio Perm						0.01		c0.19			0.05	
v/c Ratio	0.65	0.50		0.31	0.77	0.01		0.66			0.19	
Uniform Delay, d1	52.6	14.2		59.2	23.9	14.6		37.6			32.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	10.1	1.0		13.0	3.7	0.0		13.3			0.2	
Delay (s)	62.8	15.3		72.2	27.7	14.6		50.9			32.4	
Level of Service	E	B		E	C	B		D			C	
Approach Delay (s)		19.6			27.7			50.9			32.4	
Approach LOS		B			C			D			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		26.5										C
HCM 2000 Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		120.0						13.5				
Intersection Capacity Utilization		77.4%										D
Analysis Period (min)		15										
c Critical Lane Group												



HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	796	38	4	1173	13	141	11	3	18	4	161
Future Volume (veh/h)	84	796	38	4	1173	13	141	11	3	18	4	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1586	1586	1586	1668	1668	1668	1668	1668	1668	1709	1709	1709
Adj Flow Rate, veh/h	88	838	40	4	1235	14	148	12	3	19	4	169
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	6	6	6	6	6	6	3	3	3
Cap, veh/h	107	1740	83	8	1678	730	295	22	5	57	27	379
Arrive On Green	0.07	0.59	0.59	0.01	0.53	0.53	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1511	2925	140	1589	3169	1379	825	77	17	84	95	1318
Grp Volume(v), veh/h	88	432	446	4	1235	14	163	0	0	192	0	0
Grp Sat Flow(s),veh/h/ln	1511	1507	1557	1589	1585	1379	919	0	0	1497	0	0
Q Serve(g_s), s	6.9	19.5	19.5	0.3	36.1	0.6	8.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.9	19.5	19.5	0.3	36.1	0.6	21.7	0.0	0.0	12.8	0.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	0.91		0.02	0.10		0.88
Lane Grp Cap(c), veh/h	107	896	926	8	1678	730	321	0	0	463	0	0
V/C Ratio(X)	0.82	0.48	0.48	0.48	0.74	0.02	0.51	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	157	896	926	68	1678	730	321	0	0	463	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.0	13.8	13.8	59.5	21.8	13.4	39.7	0.0	0.0	35.0	0.0	0.0
Incr Delay (d2), s/veh	19.6	1.9	1.8	38.0	2.9	0.0	5.6	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	7.0	7.3	0.2	13.9	0.2	4.8	0.0	0.0	4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	15.7	15.6	97.5	24.7	13.5	45.3	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		966			1253			163			192	
Approach Delay, s/veh		21.0			24.8			45.3			35.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	75.9		39.0	13.0	68.0		39.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	66.9		34.5	12.5	59.5		34.5				
Max Q Clear Time (g_c+I1), s	2.3	21.5		23.7	8.9	38.1		14.8				
Green Ext Time (p_c), s	0.0	7.4		0.7	0.1	10.2		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.5								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

06/01/2021

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	807	36	20	1056	69	26
Future Vol, veh/h	807	36	20	1056	69	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	13	13	7	7	4	4
Mvmt Flow	849	38	21	1112	73	27
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	887	0	1447	425
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	598	-
Critical Hdwy	-	-	4.24	-	6.88	6.98
Critical Hdwy Stg 1	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	5.88	-
Follow-up Hdwy	-	-	2.27	-	3.54	3.34
Pot Cap-1 Maneuver	-	-	728	-	120	572
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	506	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	728	-	117	572
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	491	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	58.7			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	117	572	-	-	728	-
HCM Lane V/C Ratio	0.621	0.048	-	-	0.029	-
HCM Control Delay (s)	76.4	11.6	-	-	10.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	3.1	0.1	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	11	8	34	56	42	61	46	315	15	14	190	3
Future Vol, veh/h	11	8	34	56	42	61	46	315	15	14	190	3
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	12	9	38	62	47	68	51	350	17	16	211	3
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	765	716	213	731	711	363	216	0	0	369	0	0
Stage 1	245	245	-	463	463	-	-	-	-	-	-	-
Stage 2	520	471	-	268	248	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	321	357	830	334	354	675	1354	-	-	1173	-	-
Stage 1	761	705	-	573	559	-	-	-	-	-	-	-
Stage 2	541	561	-	731	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	244	333	828	297	330	672	1351	-	-	1171	-	-
Mov Cap-2 Maneuver	244	333	-	297	330	-	-	-	-	-	-	-
Stage 1	723	692	-	544	531	-	-	-	-	-	-	-
Stage 2	422	533	-	678	683	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13		18.3			1			0.5			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1351	-	-	275	828	310	672	1171	-	-		
HCM Lane V/C Ratio	0.038	-	-	0.077	0.046	0.351	0.101	0.013	-	-		
HCM Control Delay (s)	7.8	0	-	19.2	9.6	22.8	11	8.1	0	-		
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	1.5	0.3	0	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	29	1	1	1	16	24	4	22	2	9	5	21
Future Vol, veh/h	29	1	1	1	16	24	4	22	2	9	5	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	18	18	18	8	8	8	23	23	23
Mvmt Flow	33	1	1	1	18	27	4	25	2	10	6	24
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	95	73	18	73	84	26	30	0	0	27	0	0
Stage 1	38	38	-	34	34	-	-	-	-	-	-	-
Stage 2	57	35	-	39	50	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.28	6.68	6.38	4.18	-	-	4.33	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.662	4.162	3.462	2.272	-	-	2.407	-	-
Pot Cap-1 Maneuver	881	812	1052	880	777	1006	1545	-	-	1461	-	-
Stage 1	970	857	-	943	836	-	-	-	-	-	-	-
Stage 2	947	860	-	937	823	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	836	804	1052	871	769	1006	1545	-	-	1461	-	-
Mov Cap-2 Maneuver	836	804	-	871	769	-	-	-	-	-	-	-
Stage 1	967	851	-	940	833	-	-	-	-	-	-	-
Stage 2	899	857	-	928	817	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.5			9.2			1			1.9		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1545	-	-	836	911	895	1461	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.039	0.002	0.051	0.007	-	-			
HCM Control Delay (s)	7.3	0	-	9.5	9	9.2	7.5	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.2	0	-	-			

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	1255	161	8	1124	24	138	17	15	42	15	140
Future Volume (vph)	169	1255	161	8	1124	24	138	17	15	42	15	140
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.99			0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1614	3166		1554	3107	1343		1645			1456	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.53			0.91	
Satd. Flow (perm)	1614	3166		1554	3107	1343		906			1339	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	178	1321	169	8	1183	25	145	18	16	44	16	147
RTOR Reduction (vph)	0	8	0	0	0	13	0	3	0	0	74	0
Lane Group Flow (vph)	178	1482	0	8	1183	12	0	176	0	0	133	0
Confl. Peds. (#/hr)						4						4
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	1%	1%	1%	6%	6%	6%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	16.7	74.0		1.0	58.3	58.3		31.5			31.5	
Effective Green, g (s)	16.7	74.0		1.0	58.3	58.3		31.5			31.5	
Actuated g/C Ratio	0.14	0.62		0.01	0.49	0.49		0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	224	1952		12	1509	652		237			351	
v/s Ratio Prot	c0.11	c0.47		0.01	0.38							
v/s Ratio Perm						0.01		c0.19			0.10	
v/c Ratio	0.79	0.76		0.67	0.78	0.02		0.74			0.38	
Uniform Delay, d1	50.0	16.6		59.3	25.6	16.0		40.5			36.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	17.4	2.8		89.5	4.2	0.1		18.9			0.7	
Delay (s)	67.4	19.4		148.8	29.8	16.1		59.4			36.9	
Level of Service	E	B		F	C	B		E			D	
Approach Delay (s)		24.5			30.3			59.4			36.9	
Approach LOS		C			C			E			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		29.4										C
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		120.0						13.5				
Intersection Capacity Utilization		85.9%										E
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	1255	161	8	1124	24	138	17	15	42	15	140
Future Volume (veh/h)	169	1255	161	8	1124	24	138	17	15	42	15	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1709	1709	1654	1654	1654	1736	1736	1736	1668	1668	1668
Adj Flow Rate, veh/h	178	1321	169	8	1183	25	145	18	16	44	16	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	7	7	7	1	1	1	6	6	6
Cap, veh/h	204	1778	226	15	1571	684	262	32	23	101	49	279
Arrive On Green	0.13	0.62	0.62	0.01	0.50	0.50	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1628	2890	367	1576	3143	1368	790	121	89	246	188	1064
Grp Volume(v), veh/h	178	738	752	8	1183	25	179	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	1628	1624	1634	1576	1572	1368	1001	0	0	1498	0	0
Q Serve(g_s), s	12.9	38.5	39.4	0.6	36.2	1.1	7.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.9	38.5	39.4	0.6	36.2	1.1	21.7	0.0	0.0	13.9	0.0	0.0
Prop In Lane	1.00		0.22	1.00		1.00	0.81		0.09	0.21		0.71
Lane Grp Cap(c), veh/h	204	999	1005	15	1571	684	317	0	0	430	0	0
V/C Ratio(X)	0.87	0.74	0.75	0.52	0.75	0.04	0.56	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	251	999	1005	66	1571	684	317	0	0	430	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.6	16.3	16.5	59.1	24.1	15.3	41.6	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	23.6	4.9	5.1	24.7	3.4	0.1	7.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	15.1	15.6	0.3	14.0	0.4	5.5	0.0	0.0	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	21.2	21.5	83.8	27.4	15.4	48.7	0.0	0.0	38.7	0.0	0.0
LnGrp LOS	E	C	C	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1668			1216			179			207	
Approach Delay, s/veh		27.1			27.6			48.7			38.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	78.3		36.0	19.5	64.5		36.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	70.0		31.5	18.5	56.5		31.5				
Max Q Clear Time (g_c+I1), s	2.6	41.4		23.7	14.9	38.2		15.9				
Green Ext Time (p_c), s	0.0	14.2		0.6	0.2	9.0		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.2								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

06/01/2021

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1210	86	27	1149	35	39
Future Vol, veh/h	1210	86	27	1149	35	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	7	7	3	3
Mvmt Flow	1274	91	28	1209	37	41
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1365	0	1935	637
Stage 1	-	-	-	-	1274	-
Stage 2	-	-	-	-	661	-
Critical Hdwy	-	-	4.24	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.27	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	474	-	57	418
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	474	-	54	418
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	445	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.3	83.4			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	54	418	-	-	474	-
HCM Lane V/C Ratio	0.682	0.098	-	-	0.06	-
HCM Control Delay (s)	160.1	14.5	-	-	13.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	2.8	0.3	-	-	0.2	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	13	51	56	27	54	45	62	307	56	40	366	14
Future Vol, veh/h	13	51	56	27	54	45	62	307	56	40	366	14
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	14	54	59	28	57	47	65	323	59	42	385	15
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1008	985	387	1018	971	357	402	0	0	384	0	0
Stage 1	471	471	-	485	485	-	-	-	-	-	-	-
Stage 2	537	514	-	533	486	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	220	249	663	213	250	680	1157	-	-	1158	-	-
Stage 1	575	561	-	558	547	-	-	-	-	-	-	-
Stage 2	530	537	-	525	546	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	149	219	662	144	220	677	1155	-	-	1156	-	-
Mov Cap-2 Maneuver	149	219	-	144	220	-	-	-	-	-	-	-
Stage 1	532	534	-	517	507	-	-	-	-	-	-	-
Stage 2	405	497	-	410	519	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	22.1			29.2			1.2			0.8		
HCM LOS	C			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1155	-	-	200	662	187	677	1156	-	-		
HCM Lane V/C Ratio	0.057	-	-	0.337	0.089	0.456	0.07	0.036	-	-		
HCM Control Delay (s)	8.3	0	-	31.9	11	39.4	10.7	8.2	0	-		
HCM Lane LOS	A	A	-	D	B	E	B	A	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.3	2.2	0.2	0.1	-	-		



HCM 6th TWSC  
4: Langensand Road & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	30	25	5	2	6	7	4	10	1	25	28	38
Future Vol, veh/h	30	25	5	2	6	7	4	10	1	25	28	38
Conflicting Peds, #/hr	2	0	1	3	0	4	1	0	3	4	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	7	7	7	3	3	3
Mvmt Flow	33	27	5	2	7	8	4	11	1	27	31	42
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	139	132	57	149	153	20	75	0	0	16	0	0
Stage 1	108	108	-	24	24	-	-	-	-	-	-	-
Stage 2	31	24	-	125	129	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.17	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.263	-	-	2.227	-	-
Pot Cap-1 Maneuver	831	759	1009	819	739	1058	1493	-	-	1595	-	-
Stage 1	897	806	-	994	875	-	-	-	-	-	-	-
Stage 2	986	875	-	879	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	801	739	1004	774	719	1050	1490	-	-	1589	-	-
Mov Cap-2 Maneuver	801	739	-	774	719	-	-	-	-	-	-	-
Stage 1	893	790	-	987	869	-	-	-	-	-	-	-
Stage 2	965	869	-	826	773	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.8		9.3			2			2			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1490	-	-	801	773	852	1589	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.041	0.043	0.019	0.017	-	-			
HCM Control Delay (s)	7.4	0	-	9.7	9.9	9.3	7.3	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0.1	-	-			

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	808	38	4	1186	13	154	11	3	18	4	161
Future Volume (vph)	84	808	38	4	1186	13	154	11	3	18	4	161
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00			0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			1.00	
Satd. Flow (prot)	1484	2946		1568	3137	1356		1575			1464	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.52			0.96	
Satd. Flow (perm)	1484	2946		1568	3137	1356		852			1416	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	88	851	40	4	1248	14	162	12	3	19	4	169
RTOR Reduction (vph)	0	2	0	0	0	7	0	1	0	0	115	0
Lane Group Flow (vph)	88	889	0	4	1248	7	0	176	0	0	77	0
Confl. Peds. (#/hr)						4						4
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	12%	12%	12%	6%	6%	6%	6%	6%	6%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	11.0	71.0		1.0	61.0	61.0		34.5			34.5	
Effective Green, g (s)	11.0	71.0		1.0	61.0	61.0		34.5			34.5	
Actuated g/C Ratio	0.09	0.59		0.01	0.51	0.51		0.29			0.29	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	136	1743		13	1594	689		244			407	
v/s Ratio Prot	c0.06	0.30		0.00	c0.40							
v/s Ratio Perm						0.01		c0.21			0.05	
v/c Ratio	0.65	0.51		0.31	0.78	0.01		0.72			0.19	
Uniform Delay, d1	52.6	14.3		59.2	24.1	14.6		38.4			32.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	10.1	1.1		13.0	3.9	0.0		16.9			0.2	
Delay (s)	62.8	15.4		72.2	28.0	14.6		55.4			32.4	
Level of Service	E	B		E	C	B		E			C	
Approach Delay (s)		19.7			28.0			55.4			32.4	
Approach LOS		B			C			E			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.1									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			120.0						13.5			
Intersection Capacity Utilization			78.5%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	808	38	4	1186	13	154	11	3	18	4	161
Future Volume (veh/h)	84	808	38	4	1186	13	154	11	3	18	4	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1586	1586	1586	1668	1668	1668	1668	1668	1668	1709	1709	1709
Adj Flow Rate, veh/h	88	851	40	4	1248	14	162	12	3	19	4	169
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	12	12	6	6	6	6	6	6	3	3	3
Cap, veh/h	107	1741	82	8	1678	730	296	20	4	58	27	382
Arrive On Green	0.07	0.59	0.59	0.01	0.53	0.53	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1511	2927	138	1589	3169	1379	830	70	16	85	96	1329
Grp Volume(v), veh/h	88	438	453	4	1248	14	177	0	0	192	0	0
Grp Sat Flow(s),veh/h/ln	1511	1507	1558	1589	1585	1379	915	0	0	1510	0	0
Q Serve(g_s), s	6.9	19.9	19.9	0.3	36.7	0.6	10.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.9	19.9	19.9	0.3	36.7	0.6	23.4	0.0	0.0	12.8	0.0	0.0
Prop In Lane	1.00		0.09	1.00		1.00	0.92		0.02	0.10		0.88
Lane Grp Cap(c), veh/h	107	896	927	8	1678	730	321	0	0	467	0	0
V/C Ratio(X)	0.82	0.49	0.49	0.48	0.74	0.02	0.55	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	157	896	927	68	1678	730	321	0	0	467	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.0	13.9	13.9	59.5	21.9	13.4	40.4	0.0	0.0	35.0	0.0	0.0
Incr Delay (d2), s/veh	19.6	1.9	1.8	38.0	3.0	0.0	6.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	7.2	7.4	0.2	14.1	0.2	5.4	0.0	0.0	4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	15.8	15.7	97.5	25.0	13.5	47.1	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		979			1266			177			192	
Approach Delay, s/veh		21.1			25.1			47.1			35.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	75.9		39.0	13.0	68.0		39.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	66.9		34.5	12.5	59.5		34.5				
Max Q Clear Time (g_c+I1), s	2.3	21.9		25.4	8.9	38.7		14.8				
Green Ext Time (p_c), s	0.0	7.5		0.7	0.1	10.2		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.8								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

06/01/2021

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	807	48	24	1056	82	38
Future Vol, veh/h	807	48	24	1056	82	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	13	13	7	7	4	4
Mvmt Flow	849	51	25	1112	86	40
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	900	0	1455	425
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	606	-
Critical Hdwy	-	-	4.24	-	6.88	6.98
Critical Hdwy Stg 1	-	-	-	-	5.88	-
Critical Hdwy Stg 2	-	-	-	-	5.88	-
Follow-up Hdwy	-	-	2.27	-	3.54	3.34
Pot Cap-1 Maneuver	-	-	720	-	119	572
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	720	-	115	572
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	484	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	70.2			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	115	572	-	-	720	-
HCM Lane V/C Ratio	0.751	0.07	-	-	0.035	-
HCM Control Delay (s)	97.3	11.8	-	-	10.2	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	4.2	0.2	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	11	9	34	62	45	74	46	315	17	14	190	3
Future Vol, veh/h	11	9	34	62	45	74	46	315	17	14	190	3
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	12	10	38	69	50	82	51	350	19	16	211	3
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	775	718	213	733	712	364	216	0	0	371	0	0
Stage 1	245	245	-	464	464	-	-	-	-	-	-	-
Stage 2	530	473	-	269	248	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	316	356	830	332	354	674	1354	-	-	1171	-	-
Stage 1	761	705	-	573	558	-	-	-	-	-	-	-
Stage 2	534	560	-	730	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	233	332	828	294	330	671	1351	-	-	1169	-	-
Mov Cap-2 Maneuver	233	332	-	294	330	-	-	-	-	-	-	-
Stage 1	723	692	-	544	530	-	-	-	-	-	-	-
Stage 2	403	532	-	676	683	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13.3		18.7			0.9			0.5			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1351	-	-	269	828	308	671	1169	-	-		
HCM Lane V/C Ratio	0.038	-	-	0.083	0.046	0.386	0.123	0.013	-	-		
HCM Control Delay (s)	7.8	0	-	19.6	9.6	23.9	11.1	8.1	0	-		
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	1.8	0.4	0	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	29	4	1	1	38	62	4	22	2	25	5	21
Future Vol, veh/h	29	4	1	1	38	62	4	22	2	25	5	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	18	18	18	8	8	8	23	23	23
Mvmt Flow	33	4	1	1	43	70	4	25	2	28	6	24
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	165	109	18	111	120	26	30	0	0	27	0	0
Stage 1	74	74	-	34	34	-	-	-	-	-	-	-
Stage 2	91	35	-	77	86	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.28	6.68	6.38	4.18	-	-	4.33	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.662	4.162	3.462	2.272	-	-	2.407	-	-
Pot Cap-1 Maneuver	793	775	1052	831	741	1006	1545	-	-	1461	-	-
Stage 1	928	828	-	943	836	-	-	-	-	-	-	-
Stage 2	909	860	-	894	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	692	757	1052	812	724	1006	1545	-	-	1461	-	-
Mov Cap-2 Maneuver	692	757	-	812	724	-	-	-	-	-	-	-
Stage 1	925	811	-	940	833	-	-	-	-	-	-	-
Stage 2	800	857	-	870	777	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.4		9.7			1			3.7			
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1545	-	-	692	802	876	1461	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.047	0.007	0.13	0.019	-	-			
HCM Control Delay (s)	7.3	0	-	10.5	9.5	9.7	7.5	0	-			
HCM Lane LOS	A	A	-	B	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.4	0.1	-	-			

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	169	1295	161	8	1132	24	149	17	15	42	15	140	
Future Volume (vph)	169	1295	161	8	1132	24	149	17	15	42	15	140	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		1.00			0.99		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00		
Frt	1.00	0.98		1.00	1.00	0.85		0.99			0.90		
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.99		
Satd. Flow (prot)	1614	3167		1554	3107	1343		1645			1456		
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.53			0.91		
Satd. Flow (perm)	1614	3167		1554	3107	1343		901			1338		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	178	1363	169	8	1192	25	157	18	16	44	16	147	
RTOR Reduction (vph)	0	7	0	0	0	13	0	3	0	0	74	0	
Lane Group Flow (vph)	178	1525	0	8	1192	12	0	188	0	0	133	0	
Confl. Peds. (#/hr)						4						4	
Confl. Bikes (#/hr)			2			1							
Heavy Vehicles (%)	3%	3%	3%	7%	7%	7%	1%	1%	1%	6%	6%	6%	
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA		
Protected Phases	5	2		1	6			4			8		
Permitted Phases						6	4			8			
Actuated Green, G (s)	16.7	74.0		1.0	58.3	58.3		31.5			31.5		
Effective Green, g (s)	16.7	74.0		1.0	58.3	58.3		31.5			31.5		
Actuated g/C Ratio	0.14	0.62		0.01	0.49	0.49		0.26			0.26		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)	224	1952		12	1509	652		236			351		
v/s Ratio Prot	c0.11	c0.48		0.01	0.38								
v/s Ratio Perm						0.01		c0.21			0.10		
v/c Ratio	0.79	0.78		0.67	0.79	0.02		0.80			0.38		
Uniform Delay, d1	50.0	17.0		59.3	25.7	16.0		41.3			36.2		
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00		
Incremental Delay, d2	17.4	3.2		89.5	4.3	0.1		23.7			0.7		
Delay (s)	67.4	20.2		148.8	30.0	16.1		65.0			36.9		
Level of Service	E	C		F	C	B		E			D		
Approach Delay (s)		25.1			30.5			65.0			36.9		
Approach LOS		C			C			E			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			30.1		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.81										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			87.8%		ICU Level of Service					E			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

06/01/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	1295	161	8	1132	24	149	17	15	42	15	140
Future Volume (veh/h)	169	1295	161	8	1132	24	149	17	15	42	15	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1709	1709	1709	1654	1654	1654	1736	1736	1736	1668	1668	1668
Adj Flow Rate, veh/h	178	1363	169	8	1192	25	157	18	16	44	16	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	7	7	7	1	1	1	6	6	6
Cap, veh/h	204	1786	220	15	1571	684	264	30	22	102	50	282
Arrive On Green	0.13	0.62	0.62	0.01	0.50	0.50	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1628	2902	357	1576	3143	1368	799	113	83	249	189	1072
Grp Volume(v), veh/h	178	758	774	8	1192	25	191	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	1628	1624	1636	1576	1572	1368	995	0	0	1510	0	0
Q Serve(g_s), s	12.9	40.4	41.5	0.6	36.7	1.1	9.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.9	40.4	41.5	0.6	36.7	1.1	23.1	0.0	0.0	13.8	0.0	0.0
Prop In Lane	1.00		0.22	1.00		1.00	0.82		0.08	0.21		0.71
Lane Grp Cap(c), veh/h	204	999	1006	15	1571	684	316	0	0	433	0	0
V/C Ratio(X)	0.87	0.76	0.77	0.52	0.76	0.04	0.60	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	251	999	1006	66	1571	684	316	0	0	433	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.6	16.7	16.9	59.1	24.2	15.3	42.3	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	23.6	5.4	5.7	24.7	3.5	0.1	8.3	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	15.9	16.5	0.3	14.2	0.4	6.0	0.0	0.0	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	22.0	22.5	83.8	27.7	15.4	50.6	0.0	0.0	38.7	0.0	0.0
LnGrp LOS	E	C	C	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1710			1225			191			207	
Approach Delay, s/veh		27.8			27.8			50.6			38.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	78.3		36.0	19.5	64.5		36.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	70.0		31.5	18.5	56.5		31.5				
Max Q Clear Time (g_c+I1), s	2.6	43.5		25.1	14.9	38.7		15.8				
Green Ext Time (p_c), s	0.0	14.2		0.6	0.2	8.9		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.8								
HCM 6th LOS				C								



HCM 6th TWSC  
2: Langensand Road & Highway 26

06/01/2021

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	1210	126	40	1149	40	46
Future Vol, veh/h	1210	126	40	1149	40	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	7	7	3	3
Mvmt Flow	1274	133	42	1209	42	48
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1407	0	1963	637
Stage 1	-	-	-	-	1274	-
Stage 2	-	-	-	-	689	-
Critical Hdwy	-	-	4.24	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.27	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	456	-	55	418
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	456	-	50	418
Mov Cap-2 Maneuver	-	-	-	-	50	-
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	415	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	105.7			
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	50	418	-	-	456	-
HCM Lane V/C Ratio	0.842	0.116	-	-	0.092	-
HCM Control Delay (s)	210.4	14.7	-	-	13.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	3.5	0.4	-	-	0.3	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	13	54	56	31	56	53	62	307	62	40	366	14
Future Vol, veh/h	13	54	56	31	56	53	62	307	62	40	366	14
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	14	57	59	33	59	56	65	323	65	42	385	15
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1016	991	387	1023	974	360	402	0	0	390	0	0
Stage 1	471	471	-	488	488	-	-	-	-	-	-	-
Stage 2	545	520	-	535	486	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.15	6.55	6.25	4.12	-	-	4.15	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.545	4.045	3.345	2.218	-	-	2.245	-	-
Pot Cap-1 Maneuver	217	247	663	211	249	678	1157	-	-	1152	-	-
Stage 1	575	561	-	556	545	-	-	-	-	-	-	-
Stage 2	524	534	-	524	546	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	144	218	662	140	219	675	1155	-	-	1150	-	-
Mov Cap-2 Maneuver	144	218	-	140	219	-	-	-	-	-	-	-
Stage 1	532	534	-	515	505	-	-	-	-	-	-	-
Stage 2	393	494	-	406	519	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	22.9			31			1.2			0.8		
HCM LOS	C			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1155	-	-	198	662	182	675	1150	-	-		
HCM Lane V/C Ratio	0.057	-	-	0.356	0.089	0.503	0.083	0.037	-	-		
HCM Control Delay (s)	8.3	0	-	32.9	11	43.3	10.8	8.2	0	-		
HCM Lane LOS	A	A	-	D	B	E	B	A	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	1.5	0.3	2.5	0.3	0.1	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

06/01/2021

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	30	34	5	2	22	30	4	10	1	78	28	38
Future Vol, veh/h	30	34	5	2	22	30	4	10	1	78	28	38
Conflicting Peds, #/hr	2	0	1	3	0	4	1	0	3	4	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	7	7	7	3	3	3
Mvmt Flow	33	37	5	2	24	33	4	11	1	86	31	42
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	278	250	57	272	271	20	75	0	0	16	0	0
Stage 1	226	226	-	24	24	-	-	-	-	-	-	-
Stage 2	52	24	-	248	247	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.17	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.263	-	-	2.227	-	-
Pot Cap-1 Maneuver	674	653	1009	680	636	1058	1493	-	-	1595	-	-
Stage 1	777	717	-	994	875	-	-	-	-	-	-	-
Stage 2	961	875	-	756	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	601	611	1004	611	595	1050	1490	-	-	1589	-	-
Mov Cap-2 Maneuver	601	611	-	611	595	-	-	-	-	-	-	-
Stage 1	773	675	-	987	869	-	-	-	-	-	-	-
Stage 2	899	869	-	668	661	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	11.1		10			2			4			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1490	-	-	601	643	785	1589	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.055	0.067	0.076	0.054	-	-			
HCM Control Delay (s)	7.4	0	-	11.3	11	10	7.4	0	-			
HCM Lane LOS	A	A	-	B	B	B	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0.2	0.2	-	-			

HCM 6th AWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	11	9	34	62	45	74	46	315	17	14	190	3
Future Vol, veh/h	11	9	34	62	45	74	46	315	17	14	190	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	12	10	38	69	50	82	51	350	19	16	211	3
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	9.6	10.7	19.5	12.2
HCM LOS	A	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	12%	55%	0%	58%	0%	7%	0%
Vol Thru, %	83%	45%	0%	42%	0%	93%	0%
Vol Right, %	4%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	378	20	34	107	74	204	3
LT Vol	46	11	0	62	0	14	0
Through Vol	315	9	0	45	0	190	0
RT Vol	17	0	34	0	74	0	3
Lane Flow Rate	420	22	38	119	82	227	3
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.667	0.044	0.064	0.227	0.134	0.377	0.005
Departure Headway (Hd)	5.72	7.087	6.09	6.862	5.854	5.992	5.248
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	630	504	586	523	612	601	681
Service Time	3.754	4.844	3.847	4.609	3.6	3.734	2.989
HCM Lane V/C Ratio	0.667	0.044	0.065	0.228	0.134	0.378	0.004
HCM Control Delay	19.5	10.2	9.3	11.6	9.5	12.3	8
HCM Lane LOS	C	B	A	B	A	B	A
HCM 95th-tile Q	5	0.1	0.2	0.9	0.5	1.7	0

HCM 6th AWSC  
3: Highway 211 & Dubarko Road

06/01/2021

Intersection	
Intersection Delay, s/veh	23.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	13	54	56	31	56	53	62	307	62	40	366	14
Future Vol, veh/h	13	54	56	31	56	53	62	307	62	40	366	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	5	5	5	2	2	2	5	5	5
Mvmt Flow	14	57	59	33	59	56	65	323	65	42	385	15
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	11.3	11.7	29.6	25.7
HCM LOS	B	B	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	14%	19%	0%	36%	0%	10%	0%
Vol Thru, %	71%	81%	0%	64%	0%	90%	0%
Vol Right, %	14%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	431	67	56	87	53	406	14
LT Vol	62	13	0	31	0	40	0
Through Vol	307	54	0	56	0	366	0
RT Vol	62	0	56	0	53	0	14
Lane Flow Rate	454	71	59	92	56	427	15
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.796	0.152	0.113	0.199	0.107	0.757	0.023
Departure Headway (Hd)	6.315	7.741	6.919	7.828	6.923	6.376	5.626
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	576	463	518	459	517	568	640
Service Time	4.329	5.491	4.668	5.577	4.671	4.088	3.326
HCM Lane V/C Ratio	0.788	0.153	0.114	0.2	0.108	0.752	0.023
HCM Control Delay	29.6	11.9	10.6	12.5	10.5	26.3	8.5
HCM Lane LOS	D	B	B	B	B	D	A
HCM 95th-tile Q	7.7	0.5	0.4	0.7	0.4	6.7	0.1

CDS380  
 05/31/2021  
 OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
**TEN EYCK RD at PROCTOR BLVD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019**  
 1 - 4 of 5 Crash records shown.

SR#	P E R S O N N E L	S E X	A G E	D A T E	C L A S S	C I T Y S T R E E T	R D C H A R	I N T - T Y P E	W T H R	C R A S H	S P E C I A L U S E	M O V E	A S	C A U S E						
INVEST	DPT	UNLOC?	D C S V L K L A T	10/27/2018	17	PROCTOR BLVD	INTER	5-LEG	UNK	S-1STOP	0	STRGHT	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE		
NONE	N	N	N	SA	0	SE TEN EYCK RD	NE	0	UNK	REAR	PRVTE	NE-SW	01	DRVR	NONE	70 M	OR-Y	00	00	
N	N	N	N	SP	45-23	49.25	-122.15	0	DUSK	INJ	PSNGR CAR	OR-25	01	DRVR	NONE	026	OR-25	000	29	
N	N	N	N																	
NONE	N	N	N	MO	09/03/2018	14	PROCTOR BLVD	INTER	5-LEG	CLR	S-1STOP	0	STRGHT	01	DRVR	NONE	0	OR-25	000	29
N	N	N	N	3P	45-23	49.25	-122.15	0	DAY	INJ	UNKN	SE-NW	01	DRVR	NONE	00 F	UNK	000	00	
N	N	N	N																	
NONE	N	N	N	TU	09/17/2019	14	PROCTOR BLVD	INTER	5-LEG	CLR	S-1STOP	0	STRGHT	01	DRVR	NONE	0	OR-25	000	29
N	N	N	N	3P	45-23	49.26	-122.15	0	DAY	INJ	PSNGR CAR	OR-25	01	DRVR	NONE	41 F	OTH-Y	000	00	
N	N	N	N																	
NONE	N	N	N	TU	11/08/2016	14	PROCTOR BLVD	INTER	5-LEG	CLR	ANGL-OTH	01	U-TURN	02	PSNG	INJC	50 M	UNK	000	00
N	N	N	N	5P	45-23	49.25	-122.15	0	DUSK	PDO	PRVTE	SE-NW	01	DRVR	NONE	00	UNK	000	00	
N	N	N	N																	
NONE	N	N	N	TU	11/06/2016	14	PROCTOR BLVD	INTER	5-LEG	CLR	ANGL-OTH	01	STRGHT	01	DRVR	NONE	0	UNK	000	00
N	N	N	N	2P	45-23	49.25	-122.15	0	DAY	PDO	SEMI TON	SE-NW	01	DRVR	NONE	00	UNK	000	00	
N	N	N	N																	

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submission of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.







OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
**WOLF DR at PIONEER BLVD, Clackamas County, 01/01/2015 to 12/31/2019**

1 - 2 of 2 Crash records shown.

SR#	DATE	TIME	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
INVEST	DAY	HR	DIST	FIRST STREET	DIRECT	(MEDIAN)	TRAF-	RNDFT	SURF	COLL	TRLR QTY	FROM	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
UNLOC?	MM	SS	LONG	SECOND STREET	LOCIN	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
01741	N N N	N N	05/09/2015	14 PIONEER BLVD	INTER	5-LEG	N	N	CLR	ANGL-OTH	01 NONE	0 STRGHT	01	NONE	0			04
N	SA			WOLF DR	CN	TRF SIGNAL	N	DRY	ANGL		PRVTE	S -N	01	DRVR	NONE	25 M	OTH-Y	00
N	6A		-122.15	002600100800	04	0		N	DAY	PDO	PSNGR CAR						026	04
N	45:23	49:25	19.74								02 NONE	0 STRGHT	01	DRVR	NONE	51 F	OR-Y	00
											PRVTE	W -E					000	00
											PSNGR CAR		01	DRVR	NONE	000	000	00
00512	N N N	N N	02/07/2017	14 PIONEER BLVD	INTER	5-LEG	N	N	RAIN	ANGL-OTH	01 NONE	0 TURN-L						04
CITY	TU			WOLF DR	CN	TRF SIGNAL	N	WET	TURN		PRVTE	S -W					000	00
N	4P				04	0		N	DUSK	INJ	PSNGR CAR		01	DRVR	INJC	55 F	OR-Y	00
N	45:23	49:25	19.74	002600100800							02 NONE	0 STRGHT					000	00
											PRVTE	W -E	01	DRVR	NONE	63 M	OR-Y	00
											PSNGR CAR						000	04

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CDS380 OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 05/31/2021 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019  
 9 - 12 of 27 Crash records shown.

SER#	P	R	J	S	M	DATE	CLASS	CITY STREET	INT-TYPE	SPL USE	RD CHAR	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	PH	TYPE	SVRTY	EX	RES	LOC	ACT	EVENT	CAUSE		
INVEST	E	A	I	C	O	DAY	DIST	FIRST STREET	(MEDIAN)	LEGS	DIRRECT	TEAF-	RNDFT	SURF	COLL	OWNER	FROM	TO	PH	TYPE	SVRTY	EX	RES	LOC	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LONG	LES	(LANES)	CONTL	INTER	CROSS	N	CLD	ANGL-OTH	01	NONE	0	STRGHT	01	DRVR	NONE	58	M	OR-Y	OR-25	00		
05614	N	N	N	N	N	12/25/2015	16	DUBARKO RD			CN	STOP	SIGN	N	WET	ANGL	PRVTE	N-S								000	00		
N						FR		EAGLE CRK-SANDY HY			01	0		N	DLIT	INJ	PSNGR	CAR								000	00		
N						45-23-22.76-122.15	48.39	017200100800																			015	00	
																										000	02		
02172	N	N	N	N	N	06/05/2015	16	DUBARKO RD			INTER	CROSS	N	CLR	ANGL-OTH	01	NONE	0	STRGHT								000	02	
NONE						FR		EAGLE CRK-SANDY HY			CN	STOP	SIGN	N	DRY	TURN	PRVTE	W-E									015	00	
N						7A		017200100800			04	0		N	DAY	PCO	PSNGR	CAR									000	02	
N						45-23-22.76-122.15	48.39	017200100800																			028	00	
																											000	02	
03589	N	N	N	N	N	08/05/2016	16	DUBARKO RD			INTER	CROSS	N	CLR	ANGL-OTH	01	NONE	0	STRGHT									000	00
NONE						FR		EAGLE CRK-SANDY HY			CN	STOP	SIGN	N	DRY	ANGL	PRVTE	E-W										015	00
N						6P		017200100800			01	0		N	DAY	INJ	PSNGR	CAR										000	02
N						45-23-22.76-122.15	48.39	017200100800																				028	00
																											000	02	
03967	N	N	N	N	N	08/30/2016	16	DUBARKO RD			INTER	CROSS	N	CLR	ANGL-OTH	01	NONE	0	STRGHT									000	00
NONE						TU		EAGLE CRK-SANDY HY			CN	STOP	SIGN	N	DRY	ANGL	PRVTE	W-E										015	00
N						12P		017200100800			04	0		N	DAY	INJ	PSNGR	CAR										000	02
N						45-23-22.76-122.15	48.39	017200100800																				028	00
																											000	02	
02427	N	N	N	N	N	05/31/2016	16	DUBARKO RD			INTER	CROSS	N	CLR	ANGL-OTH	01	NONE	9	STRGHT									000	00
NONE						TU		EAGLE CRK-SANDY HY			CN	STOP	SIGN	N	UNK	ANGL	N/A	W-E										000	00
N						11A		017200100800			03	0		N	DAY	PCO	PSNGR	CAR										000	00
N						45-23-22.76-122.15	48.39	017200100800																				000	00

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

13 - 17 of 27 Crash records shown.

SER#	P R J S W DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
INVEST	E A I C O DAY	DIST	FIRST STREET	(MEDIAN)	INT-REL	DIRRECT	DRY	COLL	TRLR QTY	FROM	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
UNLOC?	D C S V L K LAT	LONG	SECOND STREET	LEGS	TRAF-	DRVWY	DRY	DRVWY	OWNER	TO	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE
			LES	(LANES)	CONTL	DRVWY	DRY	DRVWY	02 NONE	STRGHT	01 DRVR	NONE	00	Unk	UNK	00
							DRY	DRVWY	N/A	N - S	01 DRVR	NONE	00	Unk	UNK	00
							DRY	DRVWY	FSNGR CAR	NONE	01 DRVR	NONE	00	Unk	UNK	00
02031	N N N N 05/06/2016	16	DUBARKO RD	CROSS	N	INTER	CLD	ANGL-OTH	01 NONE	9	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	ANGL	N/A	N - S						00
N	4P	45 23 22.76 -122.15	017200100800	0		01	DAY	PDO	FSNGR CAR		01 DRVR	NONE	00	Unk	UNK	00
N		48.39							02 NONE	9	STRGHT					00
									N/A	E - W						00
									FSNGR CAR		01 DRVR	NONE	00	Unk	UNK	00
00805	N N N N 03/01/2017	16	DUBARKO RD	CROSS	N	INTER	CLD	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	ANGL	PRVTE	W - E						015
N	3P	45 23 22.76 -122.15	017200100800	0		04	DAY	INJ	FSNGR CAR		01 DRVR	INJC	17	F	OR-Y	028
N		48.39							02 NONE	0	STRGHT					000
									PRVTE	S - N						000
									FSNGR CAR		01 DRVR	INJC	43	M	OR-Y	000
									03 NONE	0	STOP					022
									PRVTE	E - W						000
									FSNGR CAR		01 DRVR	INJB	27	F	OR-Y	000
00846	N N N N 03/04/2017	16	DUBARKO RD	CROSS	N	INTER	RAIN	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	WET	ANGL	PRVTE	W - E						015
N	6P	45 23 22.76 -122.15	017200100800	0		04	DLIT	INJ	FSNGR CAR		01 DRVR	NONE	21	M	OR-Y	000
N		48.39							02 NONE	0	STRGHT					028
									PRVTE	N - S						000
									FSNGR CAR		01 DRVR	INJC	21	F	OR-Y	000
02225	N N N N 06/07/2017	16	DUBARKO RD	CROSS	N	INTER	CLR	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	ANGL	PRVTE	S - N						000
N	4P	45 23 22.76 -122.15	017200100800	0		04	DAY	INJ	FSNGR CAR		01 DRVR	INJB	40	M	OR-Y	000
N		48.39							02 NONE	0	STRGHT					000
									PRVTE	W - E						015
									FSNGR CAR		01 DRVR	INJC	38	M	OR-Y	000

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
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 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

22 - 24 of 27 Crash records shown.

CDS380  
 05/31/2021

CITY OF SANDY, CLACKAMAS COUNTY

SR#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	CAUSE					
INVEST	E	A	I	C	O	DAY	DIST	FROM	FIRST STREET	RD CHAR	LEGS	TRAF-	RNDFT	SURF	COLL	OWNER	PH TYPE	SVRTY	E	X	RES	LOC	ACT EVENT	
UNLOC?	D	C	S	V	L	K	LAT	LONG	LES	LOCIN	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	PH TYPE	SVRTY	E	X	RES	LOC	ACT EVENT	
03281	N	N	N	N	N	N	09/23/2019	16	DUBARKO RD	INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	04/22/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	NE-SW	01	DRVR	NONE	31	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.59 -122.15	48.49	017200100800	02	0	0	DAMN	INJ	PSNGR CAR		01	DRVR	NONE	31	M	OR-Y	OR-25	00
	N	N	N	N	N	N	01/08/2019	16	DUBARKO RD	INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	01/08/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	N-S	01	DRVR	INJ	52	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.54 -122.15	48.5	017200100800	03	0	0	DLIT	INJ	PSNGR CAR		01	DRVR	INJ	52	M	OR-Y	OR-25	00
	N	N	N	N	N	N	01/08/2019	16	DUBARKO RD	INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	01/08/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	N-S	01	DRVR	INJ	52	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.54 -122.15	48.5	017200100800	03	0	0	DLIT	INJ	PSNGR CAR		01	DRVR	INJ	52	M	OR-Y	OR-25	00
	N	N	N	N	N	N	03/14/2019	16	DUBARKO RD	INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	03/14/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	S-N	01	DRVR	INJ	58	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.76 -122.15	48.39	017200100800	04	0	0	DAY	INJ	SEMI TON		01	DRVR	INJ	58	M	OR-Y	OR-25	00
	N	N	N	N	N	N	03/14/2019	16	DUBARKO RD	INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	03/14/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	S-N	01	DRVR	INJ	58	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.76 -122.15	48.39	017200100800	04	0	0	DAY	INJ	SEMI TON		01	DRVR	INJ	58	M	OR-Y	OR-25	00
	N	N	N	N	N	N	04/22/2019	16	DUBARKO RD	INTER	CROSS	N	CLD	ANGL-OTH	01 NONE	0	STRGHT	NONE	31	M	OR-Y	OR-25	00	
	N	N	N	N	N	N	04/22/2019	16	DUBARKO RD	CN	STOP SIGN	N	DRY	ANGL	PRVTE	S-N	01	DRVR	INJ	36	M	OR-Y	OR-25	00
	N	N	N	N	N	N	45 23 22.54 -122.15	48.5	017200100800	04	0	0	DAY	INJ	PSNGR CAR		01	DRVR	INJ	36	M	OR-Y	OR-25	00

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## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Highway 26 at Langensand Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 2

PM Peak Hour Volume 2485 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 40 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: Yes

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
<b>Condition A - Minimum Vehicular Volume</b>			
Major Street Volume	1404	420	
Minor Street Volume	23	105	<b>No</b>
<b>Condition B - Interruption of Continuous Traffic</b>			
Major Street Volume	1404	630	
Minor Street Volume	23	53	<b>No</b>
<b>Combination Warrant<sup>c</sup></b>			
Major Street Volume	1404	504	
Minor Street Volume	23	84	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Highway 211 at Dubarko Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 1

PM Peak Hour Volume 837 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 87 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: Yes

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
<b>Condition A - Minimum Vehicular Volume</b>			
Major Street Volume	473	350	
Minor Street Volume	49	105	<b>No</b>
<b>Condition B - Interruption of Continuous Traffic</b>			
Major Street Volume	473	525	
Minor Street Volume	49	53	<b>No</b>
<b>Combination Warrant<sup>c</sup></b>			
Major Street Volume	473	420	
Minor Street Volume	49	84	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Dubarko Road at Langensand Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 1

PM Peak Hour Volume 159 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 68 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: No

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
Condition A - Minimum Vehicular Volume			
Major Street Volume	90	500	
Minor Street Volume	38	150	<b>No</b>
Condition B - Interruption of Continuous Traffic			
Major Street Volume	90	750	
Minor Street Volume	38	75	<b>No</b>
Combination Warrant <sup>c</sup>			
Major Street Volume	90	600	
Minor Street Volume	38	120	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Left-Turn Lane Warrant Analysis (ODOT Methodology)

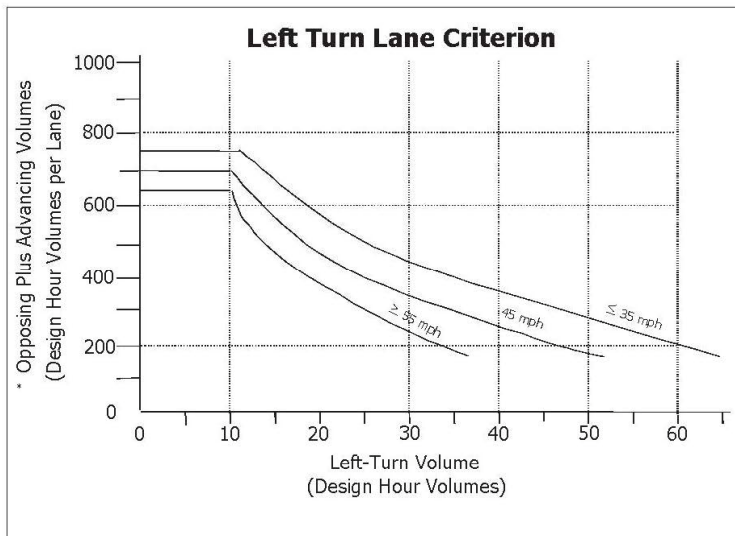


Project Name: Deer Meadows Development  
 Approach: Highway 211 NB at Dubarko Road  
 Scenario: 2021 Existing Conditions

Number of Advancing Lanes: 1  
 Number of Opposing Lanes: 1  
 Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	341	386
Opposing Volume for Design Hour:	271	337
Design Hour Volume Per Lane:	612	723
Number of Left Turns per Hour:	44	61
Left-turn lane warrants satisfied?	<b>YES</b>	<b>YES</b>

**Exhibit 7-1 Left Turn Lane Criterion (TTI)**



\* (Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

## Right-Turn Lane Warrant Analysis (ODOT Methodology)



Project Name: Deer Meadows Development  
 Approach: Highway 211 Northbound at Dubarko Road  
 Scenario: 2021 Existing Conditions

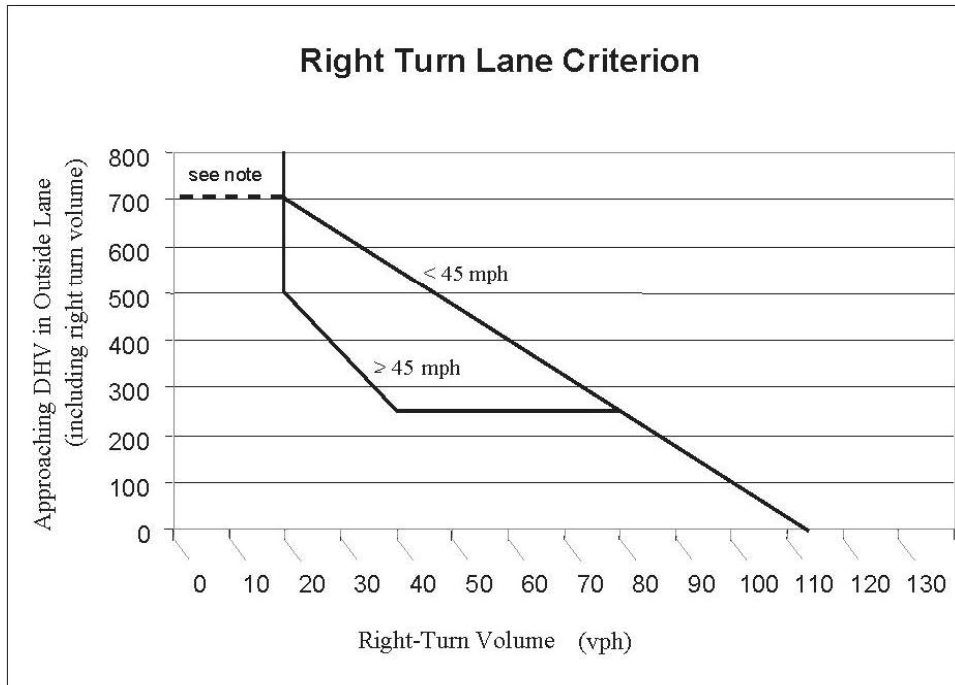
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	14	54
Approaching DVH in Outside Lane:	341	386
Calculated Turn Volume Threshold:	33	29
Right Turn Volume Exceeds Threshold?	<b>NO</b>	<b>YES</b>

### Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

### Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.



## Left-Turn Lane Warrant Analysis (ODOT Methodology)

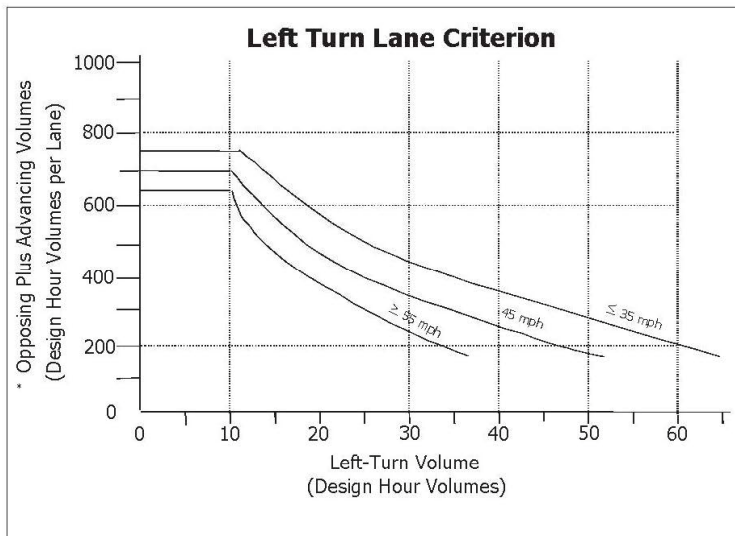


Project Name: Deer Meadows Development  
 Approach: Dubarko Road westbound at Langensand Road  
 Scenario: 2023 Background plus Site Trips

Number of Advancing Lanes: 1  
 Number of Opposing Lanes: 1  
 Major-Street Design Speed: 25 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	101	54
Opposing Volume for Design Hour:	34	69
Design Hour Volume Per Lane:	135	123
Number of Left Turns per Hour:	1	2
Left-turn lane warrants satisfied?	<b>NO</b>	<b>NO</b>

**Exhibit 7-1 Left Turn Lane Criterion (TTI)**



\* (Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

## Right-Turn Lane Warrant Analysis (ODOT Methodology)



Project Name: Deer Meadows Development  
 Approach: Dubarko Road Westbound at Langensand Road  
 Scenario: 2023 Background Plus Site Trips

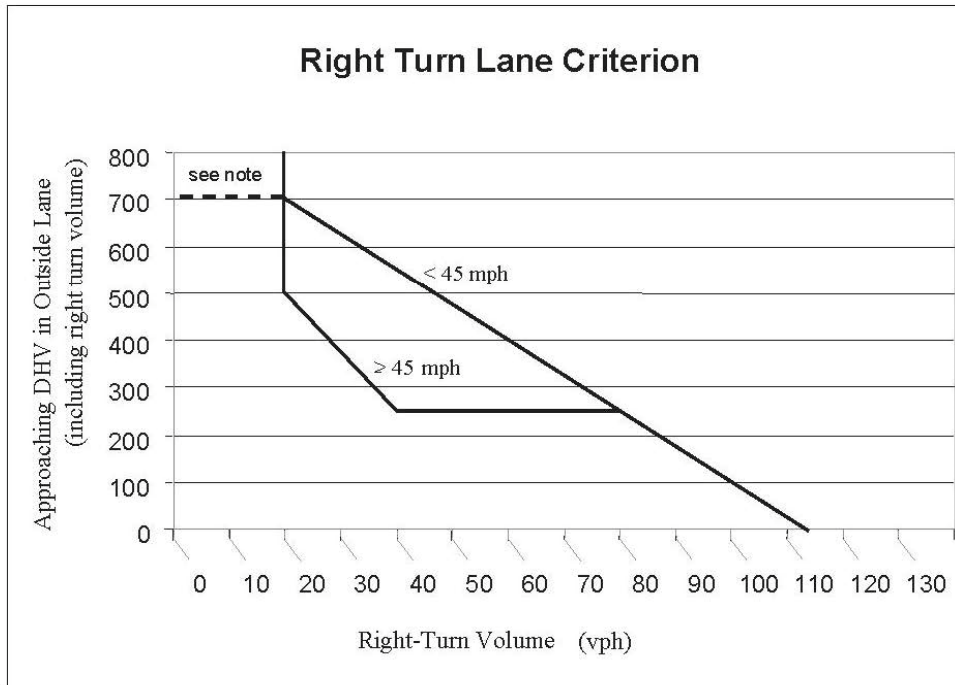
Major-Street Design Speed: 25 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	62	30
Approaching DVH in Outside Lane:	101	54
Calculated Turn Volume Threshold:	100	106
Right Turn Volume Exceeds Threshold?	<b>NO</b>	<b>NO</b>

### Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

### Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.



## EXHIBIT F

# TERAGAN & ASSOCIATES, INC. ARBORICULTURAL CONSULTANTS

### MEMORANDUM

**DATE:** April 23, 2021  
**TO:** Alex Reverman (Roll Tide Corporation)  
**FROM:** Todd Prager, RCA #597, ISA Board Certified Master Arborist  
**RE:** Tree Plan for the Deer Meadows Subdivision

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### Summary

This report includes tree removal, preservation, and protection recommendations for the proposed Deer Meadows Subdivision in Sandy, Oregon.

### Background

Roll Tide Corporation is proposing to construct a 30-lot subdivision at the east end of Dubarko Road in Sandy, Oregon. An existing conditions map of the site and trees is provided in Attachment 1. The schematic site plan with the proposed tree retention area is provided in Attachment 2. A detail of the grove of trees to be retained along Highway 26 is provided in Attachment 3.

The assignment requested of our firm for this project was to:

- Assess the existing grove of trees along Highway 26;
- Identify the trees to be removed and retained in the grove; and
- Provide tree protection recommendations for the trees to be retained in the grove.

### Tree Assessment

On September 12 and December 11, 2019 I completed the inventory of existing trees in the grove.

The complete inventory data for each tree is provided in Attachment 4 and includes the tree number, common name, scientific name, trunk diameter (DBH), crown radius, health condition, structural condition, pertinent comments, and whether it is an onsite 11-inch DBH or greater tree in good condition to be retained.<sup>1</sup>

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<sup>1</sup> Section 17.102.50 of the City of Sandy Code requires three onsite trees over 11-inch DBH that are in good condition to be retained.

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*Teragan & Associates, Inc.*  
3145 Westview Circle • Lake Oswego, OR 97034  
Phone: 971.295.4835 • Fax: 503.697.1976  
Email: [todd@teragan.com](mailto:todd@teragan.com) • Website: [teragan.com](http://teragan.com)

The tree numbers in the inventory in Attachment 4 correspond to the tree numbers on the plans in Attachments 1 and 3.

Note that since the site is 15.91 acres, Section 17.102.50 requires 48 trees over 11-inch DBH that are in good condition to be retained. My assignment was to identify at least 48 trees in the grove that meet these criteria.

### Tree Removal and Retention

This section of the report includes tree removal and retention recommendations based on the proposed site plan.

#### Tree Removal

The standard tree protection requirements in the City of Sandy Code range from at least 10 feet from the trunks of retained trees (SDC 17.102.50.B.1) to five feet beyond the driplines (SDC 17.92.10.D) unless otherwise approved by the Planning Director.

A typical alternative minimum protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH if no more than 25 percent of the critical root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept.

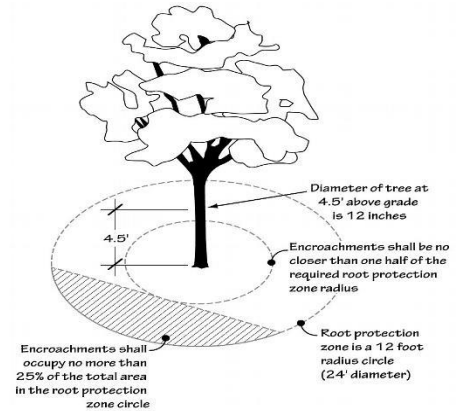


Figure 1: Alternative minimum protection zone

Using the criteria described above, while considering the tree locations relative to construction and other site improvements, 20 of the assessed trees are proposed for removal.

#### Tree Retention

Fifty-four (54) trees within the grove will be retained. Of the 54 trees to be retained, 48 are in good condition and over 11-inch DBH. Tree preservation has been maximized to the extent practicable with trees removed only as necessary for construction.

Section 17.102.50.A of the City of Sandy Code includes five criteria for tree retention with development. The five criteria followed by my findings in *italics* are listed below:

1. At least three trees 11 inches DBH or greater are to be retained for every one-acre of contiguous ownership.

*Finding: The site is 15.91 acres in size so 48 trees over 11-inch DBH in good condition are required to be retained. The proposed preservation includes 48 trees over 11-inch DBH in good condition within the grove along Highway 26 to be retained. This criterion is met.*

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2. Retained trees can be located anywhere on the site at the landowner's discretion before the harvest begins. Clusters of trees are encouraged.

*Finding: The retained trees are clustered within the grove of trees along Highway 26. This criterion is met.*

3. Trees proposed for retention shall be healthy and likely to grow to maturity, and be located to minimize the potential for blow-down following the harvest.

*Finding: All of the trees subject to this standard are in good health condition and likely to grow to maturity. Future selective thinning of the grove is recommended to improve the availability of space, water, nutrients, and light for the retained trees. Also, invasive understory and vine species such as Himalayan blackberry and English ivy should be removed to improve the condition of the understory and prevent vine growth on the retained trees.*

*Trees along portions of the southwest, east, and north sides of the grove are proposed for removal for construction. It will be important to reassess and monitor the trees along the newly exposed edges following site clearing and periodically during construction and after high wind events to ensure they do not pose a high risk. Since the bulk of the grove will be retained, I anticipate that the overall grove will remain viable. However, selective thinning of trees within the grove should be delayed until the changes in wind dynamics from edge tree removal is more thoroughly assessed. Retaining more of the interior trees will help to protect the overall integrity of grove from blow-down during the near term. It will also be very important to protect the root zones of the trees in the grove from construction impacts with tree protection fencing and other measures to further minimize the risk of blow-down. Tree protection measures are further described in the next section of this report.*

*Since the bulk of the grove will be retained and measures to monitor and protect the trees in the grove will be implemented, this criterion is met.*

4. If possible, at least two of the required trees per acre must be of conifer species.

*Finding: All 48 trees over 11-inch DBH and in good condition are conifer species. This criterion is met.*

5. Trees within the required protected setback areas may be counted towards the tree retention standard if they meet these requirements.

*Finding: Any retained trees that are over 11-inch DBH and in good condition that are within protected setback areas will be counted towards the tree retention standards. This criterion is met.*

### **Tree Protection Recommendations**

The standard tree protection requirements in the City of Sandy Code range from at least 10 feet from the trunks of retained trees (SDC 17.102.50.B.1) to five feet beyond the driplines (SDC 17.92.10.D) unless otherwise approved by the Planning Director.

A typical alternative minimum protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH if no more than 25 percent of the critical root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept.

The reason for using this alternative is because it allows the tree protection zone to better relate to the size of the tree and its root zone. For example, a 10-foot tree protection setback would not be adequate for a 36-inch DBH tree which should have a minimum setback of at least 18 feet. Also, driplines can be highly variable based on species growth habits and onsite conditions such as the presence of adjacent trees or past pruning.

The critical root zone radii of 1 foot per inch of DBH is shown for the trees to be retained on the plan sheet in Attachments 3. The trees to be retained can be adequately protected by placing tree protection fencing as shown in Attachment 3. The tree protection fencing will protect at least 75 percent of their critical roots zones and avoid any encroachments closer than a radius of .5 feet per inch of DBH to a tree to be retained. No grading, stockpiling, storage, disposal, or any other construction related activity shall occur in the tree protection zones unless specifically reviewed and approved by the project arborist.

The following additional protection measures shall apply to the trees at the site:

- *Tree Protection Fencing*: Establish tree protection fencing in the locations shown in Attachment 3. Required fencing shall be a minimum of six feet tall supported with metal posts placed no farther than ten feet apart installed flush with the initial undisturbed grade.
- *Directional Felling*: Fell the trees to be removed away from the trees to be retained so they do not contact or otherwise damage the trunks or branches of the trees to be retained. No vehicles or heavy equipment shall be permitted within the tree protection zones during tree removal operations.
- *Stump Removal*: The stumps of the trees to be removed from within the tree protection zones shall either be retained in place or stump ground to protect the root systems of the trees to be retained.
- *Protect Tree Crowns*: Care will need to be taken to not contact or otherwise damage the crowns of the trees that may extend into the construction area.
- *Monitoring of New Grove Edges*: Trees along portions of the southwest, east, and north sides of the grove are proposed for removal for construction. It will be important to reassess and monitor the trees along the newly exposed edges following site clearing and periodically during construction and after high

wind events to ensure they do not pose a high risk. This monitoring should occur for the next two to three storm seasons following site clearing.

- *Selective Thinning of Grove Trees*: Selective thinning of the grove is recommended to improve the availability of space, water, nutrients, and light for the retained trees. Also, invasive understory and vine species such as Himalayan blackberry and English ivy should be removed to improve the condition of the understory and prevent vine growth on the retained trees.

Any thinning of trees within the grove should be delayed until the changes in wind dynamics from edge tree removal is more thoroughly assessed. Retaining more of the interior trees will help to protect the overall integrity of the grove from blow-down during the near term. After, site adaptations of the trees are better understood in the following two to three storm seasons following disturbance, the project arborist may prescribe a selective thinning treatment.

Additional tree protection recommendations for the trees to be retained are provided in Attachment 5.

### **Conclusion**

Forty-eight (48) trees over 11-inch DBH in good condition are proposed to be retained within the grove of trees along Highway 26. The required tree retention for the 15.91 acre site is 48 trees.

While the grove of trees will have areas of disturbance along the edges, I anticipate that the overall grove will remain viable. It will be important to reassess and monitor the trees along the newly exposed edges following site clearing and periodically during construction and after high wind events to ensure they do not pose a high risk.

Once the grove is stabilized, I recommend selective thinning of trees to improve the availability of space, water, nutrients, and light for the retained trees. Also, invasive understory and vine species such as Himalayan blackberry and English ivy should be removed to improve the condition of the understory and prevent vine growth on the retained trees.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,



Todd Prager

*ASCA Registered Consulting Arborist #597  
ISA Board Certified Master Arborist, WE-6723B  
ISA Qualified Tree Risk Assessor  
AICP, American Planning Association*

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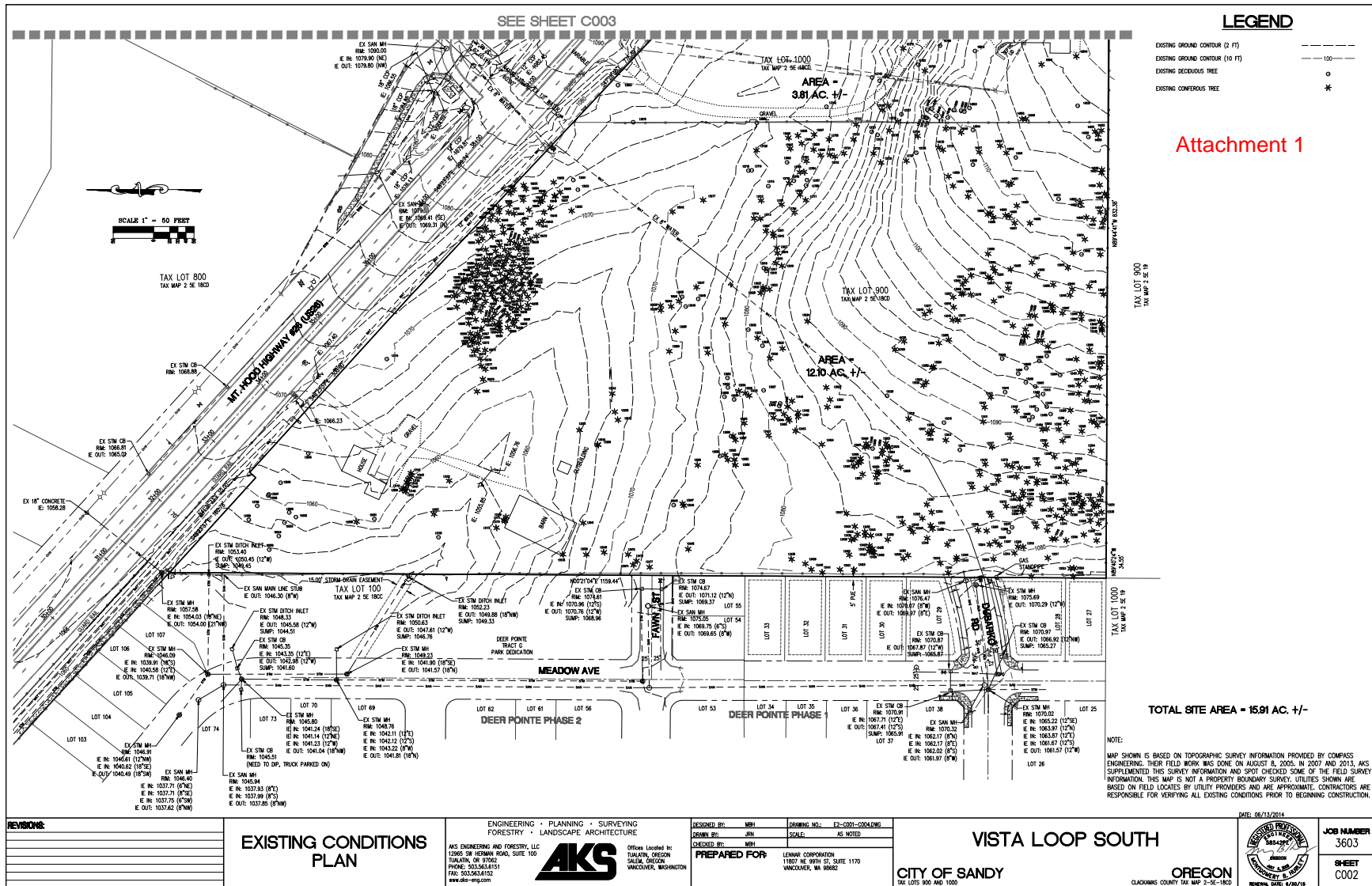
*Teragan & Associates, Inc.  
3145 Westview Circle • Lake Oswego, OR 97034  
Phone: 971.295.4835 • Fax: 503.697.1976  
Email: todd@teragan.com • Website: teragan.com*

Attachments: Attachment 1 - Existing Site Conditions with Existing Trees  
Attachment 2 - Conceptual Site Plan with Trees Retention Area  
Attachment 3 - Grove Detail with Tree Protection  
Attachment 4 - Tree Inventory  
Attachment 5 - Tree Protection Recommendations  
Attachment 6 - Assumptions and Limiting Conditions

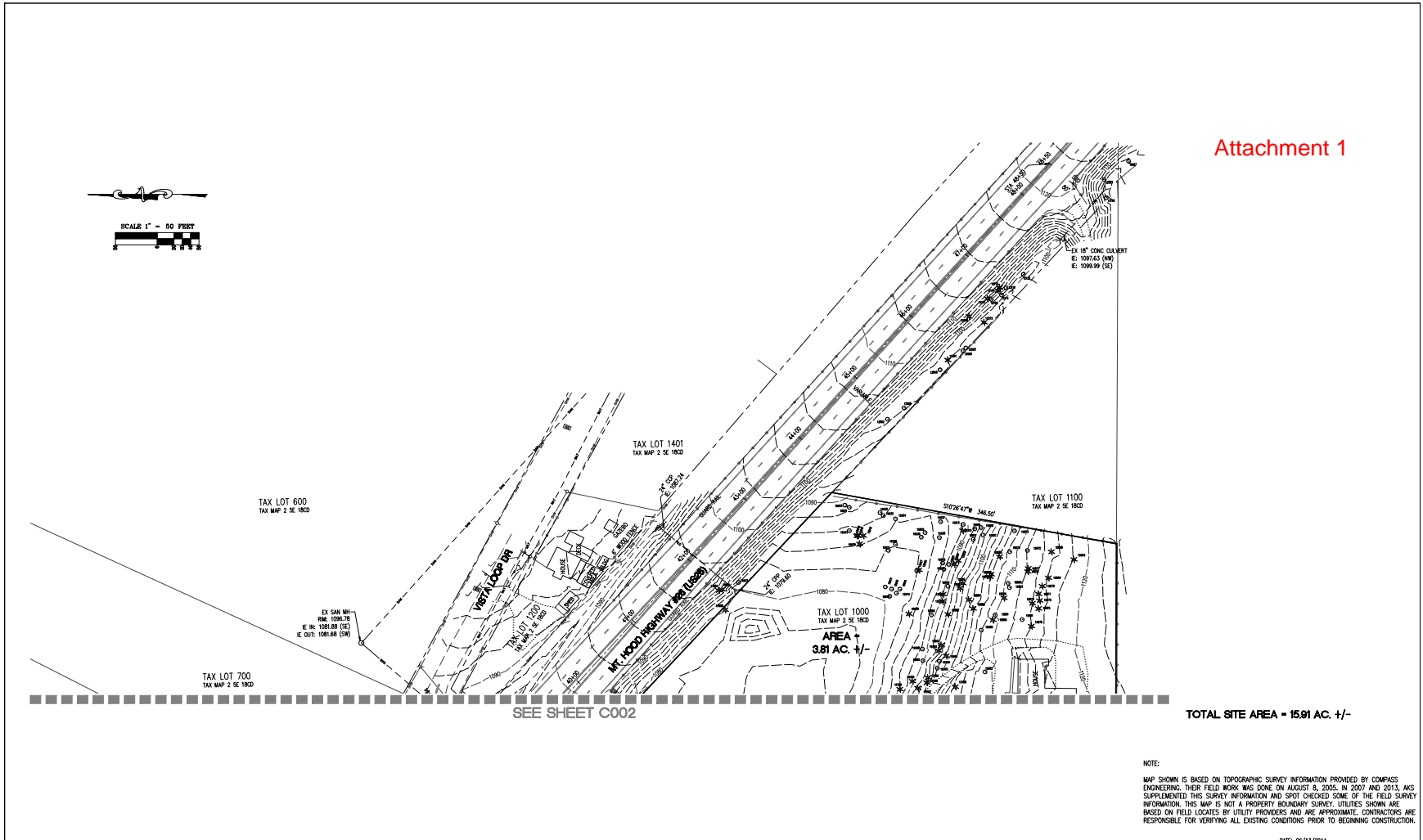
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Email: [todd@teragan.com](mailto:todd@teragan.com) • Website: [teragan.com](http://teragan.com)





Attachment 1



<b>REVISIONS:</b>    	<b>EXISTING CONDITIONS PLAN</b>	ENGINEERING • PLANNING • SURVEYING FORESTRY • LANDSCAPE ARCHITECTURE  <b>AKS</b> AKS ENGINEERING AND FORESTRY, LLC 12965 SW HERMAN ROAD, SUITE 100 TUALUMIN, OR 97062 PHONE: 503.363.6151 FAX: 503.363.6152 www.aks-eng.com	Offices Located In: TUALUMIN, OREGON OAKDALE, OREGON VANCOUVER, WASHINGTON	DESIGNED BY: MBI DRAWN BY: JEN CHECKED BY: MBI	DRAWING NO.: E2-001-C004.DWG SCALE: AS NOTED	<b>VISTA LOOP SOUTH</b>  CITY OF SANDY TAX LOTS 900 AND 1000	OR CLACKAMAS COUNTY PLAT 383427 11/11/2014 REVISION DATE: 4/20/21	JOB NUMBER 3603
				PREPARED FOR: LEMNAW CORPORATION 11807 W. 90TH ST., SUITE 1170 VANCOUVER, WA 98882	SHEET C003			

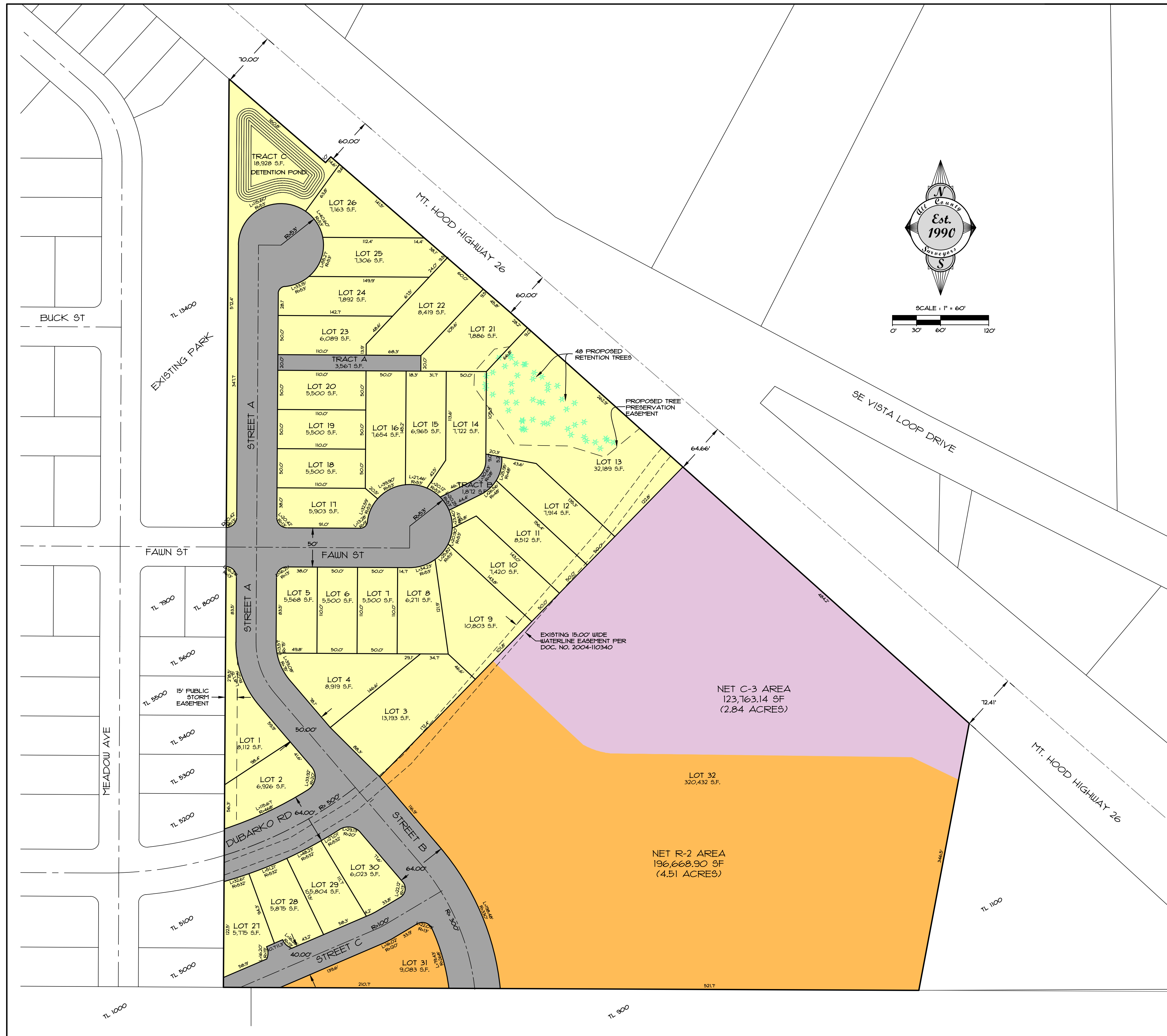
Tree Plan for Deer Meadows Development  
Alex Reverman, Roll Tide Corporation

April 23, 2021  
Page 9 of 17

TREE NUMBER	SPECIES	DBH (IN)	TREE NUMBER	SPECIES	DBH (IN)	TREE NUMBER	SPECIES	DBH (IN)	TREE NUMBER	SPECIES	DBH (IN)	TREE NUMBER	SPECIES	DBH (IN)	TREE NUMBER	SPECIES	DBH (IN)
1102	NAWHE	11.58	1302	CEJMR	10	1496	XOLGAS FR	10	1912	CEJMR	15	4402	CEJMR	8	1507	SPECIES	DBH (IN)
1105	NAWHE	8	1320	CEJMR	19	1501	ALDER	9	1913	CEJMR	15	4403	BIG LEAF MAPLE	25	1508	XOLGAS FR	12
1106	NAWHE	29	1321	CEJMR	12	1502	XOLGAS FR	13	1914	XOLGAS FR	17	4404	XOLGAS FR	6	1509	XOLGAS FR	12
1107	CEJMR	8	1322	CEJMR	8	1503	XOLGAS FR	22	1915	ALDER	8	4405	BIG LEAF MAPLE	8	1510	XOLGAS FR	8
1108	UNKNOWN DECID	13	1323	XOLGAS FR	13	1504	XOLGAS FR	13	1916	XOLGAS FR	8	4406	XOLGAS FR	14	1511	XOLGAS FR	14
1109	XOLGAS FR	17	1324	CEJMR	10	1505	XOLGAS FR	9	1917	XOLGAS FR	12	4407	XOLGAS FR	32	1512	XOLGAS FR	6
1110	XOLGAS FR	19	1325	CEJMR	11	1506	CEJMR	8	1918	BIG LEAF MAPLE	6	4408	XOLGAS FR	42	1513	ALDER	6
1111	NAWHE	19-21	1326	CEJMR	11	1507	CEJMR	18	1919	BIG LEAF MAPLE	6	4409	XOLGAS FR	32	1514	ALDER	8
1112	XOLGAS FR	12	1327	CEJMR	14	1508	CEJMR	17	1920	BIG LEAF MAPLE	18	4410	BIG LEAF MAPLE	24	1515	ALDER	8
1113	XOLGAS FR	25	1328	XOLGAS FR	15	1509	XOLGAS FR	10	1921	XOLGAS FR	17	4411	XOLGAS FR	26	1516	XOLGAS FR	10
1114	NAWHE	12	1329	XOLGAS FR	13	1510	XOLGAS FR	20	1922	CEJMR	17	4412	XOLGAS FR	18	1517	XOLGAS FR	18
1115	XOLGAS FR	25	1330	XOLGAS FR	26	1511	XOLGAS FR	20	1923	CEJMR	17	4413	XOLGAS FR	24	1518	XOLGAS FR	17
1116	NAWHE	12	1331	XOLGAS FR	13	1512	XOLGAS FR	18	1924	XOLGAS FR	18	4414	BIG LEAF MAPLE	16	1519	XOLGAS FR	12
1117	NAWHE	7.3.5	1332	XOLGAS FR	12	1513	CEJMR	27	1925	XOLGAS FR	14	4415	BIG LEAF MAPLE	28	1520	XOLGAS FR	8
1118	XOLGAS FR	1.6	1333	XOLGAS FR	17	1514	ALDER	14	1926	XOLGAS FR	19	4416	XOLGAS FR	8	1521	XOLGAS FR	6
1119	UNKNOWN DECID	12	1334	XOLGAS FR	27	1515	ALDER	8	1927	XOLGAS FR	10	4417	XOLGAS FR	32	1522	XOLGAS FR	24
1120	NAWHE	9	1335	XOLGAS FR	22	1516	XOLGAS FR	22	1928	XOLGAS FR	10	4418	ALDER	8	1523	XOLGAS FR	6
1121	BIG LEAF MAPLE	20	1336	XOLGAS FR	21	1517	CEJMR	13	1929	XOLGAS FR	22	4419	XOLGAS FR	28	1524	XOLGAS FR	6
1122	PIEA	12	1337	XOLGAS FR	12	1518	XOLGAS FR	25	1930	XOLGAS FR	14	4420	BIG LEAF MAPLE	16	1525	XOLGAS FR	10
1123	PIEA	10	1338	XOLGAS FR	10	1519	CEJMR	25	1931	XOLGAS FR	14	4421	BIG LEAF MAPLE	14	1526	XOLGAS FR	10
1124	FLUET	8	1339	XOLGAS FR	11	1520	ALDER	24	1932	ALDER	13	4422	ALDER	14	1527	XOLGAS FR	8
1125	BIG LEAF MAPLE	32	1340	XOLGAS FR	11	1521	XOLGAS FR	26	1933	ALDER	13	4423	ALDER	12	1528	XOLGAS FR	16
1126	XOLGAS FR	19	1341	XOLGAS FR	26	1522	XOLGAS FR	20	1934	ALDER	10	4424	ALDER	6	1529	XOLGAS FR	15
1127	XOLGAS FR	19	1342	XOLGAS FR	19	1523	XOLGAS FR	19	1935	XOLGAS FR	15	4425	ALDER	6	1530	XOLGAS FR	10
1128	XOLGAS FR	36	1343	XOLGAS FR	24	1524	XOLGAS FR	17	1936	XOLGAS FR	12	4426	ALDER	8	1531	XOLGAS FR	18
1129	XOLGAS FR	18	1344	XOLGAS FR	18	1525	CEJMR	9	1937	XOLGAS FR	12	4427	ALDER	6	1532	XOLGAS FR	14
1130	XOLGAS FR	21	1345	XOLGAS FR	12	1526	CEJMR	16	1938	BIG LEAF MAPLE	10	4428	XOLGAS FR	18	1533	XOLGAS FR	25
1131	XOLGAS FR	13	1346	XOLGAS FR	13	1527	XOLGAS FR	11	1939	XOLGAS FR	13	4429	XOLGAS FR	26	1534	XOLGAS FR	8
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1135	XOLGAS FR	32	1350	XOLGAS FR	18	1531	XOLGAS FR	18	1943	FEA	8	4433	XOLGAS FR	8	1538	XOLGAS FR	13
1136	XOLGAS FR	20	1351	XOLGAS FR	26	1532	XOLGAS FR	31	1944	FEA	8	4434	XOLGAS FR	24	1539	XOLGAS FR	16
1137	PNE	18	1352	XOLGAS FR	26	1533	XOLGAS FR	18	1945	BIG LEAF MAPLE	12	4435	XOLGAS FR	16	1540	XOLGAS FR	36
1138	UNKNOWN DECID	20	1353	XOLGAS FR	28	1534	XOLGAS FR	20	1946	ALDER	24	4436	XOLGAS FR	8	1541	XOLGAS FR	13
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1140	XOLGAS FR	19	1355	XOLGAS FR	28	1536	XOLGAS FR	28	1948	XOLGAS FR	15	4438	XOLGAS FR	8	1543	XOLGAS FR	16
1141	CEJMR	28.26	1356	XOLGAS FR	28	1537	XOLGAS FR	28	1949	XOLGAS FR	11.16	4439	XOLGAS FR	22	1544	XOLGAS FR	19
1142	XOLGAS FR	22	1357	XOLGAS FR	12	1538	XOLGAS FR	12	1950	BIG LEAF MAPLE	11.16	4440	XOLGAS FR	12	1545	XOLGAS FR	24
1143	XOLGAS FR	14	1358	XOLGAS FR	8	1539	XOLGAS FR	17	1951	XOLGAS FR	13	4441	XOLGAS FR	14	1546	XOLGAS FR	15
1144	XOLGAS FR	17	1359	XOLGAS FR	16	1540	XOLGAS FR	17	1952	XOLGAS FR	14	4442	XOLGAS FR	15	1547	XOLGAS FR	30
1145	CEJMR	24	1360	XOLGAS FR	14	1541	HCLY	10	1953	XOLGAS FR	17	4443	XOLGAS FR	36	1548	XOLGAS FR	33
1146	CEJMR	15	1361	XOLGAS FR	14	1542	XOLGAS FR	14	1954	XOLGAS FR	17	4444	XOLGAS FR	36	1549	XOLGAS FR	30
1147	CEJMR	15	1362	XOLGAS FR	8	1543	XOLGAS FR	14	1955	XOLGAS FR	17	4445	BIG LEAF MAPLE	12	1550	XOLGAS FR	10
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1150	XOLGAS FR	21	1365	XOLGAS FR	12	1546	XOLGAS FR	12	1958	XOLGAS FR	12	4448	XOLGAS FR	12	1553	XOLGAS FR	10
1151	XOLGAS FR	13	1366	XOLGAS FR	13	1547	XOLGAS FR	12	1959	XOLGAS FR	12	4449	XOLGAS FR	12	1554	XOLGAS FR	14
1152	XOLGAS FR	21	1367	XOLGAS FR	12	1548	XOLGAS FR	12	1960	XOLGAS FR	12	4450	XOLGAS FR	12	1555	XOLGAS FR	14
1153	XOLGAS FR	19	1368	XOLGAS FR	12	1549	XOLGAS FR	12	1961	XOLGAS FR	12	4451	XOLGAS FR	12	1556	XOLGAS FR	14
1154	XOLGAS FR	25	1369	XOLGAS FR	12	1550	XOLGAS FR	12	1962	XOLGAS FR	12	4452	XOLGAS FR	12	1557	XOLGAS FR	14
1155	XOLGAS FR	12	1370	XOLGAS FR	12	1551	XOLGAS FR	12	1963	XOLGAS FR	12	4453	XOLGAS FR	12	1558	XOLGAS FR	14
1156	XOLGAS FR	12	1371	XOLGAS FR	12	1552	XOLGAS FR	12	1964	XOLGAS FR	12	4454	XOLGAS FR	12	1559	XOLGAS FR	14
1157	XOLGAS FR	12	1372	XOLGAS FR	12	1553	XOLGAS FR	12	1965	XOLGAS FR	12	4455	XOLGAS FR	12	1560	XOLGAS FR	14
1158	XOLGAS FR	12	1373	XOLGAS FR	12	1554	XOLGAS FR	12	1966	XOLGAS FR	12	4456	XOLGAS FR	12	1561	XOLGAS FR	14
1159	XOLGAS FR	12	1374	XOLGAS FR	12	1555	XOLGAS FR	12	1967	XOLGAS FR	12	4457	XOLGAS FR	12	1562	XOLGAS FR	14
1160	XOLGAS FR	12	1375	XOLGAS FR	12	1556	XOLGAS FR	12	1968	XOLGAS FR	12	4458	XOLGAS FR	12	1563	XOLGAS FR	14
1161	XOLGAS FR	12	1376	XOLGAS FR	12	1557	XOLGAS FR	12	1969	XOLGAS FR	12	4459	XOLGAS FR	12	1564	XOLGAS FR	14
1162	XOLGAS FR	12	1377	XOLGAS FR	12	1558	XOLGAS FR	12	1970	XOLGAS FR	12	4460	XOLGAS FR	12	1565	XOLGAS FR	14
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1164	XOLGAS FR	12	1379	XOLGAS FR	12	1560	XOLGAS FR	12	1972	XOLGAS FR	12	4462	XOLGAS FR	12	1567	XOLGAS FR	14
1165	XOLGAS FR	12	1380	XOLGAS FR	12	1561	XOLGAS FR	12	1973	XOLGAS FR	12	4463	XOLGAS FR	12	1568	XOLGAS FR	14
1166	XOLGAS FR	12	1381	XOLGAS FR	12	1562	XOLGAS FR	12	1974	XOLGAS FR	12	4464	XOLGAS FR	12	1569	XOLGAS FR	14
1167	XOLGAS FR	12	1382	XOLGAS FR	12	1563	XOLGAS FR	12	1975	XOLGAS FR	12	4465	XOLGAS FR	12	1570	XOLGAS FR	14
1168	XOLGAS FR	12	1383	XOLGAS FR	12	1564	XOLGAS FR	12	1976	XOLGAS FR	12	4466	XOLGAS FR	12	1571	XOLGAS FR	14
1169	XOLGAS FR	12	1384	XOLGAS FR	12	1565	XOLGAS FR	12	1977	XOLGAS FR	12	4467	XOLGAS FR	12	1572	XOLGAS FR	14
1170	XOLGAS FR	12	1385	XOLGAS FR	12	1566	XOLGAS FR	12	1978	XOLGAS FR	12	4468	XOLGAS FR	12	1573	XOLGAS FR	14
1171	XOLGAS FR	12	1386	XOLGAS FR	12	1567	XOLGAS FR	12	1979	XOLGAS FR	12	4469	XOLGAS FR	12	1574	XOLGAS FR	14
1172	XOLGAS FR	12	1387	XOLGAS FR	12	1568	XOLGAS FR	12	1980	XOLGAS FR	12	4470	XOLGAS FR	12	1575	XOLGAS FR	14
1173	XOLGAS FR	12	1388	XOLGAS FR	12	1569	XOLGAS FR	12	1981	XOLGAS FR	12	4471	XOLGAS FR	12	1576	XOLGAS FR	14
1174	XOLGAS FR	12	1389	XOLGAS FR	12	1570	XOLGAS FR	12	1982	XOLGAS FR	12	4472	XOLGAS FR	12	1577	XOLGAS FR	14
1175	XOLGAS FR	12	1390	XOLGAS FR	12	1571	XOLGAS FR	12	1983	XOLGAS FR	12	4473	XOLGAS FR	12	1578	XOLGAS FR	14
1176	XOLGAS FR	12	1391	XOLGAS FR	12	1572	XOLGAS FR	12	1984	XOLGAS FR	12	4474	XOLGAS FR	12	1579	XOLGAS FR	14
1177	XOLGAS FR	12	1392	XOLGAS FR	12	1573	XOLGAS FR	12	1985	XOLGAS FR	12	4475	XOLGAS FR	12	1580	XOLGAS FR	14
1178	XOLGAS FR	12	1393	XOLGAS FR	12	1574	XOLGAS FR	12	1986	XOLGAS FR	12	4476	XOLGAS FR	12	1581	XOLGAS FR	14
1179	XOLGAS FR	12	1394	XOLGAS FR	12	1575	XOLGAS FR	12	1987	XOLGAS FR	12	4477	XOLGAS FR	12	1582	XOLGAS FR	14
1180	XOLGAS FR	12	1395	XOLGAS FR	12	1576	XOLGAS FR	12	1988	XOLGAS FR	12	4478	XOLGAS FR	12	1583	XOLGAS FR	14
1181	XOLGAS FR	12	1396	XOLGAS FR	12	1577	XOLGAS FR	12	1989	XOLGAS FR	12	4479	XOLGAS FR	12	1584	XOLGAS FR	14
1182	XOLGAS FR	12	1397	XOLGAS FR	12	1578	XOLGAS FR	12									



# Attachment 2



**TREE RETENTION NOTES**

TREES REQUIRED TO BE RETAINED:  
3 TREES/ACRE X 15.91 ACRES = **48 TREES**

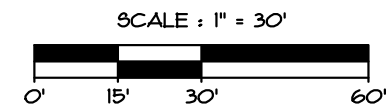
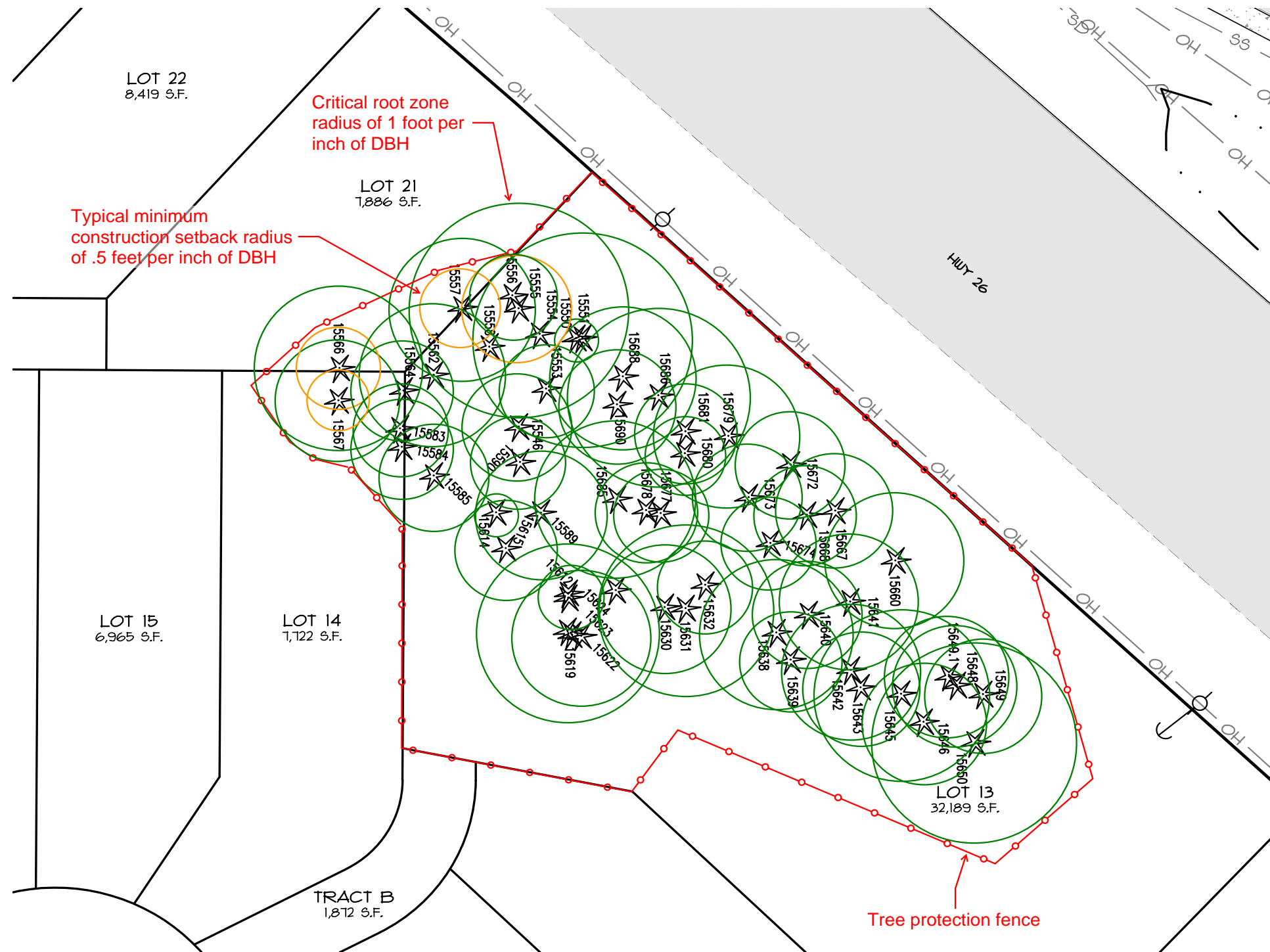
NUMBER OF TREES PROPOSED FOR RETENTION: **48 TREES**

**LEGEND**

- R-1 ZONE
- R-2 ZONE
- C-3 ZONE

DATE	NO.	REVISION	BY	SHEET
				1
				OF X
DESIGNED	RLM			
DRAWN	RLM			
CHECKED	DLH			
APPROVED	RLM			
RENEWAL DATE	12/31/2022			
SCALE	VERT: N/A	HORIZ: 1"=60'		
DATE	1-14-21			
FILE	19-035-Planning-04.dwg			
SECTION	18	RANGE	2S	5E
PROJECT	BULL RUN TERRACE PLAN B SUBDIVISION 32 LOT SUBDIVISION			
LOCATION	40808 & 41010 HWY 26, SANDY, OR 97055			
CLIENT	 ROLL TIDE CORPORATION PROPERTY DEVELOPMENT CORNELLUS, OR 97113			
DATE OF PLOT	1-14-21			
PROJECT	 Surveyors & Planners, Inc. Surveying, Planning, and Civil Engineering P.O. Box 955 Sandy, OR 97055 Phone: (503) 868-3151 Fax: (503) 868-4730			

# GROVE DETAIL



Attachment 3

**All County Surveyors & Planners, Inc.**  
Surveying, Planning and Civil Engineering  
P.O. Box 955 Sandy, OR 97055  
Phone: (503) 668-3151  
Fax: (503) 668-4730  
Subject to General Conditions 2006 ©

19-035-Planning-04.dwg  
DATE OF PLOT: 4/23/2021

Attachment 4

Tree No	Common Name	Scientific Name	DBH <sup>1</sup>	C-Rad <sup>2</sup>	Condition <sup>3</sup>	Structure <sup>3</sup>	Comments	Treatment	Onsite Trees >11" DBH in Good Cond. to be Retained
13653	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	15	fair	fair	thin crown, large wound at lower trunk	remove	
15546	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	15	good	poor	25% live crown ratio, poor trunk taper	retain	x
15550	Douglas-fir	<i>Pseudotsuga menziesii</i>	6	0	very poor	very poor	dead	retain	
15551	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	good	fair	codominant at 1', west stem has 33% live crown ratio	retain	x
15552	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 15551	n/a	n/a
15553	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	15	good	poor	25% live crown ratio, poor trunk taper	retain	x
15554	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	10	fair	poor	poor trunk taper, suppressed	remove	
15555	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	25	good	fair	moderately one sided	retain	x
15556	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	10	poor	poor	overtopped by adjacent trees, suppressed	retain	
15557	grand fir	<i>Abies grandis</i>	22	20	good	fair	one sided, codominant at 30' with included bark	retain	x
15558	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	15	good	poor	33% live crown ratio, poor trunk taper	retain	x
15562	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	15	good	fair	40% live crown ratio, marginal trunk taper	retain	x
15564	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	good	poor	marginal trunk taper, 33% live crown ratio	retain	x
15565	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	15	fair	fair	one sided, marginal trunk taper, 5" codominant dead stem at 3'	remove	
15566	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	20	good	fair	one sided	retain	x
15567	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	15	good	fair	marginal trunk taper, 40% live crown ratio	retain	x
15568	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	0	very poor	very poor	dead	remove	
15569	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	8	fair	poor	poor trunk taper	remove	
15570	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	fair	fair	one sided, overtopped by adjacent trees	remove	
15571	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	5	fair	poor	poor trunk taper, suppressed	remove	
15582	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	fair	poor	poor trunk taper, suppressed	remove	
15583	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	15	good	poor	poor trunk taper, 25% live crown ratio	retain	x
15584	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	good	fair	marginal trunk taper, 40% live crown ratio	retain	x
15584.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	0	very poor	very poor	dead	remove	
15585	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	20	good	poor	35% live crown ratio, poor trunk taper	retain	x
15589	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	20	good	poor	33% live crown ratio, marginal trunk taper	retain	x
15590	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	15	good	poor	35% live crown ratio, poor trunk taper	retain	x
15612	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	0	very poor	very poor	dead	retain	
15614	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	10	fair	poor	25% live crown ratio, poor trunk taper	retain	
15615	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	good	poor	25% live crown ratio, poor trunk taper	retain	x
15619	Douglas-fir	<i>Pseudotsuga menziesii</i>	20,16	20	good	fair	codominant at ground level with included bark, marginal trunk taper	retain	x
15620	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 15619	n/a	n/a
15621	n/a	n/a	n/a	n/a	n/a	n/a	duplicate tree point?	n/a	n/a

Attachment 4

Tree No	Common Name	Scientific Name	DBH <sup>1</sup>	C-Rad <sup>2</sup>	Condition <sup>3</sup>	Structure <sup>3</sup>	Comments	Treatment	Onsite Trees >11" DBH in Good Cond. to be Retained
15622	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	20	good	fair	one sided, bowed trunk, marginal trunk taper	retain	x
15623	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	10	good	poor	one sided, poor trunk taper	retain	
15624	Douglas-fir	<i>Pseudotsuga menziesii</i>	9	0	very poor	very poor	dead	retain	
15630	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	20	good	fair	one sided	retain	x
15631	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	20	good	fair	one sided	retain	x
15632	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	15	good	poor	40% live crown ratio, poor trunk taper	retain	x
15638	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	20	good	fair	one sided	retain	x
15639	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	good	fair	one sided, marginal trunk taper, bowed trunk	retain	x
15640	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	15	good	fair	one sided, 70% live crown ratio, marginal trunk taper	retain	x
15641	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	20	good	fair	40% live crown ratio, marginal trunk taper	retain	x
15642	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	15	good	fair	moderately one sided, marginal trunk taper, 50% live crown ratio	retain	x
15643	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	15	good	fair	one sided	retain	x
15644	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	20	good	poor	33% live crown ratio, marginal trunk taper	remove	
15645	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	25	good	fair	one sided	retain	x
15646	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	15	good	fair	one sided	retain	x
15648	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	15	good	fair	one sided, 60% live crown ratio, marginal trunk taper	retain	x
15649	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	20	good	fair	one sided, marginal trunk taper	retain	x
15649.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	20	good	fair	moderately one sided, marginal trunk taper	retain	x
15650	Douglas-fir	<i>Pseudotsuga menziesii</i>	23,16	25	good	fair	codominant at ground level, north stem has poor trunk taper	retain	x
15651	n/a	n/a	n/a	n/a	n/a	n/a	same as tree 15650	n/a	n/a
15654	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	20	good	fair	one sided, codominant at 12' with included bark	remove	
15655	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	25	good	fair	one sided	remove	
15656	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	15	good	fair	marginal trunk taper, 40% live crown ratio	remove	
15659	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	20	good	fair	moderately one sided, 6" dead codominant stem at base of trunk	remove	
15660	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	20	good	fair	35% live crown ratio, marginal trunk taper, dead 8" codominant stem at 15'	retain	x
15662	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	0	very poor	very poor	dead	remove	
15666	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	15	good	fair	marginal trunk taper, 35% live crown ratio	remove	
15667	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	15	good	fair	40% live crown ratio, marginal trunk taper	retain	x
15668	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	15	good	fair	40% live crown ratio, marginal trunk taper	retain	x





Attachment 4

Tree No	Common Name	Scientific Name	DBH <sup>1</sup>	C-Rad <sup>2</sup>	Condition <sup>3</sup>	Structure <sup>3</sup>	Comments	Treatment	Onsite Trees >11" DBH in Good Cond. to be Retained
15669	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	15	good	fair	one sided, overtopped by adjacent trees	remove	
15670	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	20	good	fair	moderately one sided	remove	
15671	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	10	good	poor	one sided, poor trunk taper	remove	
15672	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	20	good	poor	33% live crown ratio, marginal trunk taper	retain	x
15673	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	15	good	fair	35% live crown ration, marginal trunk taper	retain	x
15674	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	10	good	poor	25% live crown ratio, poor trunk taper	retain	x
15677	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	10	good	poor	25% live crown ratio, poor trunk taper	retain	x
15678	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	10	good	poor	33% live crown ratio, poor trunk taper	retain	x
15679	Douglas-fir	<i>Pseudotsuga menziesii</i>	16,12	20	good	fair	codominant at ground level with included bark, south stem has marginal trunk taper with 25% live crown ratio	retain	x
15680	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	10	good	poor	25% live crown ratio, poor trunk taper	retain	x
15681	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	10	good	poor	poor trunk taper, 20% live crown ratio	retain	x
15682	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	20	good	fair	one sided	remove	
15685	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	20	good	fair	moderately one sided	retain	x
15686	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	25	good	fair	one sided	retain	x
15688	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	20	good	fair	marginal trunk taper, 50% live crown ratio	retain	x
15690	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	20	good	poor	33% live crown ratio, poor trunk taper	retain	x

<sup>1</sup>DBH is the trunk diameter in inches measured in accordance with International Society of Arboriculture standards.

<sup>2</sup>C-Rad is the approximate crown radius in feet.

<sup>3</sup>Condition and Structure ratings range from very poor, poor, fair, to good.



## **Attachment 5 Additional Tree Protection Recommendations**

The following recommendations meet or exceed City of Sandy Code requirements:

### Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
  - a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
  - c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline in the current edition of the *Guide for Plant Appraisal* by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
  - a. Trees to remain in the grove should be protected by installation of tree protection fencing as shown in Attachments 2 and 3.
  - b. The fencing should be put in place before the ground is cleared in order to protect the trees and the soil around the trees from disturbances.
  - c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
  - d. Fencing should consist of 6-foot high steel fencing on concrete blocks or 6-foot metal fencing secured to the ground with 8-foot metal posts placed no farther than ten feet apart to prevent it from being moved by contractors, sagging, or falling down.
  - e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
  - a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

#### **TREE PROTECTION ZONE**

**DO NOT REMOVE OR ADJUST THE APPROVED  
LOCATION OF THIS TREE PROTECTION FENCING.**

Please contact the project arborist if alterations to the approved location of the tree protection fencing are necessary.

Todd Prager, Project Arborist - 971-295-4835

- b. Signage should be placed every 75-feet or less.

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*Teragan & Associates, Inc.*  
3145 Westview Circle • Lake Oswego, OR 97034  
Phone: 971.295.4835 • Fax: 503.697.1976  
Email: [todd@teragan.com](mailto:todd@teragan.com) • Website: [teragan.com](http://teragan.com)

### During Construction

1. Protection Guidelines Within the Tree Protection Zones:
  - a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
  - b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
  - c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
  - d. Construction trailers should not to be parked/placed within the tree protection zones.
  - e. No vehicles should be allowed to park within the tree protection zones.
  - f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

### After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

### **Attachment 6 Assumptions and Limiting Conditions**

1. Any legal description provided to the consultant is assumed to be correct. The site plans and other information provided by Roll Tide Corporation and their consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
  - Assess the existing grove of trees along Highway 26;
  - Identify the trees to be removed and retained in the grove; and
  - Provide tree protection recommendations for the trees to be retained in the grove.

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*Teragan & Associates, Inc.  
3145 Westview Circle • Lake Oswego, OR 97034  
Phone: 971.295.4835 • Fax: 503.697.1976  
Email: [todd@teragan.com](mailto:todd@teragan.com) • Website: [teragan.com](http://teragan.com)*

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## EXHIBIT G

May 3, 2019

Carey Sheldon  
PO Box 883  
Fairview, OR 97024

RE: Dubarko Road Subdivision – Wetland Determination

Carey:

This letter provides findings of a wetlands determination conducted by Environmental Science & Assessment, LLC (ES&A) at 40808 & 41010 Highway 26 in Sandy, Oregon (TL# 25E18CD00900 & TL#25E18CD01000) to evaluate the existing conditions. The 16.12-acre site is located directly east of a subdivision near Dubarko Road and Meadows Avenue and south of Highway 26 in the east end of Sandy, Oregon (Figure 1; Attachment A). The parcel boundaries and base topographic survey were provided by All County Surveyors and Planners, Inc.

A 6-lot subdivision and 216-unit condominium complex site is planned for the project. The project developer contracted ES&A to determine the presence of jurisdictional resources on site and determine the presence or absence of potential stream or wetland within the site.

### **METHODOLOGY**

Potential wetland areas on the parcel were evaluated using the methodology provided in the Army Corps of Engineers *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*, (U.S. Army Corps of Engineers, 2010). This methodology defines criteria for hydrology, soils, and vegetation to identify wetland areas.

Two levels of investigation were used to evaluate the presence or absence of Sensitive Areas. The first level included a review of existing and available background data. The second level consisted of an on-site field investigation.

Reviewed background data included the following information:

- Aerial Photography (Google Earth, 2018)
- City of Sandy Local Wetland Inventory (Sri/Shapiro AGCO Inc., 1997)
- USFWS National Wetland Inventory (NWI) (USFWS, 2019)
- Natural Resource Conservation Service (NRCS) Soil Survey of Clackamas County, Oregon (Web Soil Survey, 2019)
- Topography (Metro Data Resource Center's MetroMap, 2018)

The lots within site are currently undeveloped, but a small structure was located on TL 1000 in 2012 based on the available 2012 aerial photos (Figure 2). The only evidence of water or wetland resources on site is an intermittent stream mapped on the City of Sandy Local Wetland Inventory (LWI) extending east to west through the site. The USFWS NWI does not map wetland or waters within the site (Figure 3) and the NRCS soil survey does not map hydric soils on site (Figure 4).

ES&A wetland scientist, Jack Dalton, conducted the site assessment on March 23, 2019, with a preliminary site visit on June 8, 2018. Three (3) wetland determination data plots were established to document existing conditions on-site (Figure 5). The data sheets are included in Appendix C of this report. Data plot locations were mapped in the field using a hand-held resource grade GPS unit and transferred to a base topographic survey provided by All County Surveyors and Planners, Inc. (Attachment A).

## EXISTING CONDITIONS

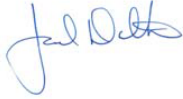
The 16.12-acre site located at 40808 & 41010 Highway 26, Sandy, Oregon (TL# 25E18CD00900 & TL#25E18CD01000) is bordered by Highway 26 to the north and a neighborhood to the west. Agricultural land is located east of the site and a single-family residence is located on the lot directly east (Figure 1). A stub for Dubarko Road and a second road stub for Fawn Street are located along the west site boundary (Figure 2).

The investigation found no water feature at the mapped location in the middle of the site. While there is a narrow linear depression extending roughly east to west through the site, no defined channel bed or bank is present, as documented by site data plot locations (Figure 5). No evidence of ponding was observed in the lowest points in the west end of the site and no evidence of seasonal surface water flow was observed in the area of the mapped stream. The plant community is primarily a weedy cleared field dominated by Himalayan blackberry (*Rubus armeniacus*, FAC) and pasture grasses. The tree groves on site are primarily Douglas fir (*Pseudotsuga menziesii*, FACU) with small clusters of western red-cedar (*Thuja plicata*, FAC). No wetland vegetation is present on site. Soils sampled at the three data plots all lacked hydric soil indicators and showed no evidence of sub-surface saturation, high seasonal groundwater, saturation or other hydrology indicators. Photos documenting the existing conditions and plant community are provided in Attachment B. Detailed plant and soil data is provided in Attachment C.

It is my conclusion that the intermittent stream feature mapped on the LWI mapping is not longer accurate and no stream feature or wetland is currently present on site. Any historic drainage that may have extended through the site has is no longer present and was altered by past land use or a change in the surrounding basin hydrology up slope of site. There is no evidence of any surface water entering the site from the east and no evidence of wetland or seasonal ponded water features was observed in the lowest topographic point of site where wetland or were most likely to be located.

If you have any questions about the findings presented in this letter, I would be happy to discuss the determination findings further.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jack Dalton".

Jack Dalton  
Environmental Science & Assessment, LLC

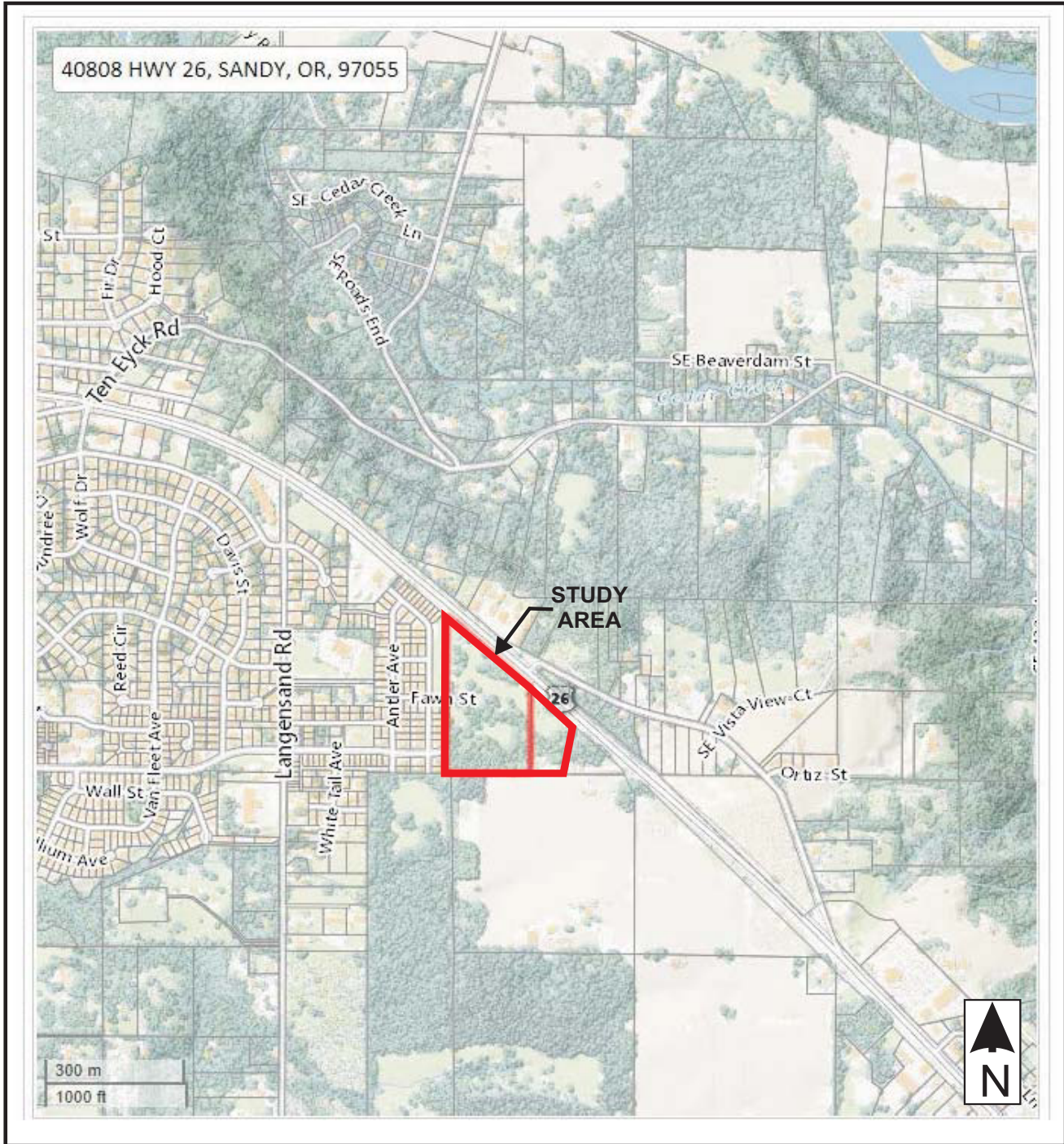
Cc: Alex Reverman (via email)  
Ray Moore (via email)

Attachments


- A – Figures
- B – Site Photos
- C - Wetland Determination Data

**ATTACHMENT A: FIGURES**





Source: Metro Data Resource Center. <http://gis.oregonmetro.gov/metromap/>

<p>Environmental Science &amp; Assessment, LLC</p> 	<p>Vicinity Map Dubarko Road Subdivision Sandy, Oregon</p>	<p><b>Figure 1</b></p> <p>Approx. Scale: 1in. = 100 ft.</p>
--	--	---





Source: Google Earth

Image Date: 9/3/2018

Environmental  
Science &  
Assessment, LLC



Aerial Photograph  
Dubarko Road Subdivision  
Sandy, Oregon

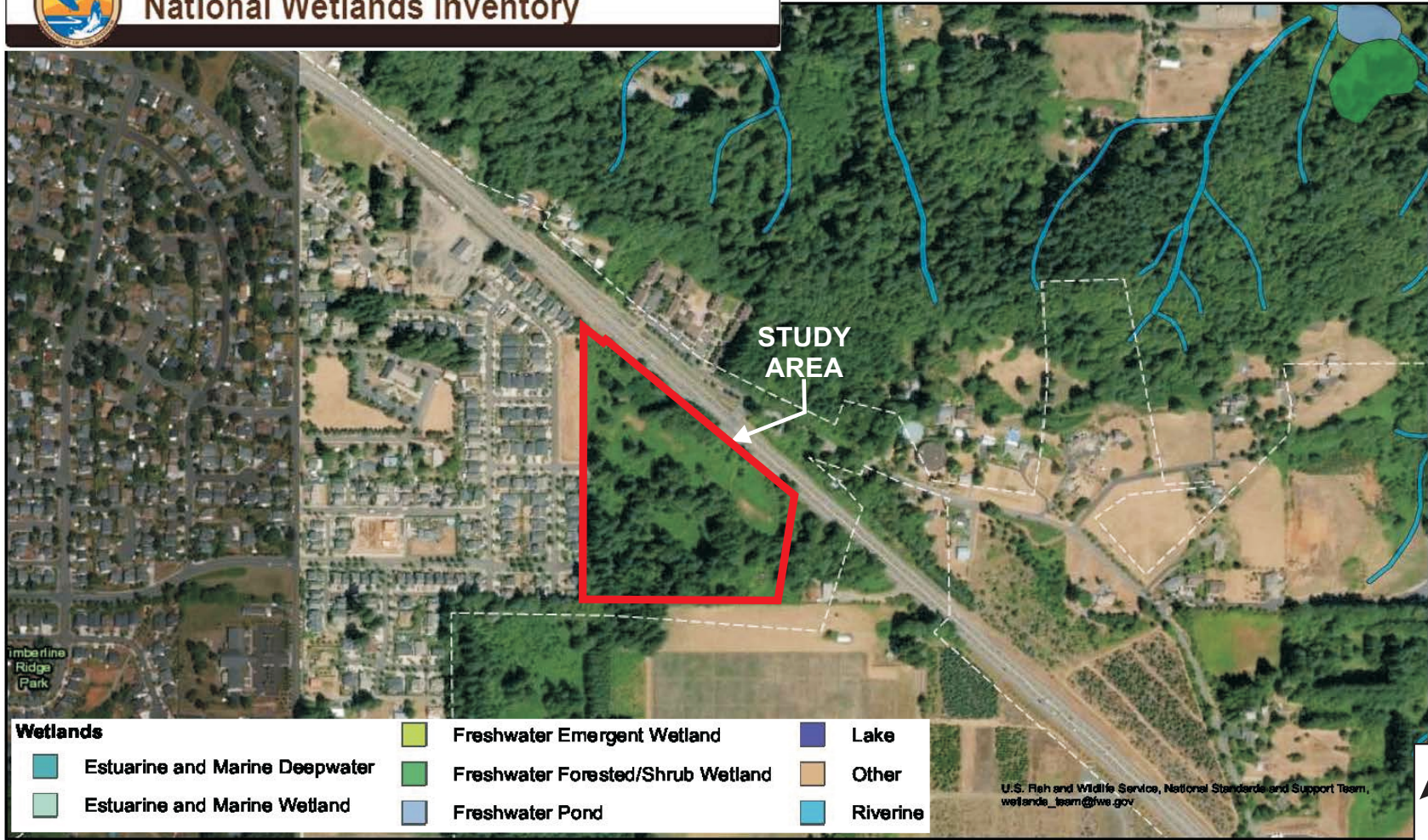
Approx. Scale:  
1in. = 345ft.

Figure 2





**U.S. Fish and Wildlife Service**  
**National Wetlands Inventory**



Environmental  
 Science &  
 Assessment, LLC

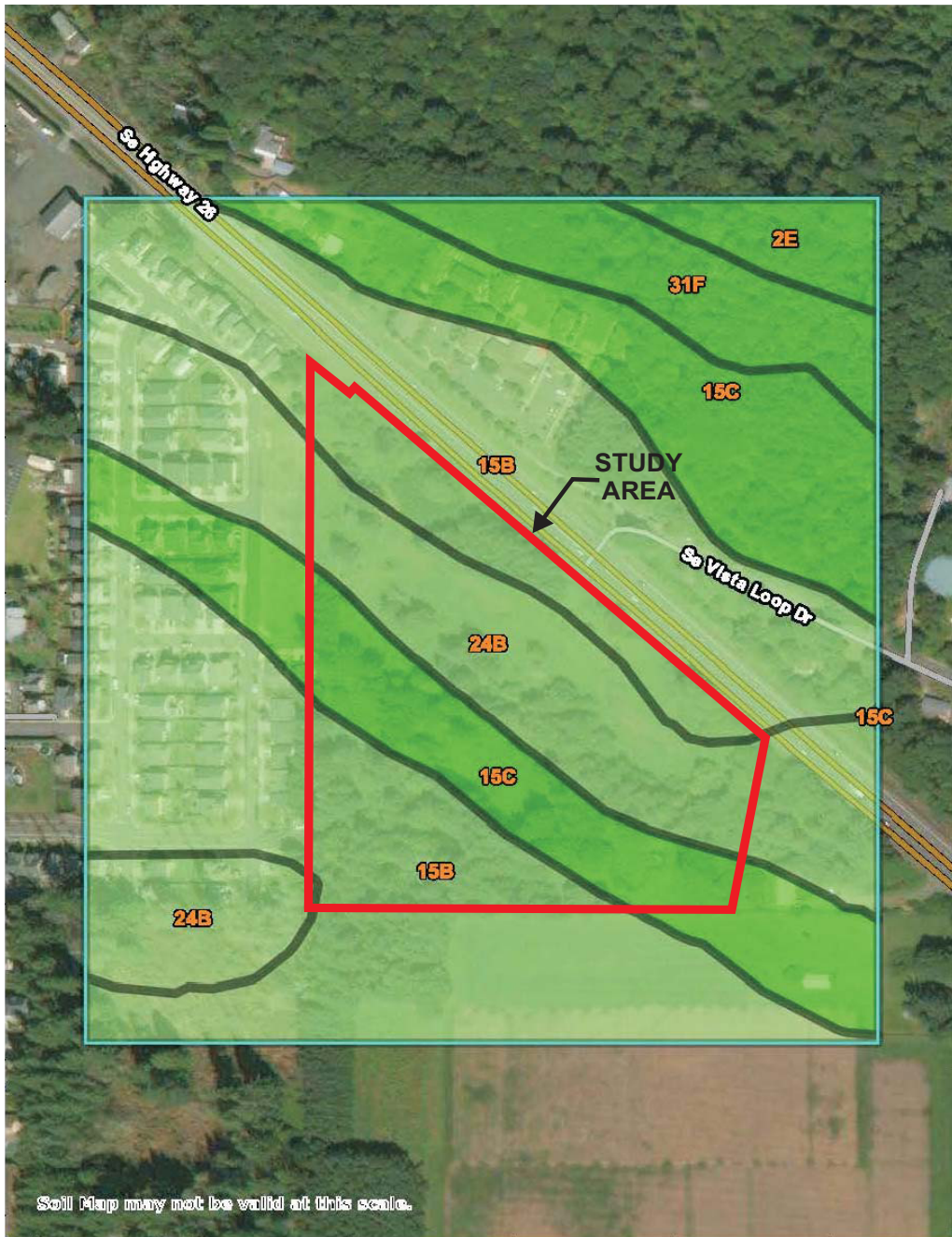


NWI Map  
 Dubarko Road Subdivision  
 Sandy, Oregon

Not to Scale

Figure 3





Source: NRCS Web Soil Survey <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Environmental  
Science &  
Assessment, LLC

NRCS Soil Map  
Dubarko Road Subdivision  
Sandy, Oregon

**Figure 4**

Not to  
Scale

Environmental  
Science &  
Assessment, LLC

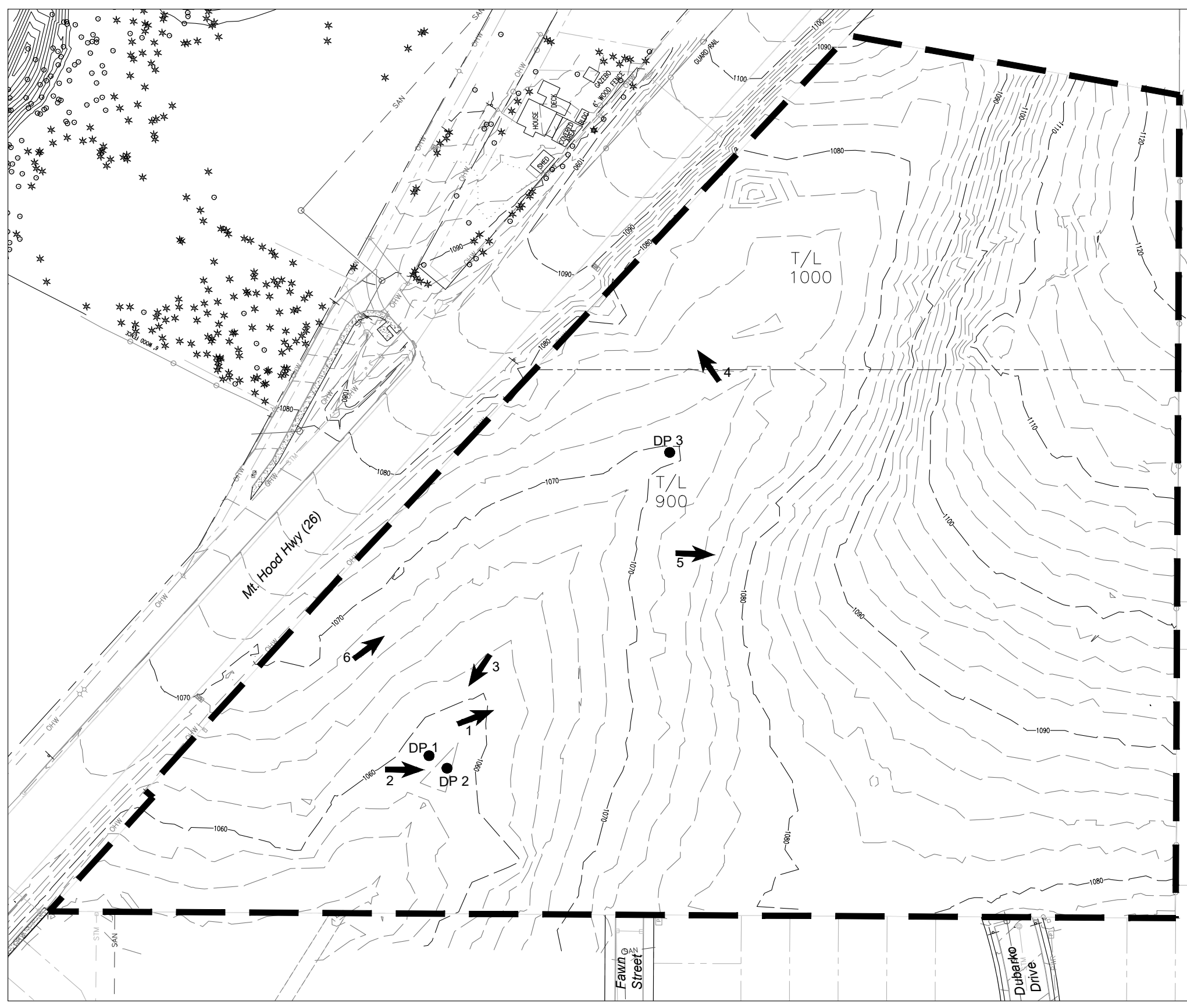


107 SE Washington St.,  
Suite 249  
Portland, OR 97214  
Phone: 503.478.0424  
www.esapdx.com

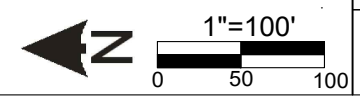
**Existing Conditions Map**  
**Dubarko Road Subdivision**  
**40808, 41010 HWY 26**  
**Sandy, Oregon**

Base Map Source:  
All County Surveyors  
& Planners, Inc.  
Modified By: KR  
Date: 4/19  
Job: 18042  
Rev: 00/00

**Figure 5**



- Wetland Data Plot
- ➔ Photo Point



**ATTACHMENT B: SITE PHOTOS**





Photo 1: View SE of low point in the middle of the site.



Photo 2: View S by DP-1 and DP-2. Shallow swale with no offsite connection.



Photo 3: View NW of the middle of the site.





Photo 4: View NE of overgrown blackberry area.



Photo 5: View S of Doug fir forest in SW corner.



Photo 6: View NE of doug fir grove at N end.



**ATTACHMENT C: WETLAND DETERMINATION DATA SHEETS**

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: Dubarko Road Subdivision City/County: Sandy/Clackamas Sampling Date: 3/28/19  
 Applicant/Owner: Roll Tide Properties Corp State: OR Sampling Point: DP-1  
 Investigator(s): Jack Dalton Section, Township, Range: S18 T2S R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): \_\_\_\_\_  
 Subregion (LRR): A-Northwest Forests and Coasts Lat: 45.392061° Long: -122.244803° Datum: N/A  
 Soil Map Unit Name: Cottrell silty clay loam (24B) NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		
Remarks: <u>Data point taken at grassy, flat area in the lower topo in west end.</u>			

**VEGETATION – Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>Rubus armeniacus</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Schedonorus arundinaceus</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Agrostis sp.</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>	
3. <u>Dactylis glomerata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Poa sp.</u>	<u>10</u>	_____	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				
				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>

**SOIL**

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			Loc <sup>2</sup>
0-12	7.5 YR 3/2	100			C	M	silt loam	no redox
12-16	7.5YR 4/4	99	7.5YR 4/6	1	C	M	silt loam	
16-20	7.5YR 3/4	99	7.5YR 4/6	1	C	M	silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____    No <u>X</u>
--	--

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present?    Yes _____    No <u>✓</u> Depth (inches): _____ Water Table Present?    Yes _____    No <u>✓</u> Depth (inches): _____ Saturation Present?    Yes _____    No <u>✓</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____    No <u>X</u>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation/O.R. or evidence of surface flow.

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: Dubarko Road Subdivision City/County: Sandy/Clackamas Sampling Date: 3/28/19  
 Applicant/Owner: Roll Tide Properties Corp State: OR Sampling Point: DP-2  
 Investigator(s): Jack Dalton Section, Township, Range: S18 T2S R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): \_\_\_\_\_  
 Subregion (LRR): A-Northwest Forests and Coasts Lat: 45.392061° Long: -122.244803° Datum: N/A  
 Soil Map Unit Name: Cottrell silty clay loam (24B) NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		
Remarks: <u>Data point taken at low point in linear swale in the west end - no evidence of wetland hydrology.</u>			

**VEGETATION – Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>Rubus armeniacus</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Schedonorus arundinaceus</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Agrostis sp.</u>	<u>30</u>	<u>yes</u>	<u>UPL</u>	
3. <u>Holcus lanatus</u>	<u>15</u>	_____	<u>FAC</u>	
4. <u>Galium aparine</u>	<u>5</u>	_____	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				
Remarks: <u>Veg meets dominance test, but fails prevalence index test - marginal FAC dominated community that lacks FACW or OBL veg.</u>				

**SOIL**

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			Loc <sup>2</sup>
0-9	7.5 YR 3/2	100			C	M	silt loam	no redox, 10% pebbles
9-12	7.5YR 3/2	99	7.5YR 3/4	1	C	M	silt loam	
12-16	7.5YR 4/4	80	7.5YR 3/2	18	C	M		
			7.5YR 3/4	2	C	M		
16-20	7.5YR 4/4	90	7.5YR 4/6	10	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No ✓ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No ✓ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No ✓ Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation, O.R. or evidence of surface flow.

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region**

Project/Site: Dubarko Road Subdivision City/County: Sandy/Clackamas Sampling Date: 3/28/19  
 Applicant/Owner: Roll Tide Properties Corp State: OR Sampling Point: DP-3  
 Investigator(s): Jack Dalton Section, Township, Range: S18 T2S R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A-Northwest Forests and Coasts Lat: 45.392061° Long: -122.244803° Datum: N/A  
 Soil Map Unit Name: Cottrell silty clay loam (24B) NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>		Yes _____
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>		No <input checked="" type="checkbox"/>
Remarks: <u>Data point taken up linear depression in middle of site - no wetland hydrology evident.</u>				

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
_____ = Total Cover				Total % Cover of: _____ Multiply by: _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				OBL species _____ x 1 = _____	
1. <u>Rubus armeniacus</u>	<u>50</u>	<u>yes</u>	<u>FAC</u>	FACW species _____ x 2 = _____	
2. _____	_____	_____	_____	FAC species <u>40</u> x 3 = <u>120</u>	
3. _____	_____	_____	_____	FACU species <u>80</u> x 4 = <u>320</u>	
4. _____	_____	_____	_____	UPL species <u>30</u> x 5 = <u>150</u>	
5. _____	_____	_____	_____	Column Totals: <u>150</u> (A) <u>590</u> (B)	
<u>50</u> = Total Cover				Prevalence Index = B/A = <u>3.9</u>	
<b>Herb Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>Holcus lanatus</u>	<u>35</u>	<u>yes</u>	<u>FAC</u>	___ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Anthoxanthum odoratum</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	___ 2 - Dominance Test is >50%	
3. <u>Agrostis sp.</u>	<u>30</u>	<u>yes</u>	<u>UPL</u>	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4. <u>Schedonorus arundinaceus</u>	<u>5</u>	_____	<u>FAC</u>	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants <sup>1</sup>	
6. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>100</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>	
<b>Woody Vine Stratum</b> (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks: <u>Marginal degraded plant community - lacks FACW or greater plants.</u>					

**SOIL**

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			Loc <sup>2</sup>
0-10	7.5 YR 3/3	100			C	M	silt loam	no redox,
10-13	7.5YR 4/3	98	10YR 3/6	2	C	M		
13-15	10YR 4/4	95	7.5YR 4/6	5	C	M		
15-20	10YR 4/3	80	7.5YR 4/6	10	C	M		
			10YR 4/4	10				

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____ No <u>X</u>
--	---

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>✓</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>✓</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>✓</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: faint O.R. at 13"



# EXHIBIT H

## OFFSITE WETLAND DETERMINATION REPORT OREGON DEPARTMENT OF STATE LANDS

775 Summer Street NE, Suite 100, Salem OR 97301-1279 Phone: (503) 986-5200

BATCH  
WD#: 2019-0386

At your request, an offsite wetland determination has been conducted on the property described below.

County: Clackamas

City: Sandy

Agent Name & Address: Tracy Brown, Tracy Brown Planning Consultants, LLC, 17075 Fir Dr., Sandy, OR 97055

Township: 2S Range: 5E Section: 18 Q/Q: CD Tax Lot(s): 900, 1000


Project Name: Site Evaluation

Site Address/Location: 40808 and 41010 Highway 26, Sandy, OR

- The National Wetlands Inventory or Local Wetlands Inventory shows a wetland on the property.
- The county soil survey shows hydric (wet) soils on the property. Hydric soils indicate that there may be wetlands.
- It is unlikely that there are jurisdictional wetlands or waterways on the property based upon a review of wetlands maps, the county soil survey and other information. An onsite investigation by a qualified professional is the only way to be certain that there are no wetlands.
- There may be wetlands/waterways on the property that are subject to the state Removal-Fill Law.
  - A state permit is required for  $\geq 50$  cubic yards of fill, removal, or ground alteration in the wetlands or waterways.
  - A state permit may be required for any amount of fill, removal, or other ground alteration in the Essential Salmonid Habitat and hydrologically associated wetlands.
- A state permit will be/will not be required for project because/if .
- The proposed parcel division may create a lot that is largely wetland and thus create future development problems.
- A wetland delineation by a qualified wetland consultant is recommended prior to site development. The wetland delineation report should be submitted to DSL for review and approval.
- A permit may be required by the Army Corps of Engineers: (503) 808-4373

Note: This report is for the state Removal-Fill Law only. City or County permits may be required for the proposed activity.

Comments: Based on a review of the available information, there are no jurisdictional wetlands or waters on the property.

Determination by:  Date: 7/03/19

This jurisdictional determination is valid for five years from the above date, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months from the above date.

This is a preliminary jurisdictional determination and is advisory only.

Copy To:  Other  Enclosures: email: tbrownplan@gmail.com  
 City of Sandy

### FOR OFFICE USE ONLY

Entire Lot(s) Checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waters Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Maybe	Request Received: 6/27/2019
LWI Area: Sandy LWI Code: N/A	Latitude: 45.390763 Longitude: -122.244278	Related DSL File # N/A
Has Wetlands? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Unk	ESH? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Wild & Scenic? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
	State Scenic? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Coast Zone? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Unk
Adjacent Waterbody: N/A	NWI Quad: Sandy <input checked="" type="checkbox"/>	Scanned <input checked="" type="checkbox"/> Mailings Completed <input checked="" type="checkbox"/> Data Entry Completed <input checked="" type="checkbox"/>

proj# 78454





**EXHIBIT I**  
**REDMOND GEOTECHNICAL SERVICES**

**Geotechnical Investigation and Consultation Services**

**Proposed Vista Loop Apartments Site**

**Tax Lot No's. 900 and 1000**

**40808 and 41010 Highway 26**

**Sandy (Clackamas County), Oregon**

**for**

**Roll Tide Property Corporation**

**Project No. 1861.001.G**  
**November 23, 2020**



November 23, 2020

Mr. Dave Vandehey  
Roll Tide Property Corporation  
P.O. Box 703  
Cornelius, Oregon 97113

Dear Mr. Vandehey:

**Re: Geotechnical Investigation and Consultation Services,  
Proposed Vista Loop Apartments Development Site, Tax Lot No's. 900 and 1000,  
40808 and 41010 Highway 26, Sandy (Clackamas County), Oregon**

Submitted herewith is our report entitled "Geotechnical Investigation and Consultation Services, Proposed Vista Loop Apartments Development Site, Tax Lot No's. 900 and 1000, 40808 and 41010 Highway 26, Sandy (Clackamas County), Oregon". The scope of our services was outlined in our formal discussions with Mr. Carey Sheldon of Sheldon Development, Inc. October 12, 2020. Authorization of our services was provided by Mr. Dave Vandehey of Roll Tide Property Corporation on October 20, 2020.

During the course of our investigation, we have kept you and/or others advised of our schedule and preliminary findings. We appreciate the opportunity to assist you with this phase of the project. Should you have any questions regarding this report, please do not hesitate to call.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Daniel M. Redmond', is written over a light blue circular background.

Daniel M. Redmond, P.E., G.E.  
President/Principal Engineer

Cc: Mr. Ray Moore  
All County Surveyors & Planners, Inc.



EA 12-31-20

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**REDMOND GEOTECHNICAL SERVICES**

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Test Pit Logs and Laboratory Data

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**REDMOND GEOTECHNICAL SERVICES**

**GEOTECHNICAL INVESTIGATION AND CONSULTATION SERVICES  
PROPOSED VISTA LOOP APARTMENTS DEVELOPMENT SITE  
TAX LOT NO'S. 900 AND 1000  
40808 AND 41010 HIGHWAY 26  
SANDY (CLACKAMAS COUNTY) OREGON**

**INTRODUCTION**

Redmond Geotechnical Services, LLC is please to submit to you the results of our Geotechnical Investigation and Consultation Services at the site of the proposed new Vista Loop Apartments development project located to the southwest of Highway 26 and the intersection of SE Vista Loop Drive in Sandy (Clackamas County), Oregon. The general location of the subject site is shown on the Site Vicinity Map, Figure No. 1. The purpose of our geotechnical investigation and consultation services at this time was to explore the existing subsurface soils and/or groundwater conditions across the subject site and to evaluate any potential concerns with regard to development at the site as well as to develop and/or provide appropriate geotechnical design and construction recommendations for the proposed new Vista Loop Apartments development project.

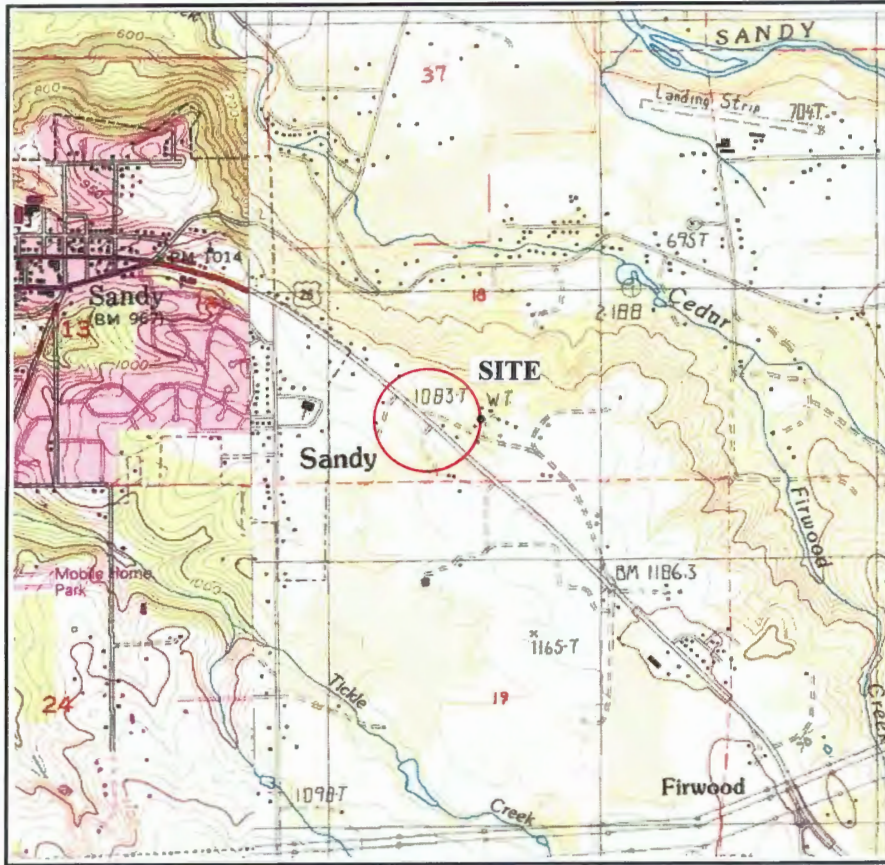
**PROJECT DESCRIPTION**

Based on a review of the proposed site development plan(s), we understand that present plans for the project will consist primarily of the construction of new multi-family apartments. However, due to the current site zoning, the site development may also include the construction of new single-family residential homes as well as some mixed use and/or commercial structures. We understand that the multi-family apartments will likely be two- and/or three-story wood-frame structures with a concrete slab-on-grade floor system. However, the single-family lots will likely be developed with new single- and/or two-story wood-frame residential structures with raised wooden post and beam floors. Construction and/or development within the mixed use and/or commercial zoned portion of the property is unknown at this time but is anticipated to result in single- and/or two-story wood-frame structures with concrete slab-on-grade floors.

Support of the proposed new multi-family residential structures is anticipated to consist primarily of conventional shallow continuous (strip) footings although some individual (spread) column-type footings may also be required. Additionally, due to the existing sloping site grades and/or the finish slope grades following the site grading activities for the project, we anticipate that some of the proposed new residential homes and/or multi-family structures may be constructed with partial and/or below levels. As such, construction of some below grade retaining walls is also anticipated for the project.

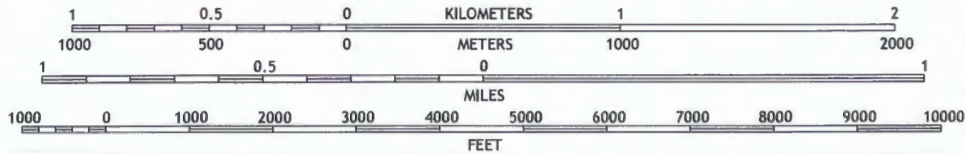
**REDMOND GEOTECHNICAL SERVICES**





**BULL RUN QUADRANGLE  
OREGON  
7.5-MINUTE SERIES**

**SCALE 1:24 000**



CONTOUR INTERVAL 10 FEET  
NORTH AMERICAN VERTICAL DATUM OF 1988

**SITE VICINITY MAP**

Project No. 1861.001.G	<b>VISTA LOOP APARTMENTS Tax Lots 600, 700, 900 and 1000</b>	Figure No. 1
------------------------	--	--------------

Structural loading information, although unavailable at this time, is anticipated to be fairly typical for this type of single- and/or three-story wood-frame structure and is expected to result in maximum dead plus live continuous (strip) and individual (column) footing loads on the order of about 1.5 to 4.0 kips per lineal foot (klf) and 10 to 50 kips, respectively.

Other associated site improvements for the project will include construction of new paved public streets and/or private access drives and parking areas. Additionally, the project will include the construction of new underground utility services as well as new concrete curbs and sidewalks. Further, we understand that development of the site will also include the collection of storm water from hard and/or impervious surfaces (i.e., roofs and pavements) for on-site treatment and disposal within various storm water detention facilities designed by the Civil Engineer.

Earthwork and grading operations for the project to bring the subject property to finish design grades and/or elevations are unknown at this time. However, based on our past experience with similar types of projects, we envision that the site grading and earthwork for the project will include cuts and/or fills of between five (5) and ten (10) feet.

### **SCOPE OF WORK**

The purpose of our geotechnical studies was to evaluate the overall subsurface soil and/or groundwater conditions underlying the subject site with regard to the proposed new residential development and construction at the site and any associated impacts or concerns with respect to development at the site as well as provide appropriate geotechnical design and construction recommendations for the project. Specifically, our geotechnical investigation included the following scope of work items:

1. Review of available and relevant geologic and/or geotechnical investigation reports for the subject site and/or area including a Geotechnical and Slope Stability Investigation for the proposed Vista Loop North and Vista Loop South Subdivisions prepared by GeoPacific Engineering, Inc. dated August 16, 2005.
2. A detailed field reconnaissance and subsurface exploration program of the soil and ground water conditions underlying the site by means of eight (8) exploratory test pit excavations. The exploratory test pits were excavated to depths ranging from about six (6) to seven (7) feet beneath existing site grades at the approximate locations as shown on the Site Exploration Plan, Figure No. 2. Additionally, field infiltration testing was also performed within various test pits excavated across the subject site.
3. Laboratory testing to evaluate and identify pertinent physical and engineering properties of the subsurface soils encountered relative to the planned site development and construction at the site. The laboratory testing program included tests to help evaluate the natural (field) moisture content and dry density, maximum dry density and optimum moisture content, Atterberg Limits and gradational characteristics, as well as (remolded) direct shear strength and "R"-value tests.

**REDMOND GEOTECHNICAL SERVICES**



4. A literature review and engineering evaluation and assessment of the regional seismicity to evaluate the potential ground motion hazard(s) at the subject site. The evaluation and assessment included a review of the regional earthquake history and sources such as potential seismic sources, maximum credible earthquakes, and reoccurrence intervals as well as a discussion of the possible ground response to the selected design earthquake(s), fault rupture, landsliding, liquefaction, and tsunami and seiche flooding.
5. Engineering analyses utilizing the field and laboratory data as a basis for furnishing recommendations for foundation support of the proposed new residential structures. Recommendations include maximum design allowable contact bearing pressure(s), depth of footing embedment, estimates of foundation settlement, lateral soil resistance, and foundation subgrade preparation. Additionally, construction and/or permanent subsurface water drainage considerations have also been prepared. Further, our report includes recommendations regarding site preparation, placement and compaction of structural fill materials, suitability of the on-site soils for use as structural fill, criteria for import fill materials, and preparation of foundation, pavement and/or floor slab subgrades.
6. Flexible pavement design and construction recommendations for the proposed new public streets and private access drives and parking area improvements.
7. A quantitative limit equilibrium slope stability analysis.

## **SITE CONDITIONS**

### **Regional and Site Geology**

The subject site and/or area is located on the eastern margin of the Portland Basin near where the basin meets the western edge of the Cascade Mountains physiographic province (Orr and Orr, 1999). Bedrock in this region consists of volcanic rocks emplaced tens of millions of years ago, associated with the Columbia River Basalt Group and with volcanics from the Western Cascades province (Gannet and Caldwell, 1998).

The volcanic basement is overlain by silts, sands and gravels of Miocene to Pleistocene age which form the majority of the basin fill in the area. The basin fill sediments generally are mapped as Sandy River Mudstone towards the lower portion of the assemblage in turn overlain by the Troutdale Formation, a series of gravels, sands and silts deposited by the ancestral Columbia River and smaller rivers flowing from the Cascade Mountains (Schlicker and Finlayson, 1979). In the vicinity of Sandy, the Troutdale Formation is overlain by the Springwater Formation, a conglomerate with some volcanoclastic sands, silts, and debris flows derived from the Cascade Range. The conglomerate consists of gravels, cobbles, and boulders of volcanic composition that are strongly and deeply weathered to completely decomposed residual soils often producing a red, fine-grained soil up to 75 feet deep.

### **Surface Conditions**

The proposed new Vista Loop Apartments development property consists of two (2) generally irregular shaped tax lots (TL's 900 and 1000) which encompass a total plan area of approximately 15.04 acres. The proposed Vista Loop Apartments development property is roughly located to the southwest of Highway 26 and to the southwest of the intersection with SE Vista Loop Drive. The subject property is presently unimproved. However, we understand that the subject property was previously improved and contained two (2) single-family residential homes the northwesterly and southeasterly portions of the subject site. Surface vegetation across the site generally consists of a light to moderate growth of grass, weeds and brush as well as numerous small to large sized trees. Additionally, the northeasterly portion of the subject property contains an existing seasonal drainage basin.

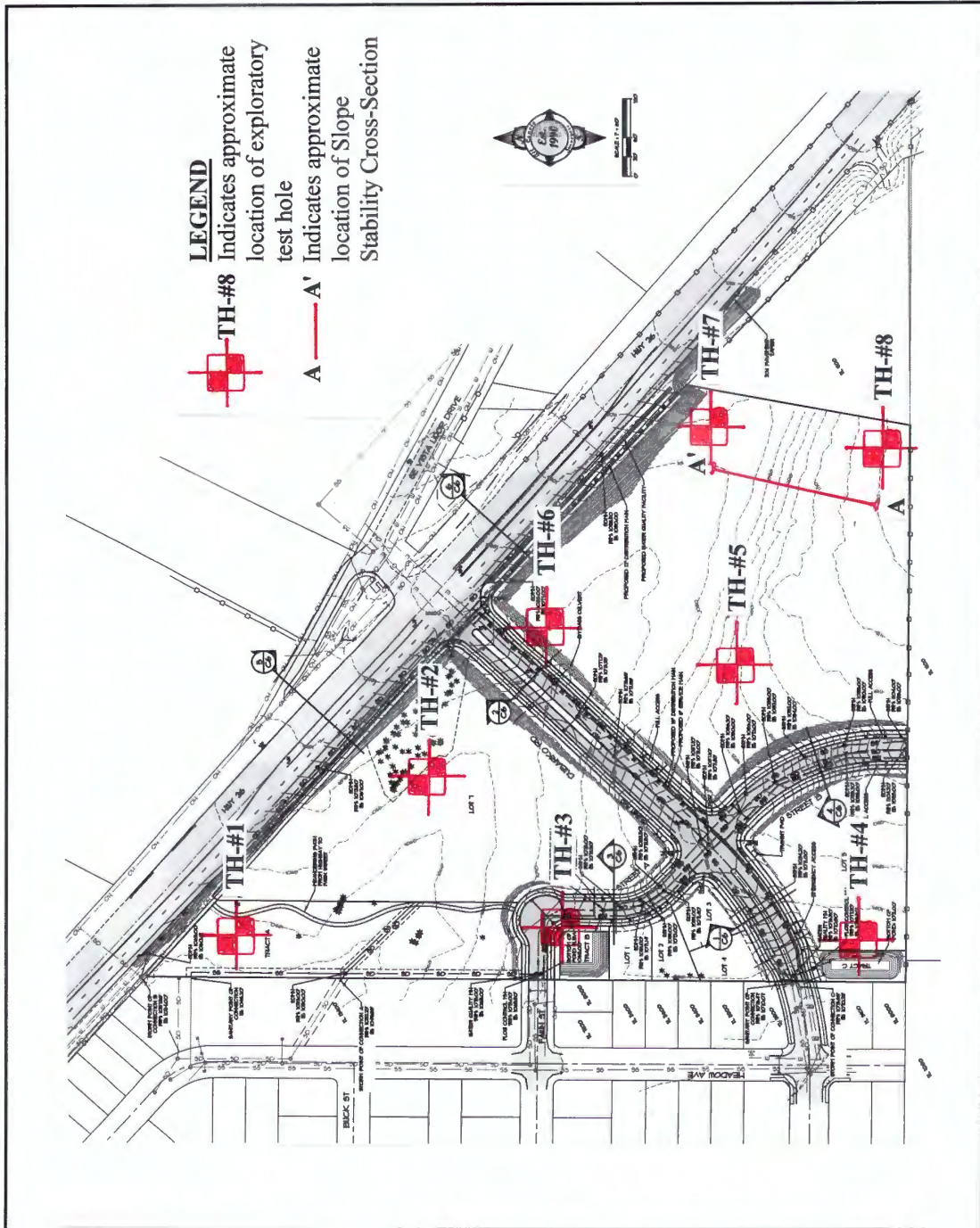
Topographically, the subject site is characterized as gently sloping terrain (i.e., 5 to 30 percent) descending downward towards the north and/or northwest with overall topographic relief estimated at about seventy (70) feet and ranges from a low about Elevation 1052 feet near the northwesterly corner of the subject site to a high of about Elevation 1123 near the southeasterly corner of the site.

### **Subsurface Soil Conditions**

Our understanding of the subsurface soil conditions underlying the site was developed by means of eight (8) exploratory test pits excavated to depths ranging from about six (6) to seven (7) feet beneath existing site grades on October 20, 2020 with a John Deere 200C track-mounted excavator. The location of the exploratory test pits were located in the field by marking off distances from existing and/or known site features and are shown in relation to the existing site features and/or site improvements on the Site Exploration Plan, Figure No. 2. Detailed logs of the test pit explorations, presenting conditions encountered at each location explored, are presented in the Appendix, Figure No's. A-4 through A-7.

The exploratory test pit excavations were observed by staff from Redmond Geotechnical Services, LLC who logged each of the test pit explorations and obtained representative samples of the subsurface soils encountered across the site. Additionally, the elevation of the exploratory test pit excavations were referenced from a site topographic survey and should be considered as approximate. All subsurface soils encountered at the site and/or within the exploratory test pit excavations were logged and classified in general conformance with the Unified Soil Classification System (USCS) which is outlined on Figure No. A-3.

The test pit explorations revealed that the subject site is underlain by native soil deposits comprised of residual soils and/or highly weathered bedrock deposits composed of a surficial layer of dark brown, wet, soft, organic, sandy, clayey silt topsoil materials to depths of about 10 to 16 inches. These surficial topsoil materials were in turn underlain by medium to reddish-brown, very moist, medium stiff to stiff, sandy, clayey silt to the maximum depth explored of about seven (7) feet beneath the existing site and/or surface grades.



**SITE EXPLORATION PLAN**

**VISTA LOOP APARTMENTS  
Tax Lot's 600, 700, 900 and 1000**

Project No. 1861.001.G

Figure No. 2



These sandy, clayey silt subgrade soils and/or residual soils (highly weathered bedrock deposits) are best characterized by relatively moderate strength and low to moderate compressibility.

### **Groundwater**

Groundwater was not encountered within any of the exploratory test pit explorations (TH-#1 through TH-#8) at the time of excavation to depths of at least 7.0 feet beneath existing surface grades except. However, the northerly portion of the subject property contain existing seasonal drainage basin. In this regard, groundwater elevations at the site may fluctuate seasonally in accordance with rainfall conditions and/or associated with runoff across the site as well as changes in site utilization. As such, we are generally of the opinion that the static water levels and/or surface water ponding observed and/or not observed during our recent field exploration work generally reflect the seasonal groundwater level(s) at and/or beneath the site.

### **INFILTRATION TESTING**

We performed two (2) field infiltration tests at the site on October 20, 2020. The infiltration tests were performed in test holes TH-#3 and TH-#4 at depths of between four (4) and five (5) feet beneath the existing site and/or surface grades. The subgrade soils encountered in the infiltration test hole consisted of sandy, clayey silt. The infiltration testing was performed in general conformance with current EPA and/or the City of Sandy/Clackamas County Encased Falling Head test method which consisted of advancing a 6-inch diameter PVC pipe approximately 6 inches into the exposed soil horizon at each test location. Using a steady water flow, water was discharged into the pipe and allowed to penetrate and saturate the subgrade soils. The water level was adjusted over a two (2) hour period and allowed to achieve a saturated subgrade soil condition consistent with the bottom elevation of the surrounding test pit excavation. Following the required saturating period, water was again added into the PVC pipe and the time and/or rate at which the water level dropped was monitored and recorded. Each measurable drop in the water level was recorded until a consistent infiltration rate was observed and/or repeated.

Based on the results of the field infiltration testing at the site, we have found that the native sandy, clayey silt subgrade soil deposits possess an ultimate infiltration rate on the order of about 0.1 to 0.2 inches per hour (in/hr).

### **LABORATORY TESTING**

Representative samples of the on-site subsurface soils were collected at selected depths and intervals from various test pit excavations and returned to our laboratory for further examination and testing and/or to aid in the classification of the subsurface soils as well as to help evaluate and identify their engineering strength and compressibility characteristics. The laboratory testing consisted of visual and textural sample inspection, moisture content and dry density determinations, maximum dry density and optimum moisture content, gradation analyses and Atterberg Limits as well as direct shear strength and "R"-value tests. Results of the various laboratory tests are presented in the Appendix, Figure No's. A-8 through A-12.

## **SEISMICITY AND EARTHQUAKE SOURCES**

The seismicity of the southwest Washington and northwest Oregon area, and hence the potential for ground shaking, is controlled by three separate fault mechanisms. These include the Cascadia Subduction Zone (CSZ), the mid-depth intraplate zone, and the relatively shallow crustal zone. Descriptions of these potential earthquake sources are presented below.

The CSZ is located offshore and extends from northern California to British Columbia. Within this zone, the oceanic Juan de Fuca Plate is being subducted beneath the continental North American Plate to the east. The interface between these two plates is located at a depth of approximately 15 to 20 kilometers (km). The seismicity of the CSZ is subject to several uncertainties, including the maximum earthquake magnitude and the recurrence intervals associated with various magnitude earthquakes. Anecdotal evidence of previous CSZ earthquakes has been observed within coastal marshes along the Washington and Oregon coastlines. Sequences of interlayered peat and sands have been interpreted to be the result of large Subduction zone earthquakes occurring at intervals on the order of 300 to 500 years, with the most recent event taking place approximately 300 years ago. A study by Geomatrix (1995) and/or USGS (2008) suggests that the maximum earthquake associated with the CSZ is moment magnitude ( $M_w$ ) 8 to 9. This is based on an empirical expression relating moment magnitude to the area of fault rupture derived from earthquakes that have occurred within Subduction zones in other parts of the world. An  $M_w$  9 earthquake would involve a rupture of the entire CSZ. As discussed by Geomatrix (1995) this has not occurred in other subduction zones that have exhibited much higher levels of historical seismicity than the CSZ. However, the 2008 USGS report has assigned a probability of 0.67 for a  $M_w$  9 earthquake and a probability of 0.33 for a  $M_w$  8.3 earthquake. For the purpose of this study an earthquake of  $M_w$  9.0 was assumed to occur within the CSZ.

The intraplate zone encompasses the portion of the subducting Juan de Fuca Plate located at a depth of approximately 30 to 50 km below western Washington and western Oregon. Very low levels of seismicity have been observed within the intraplate zone in western Oregon and western Washington. However, much higher levels of seismicity within this zone have been recorded in Washington and California. Several reasons for this seismic quiescence were suggested in the Geomatrix (1995) study and include changes in the direction of Subduction between Oregon, Washington, and British Columbia as well as the effects of volcanic activity along the Cascade Range. Historical activity associated with the intraplate zone includes the 1949 Olympia magnitude 7.1 and the 1965 Puget Sound magnitude 6.5 earthquakes. Based on the data presented within the Geomatrix (1995) report, an earthquake of magnitude 7.25 has been chosen to represent the seismic potential of the intraplate zone.

The third source of seismicity that can result in ground shaking within the Vancouver and southwest Washington area is near-surface crustal earthquakes occurring within the North American Plate. The historical seismicity of crustal earthquakes in this area is higher than the seismicity associated with the CSZ and the intraplate zone. The 1993 Scotts Mills (magnitude 5.6) and Klamath Falls (magnitude 6.0), Oregon earthquakes were crustal earthquakes.

### **Liquefaction**

Seismic induced soil liquefaction is a phenomenon in which loose, granular soils and some silty soils, located below the water table, develop high pore water pressures and lose strength due to ground vibrations induced by earthquakes. Soil liquefaction can result in lateral flow of material into river channels, ground settlements and increased lateral and uplift pressures on underground structures. Buildings supported on soils that have liquefied often settle and tilt and may displace laterally. Soils located above the ground water table cannot liquefy, but granular soils located above the water table may settle during the earthquake shaking.

Our review of the subsurface soil test pit logs from our exploratory field explorations (TH-#1 through TH-#8) and laboratory test results indicate that the site is generally underlain by medium stiff to stiff, sandy, clayey silt residual soils and/or highly weathered bedrock deposits to depths of at least 7.0 feet beneath existing site grades. Additionally, groundwater was generally not encountered within any of the exploratory test pit excavations (TH-#1 through TH-#8) at the site during our field exploration work.

As such, due to the medium stiff to stiff and/or cohesive nature of the sandy, clayey silt subgrade soils and/or highly weathered bedrock deposits beneath the site, it is our opinion that the native clayey, sandy silt subgrade soil and/or highly weathered bedrock deposits located beneath the subject site have a very low potential for liquefaction during the design earthquake motions previously described.

### **Landslides**

No ancient and/or active landslides were observed or are known to be present on the subject site. Additionally, the subject property does not contain any steep slopes (i.e., greater than 40 percent). As such, development of the subject site into the planned residential development does not appear to present a potential geologic and/or landslide hazard provided that the site grading and development activities conform with the recommendations presented within this report.

### **Surface Rupture**

Although the site is generally located within a region of the country known for seismic activity, no known faults exist on and/or immediately adjacent to the subject site. As such, the risk of surface rupture due to faulting is considered negligible.

### **Tsunami and Seiche**

A tsunami, or seismic sea wave, is produced when a major fault under the ocean floor moves vertically and shifts the water column above it. A seiche is a periodic oscillation of a body of water resulting in changing water levels, sometimes caused by an earthquake. Tsunami and seiche are not considered a potential hazard at this site because the site is not near to the coast and/or there are no adjacent significant bodies of water.

### **Flooding and Erosion**

Stream flooding is a potential hazard that should be considered in lowland areas of Clackamas County and Sandy. The FEMA (Federal Emergency Management Agency) flood maps should be reviewed as part of the design for the proposed new residential structures and site improvements. Elevations of structures on the site should be designed based upon consultants reports, FEMA (Federal Emergency Management Agency), and Clackamas County requirements for the 100-year flood levels of any nearby creeks, streams and/or drainage basins.

### **SLOPE STABILITY ANALYSIS**

For the purpose of evaluating slope stability at the subject site, we performed quantitative slope stability modeling and analyses based upon the existing site conditions and/or the proposed site development plan.

Quantitative slope stability modeling and analyses were performed to evaluate slope stability on the site under the existing and/or post construction in-situ conditions using Slide 7.0 computer program developed by Rocscience, Inc. of Toronto, Ontario, Canada. This numerical analysis program utilizes a two-dimensional limiting equilibrium method to calculate the factor of safety of a potential slip surface, and incorporates search routines to identify the most critical potential failure surfaces for the case(s) analyzed. Factors of safety were calculated using Bishop and Janbu method of slices.

Proposed residential development at the subject site is anticipated to be constructed at and/or above the existing in-situ soil conditions of the existing gently descending slope(s) at the site and were modeled as a two (2) layer system with the upper layer as native, stiff, sandy, clayey silt soil and the lower layer as the existing (native) very moist, very stiff, sandy, clayey silt and/or residual soils encountered in test holes TH-#1 through TH-#8. Site and slope topography, subsurface geometry, and other site conditions modeled in the analyses are based on a topographic map provided by the client and/or our field measurements. In our analysis, we considered potential groundwater levels to be located greater than 30 feet beneath the site.

For stability calculations, the potential failure model was considered primarily as circular sliding along a basal shear surface. Shear strength parameters used in the model were selected based on soil conditions encountered in the test pits, SPT N-value correlations, and our local experience with similar soil types and geologic conditions. The results of our slope stability analyses for the proposed single-family residential structures constructed above the in-situ subgrade soil conditions on structural fill soils are summarized in Table 2. The slope stability analyses cross-section is presented as an attachment to this report in Appendix B. The location of the cross-section used is indicated on the Site Exploration Plan, Figure No. 2.



**Table 1 - Summary of Estimated In-Situ/Fill Soil Strength Parameters**

Geologic Unit	Wet Unit Weight (pcf)	Friction Angle	Cohesion (psf)
Stiff, andy, clayey SILT (ML)	110	24	450
Very stiff, sandy, clayey SILT (ML)	110	26	350

**Table 2 - Summary of Slope Stability Analyses for In-Situ/Fill Soil Conditions with Proposed Development**

Pre-Construction	Factor of Safety (Static)	Factor of Safety (Seismic)
Cross-Section A-A <sup>1</sup>	4.626	1.857

The results of the quantitative slope stability modeling and analysis performed using Slide 7.0 computer program indicated an existing in-situ and/or post construction slope stability factor of safety (FS) under static and seismic loading greater than 1.5 and 1.2 (see Slope Stability Results in Appendix B). In our opinion, the calculated factor of safety is adequate for the proposed residential construction and development of the subject site as we understand it.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **General**

Based on the results of our field explorations, laboratory testing, and engineering analyses, it is our opinion that the site is presently stable and suitable for the proposed new Vista Loop Apartments development and its associated site improvements provided that the recommendations contained within this report are properly incorporated into the design and construction of the Vista Loop Apartments development project.

The primary features of concern at the site are 1) the presence of highly moisture sensitive clayey and silty subgrade soils across the site, 2) the presence of gently steep sloping site conditions across the site and 3) the relatively low infiltration rates anticipated within the near surface clayey and silty subgrade soils.

With regard to the moisture sensitive clayey and silty subgrade soils, we are generally of the opinion that all site grading and earthwork activities be scheduled for the drier summer months which is typically June through September.

In regards to the gently sloping site conditions across the site, we are of the opinion that site grading and/or structural fill placement should be minimized where possible and should generally limit cuts and/or fills to about ten (10) feet unless approved by the Geotechnical Engineer. Additionally, where existing site slopes and/or surface grades exceed about 20 percent (1V:5H) and in order to construct the proposed new site improvements, benching and keying of all fills into the natural site slopes will be required. Further, due to the presence of the existing seasonal drainage basin across the northerly portion of the site, the use of subdrains may be required beneath all structural fills and/or within all fill slopes

With regard to the relatively low infiltration rates anticipated within the clayey and silty subgrade soils beneath the site, we generally do not recommend any storm water detention and/or infiltration within structural and/or embankment fills. However, storm water detention and some infiltration may be feasible within storm water detention basins excavated into the existing medium stiff to stiff, sandy, clayey silt residual soils across the lower westerly portion of the site. In this regard, we recommend that all proposed storm water detention and/or infiltration systems for the project be reviewed and approved by Redmond Geotechnical Services, LLC.

The following sections of this report provide specific recommendations regarding subgrade preparation and grading as well as foundation and floor slab design and construction for the new Vista Loop Apartments development project.

### **Site Preparation**

As an initial step in site preparation, we recommend that the proposed new Vista Loop Apartments development site as well as any associated structural and/or site improvement area(s) be stripped and cleared of all existing improvements, any existing unsuitable fill materials, surface debris, existing vegetation, topsoil materials, and/or any other deleterious materials present at the time of construction. In general, we envision that the site stripping to remove existing vegetation and topsoil materials will generally be about 10 to 14 inches. However, localized areas requiring deeper removals, such as any existing undocumented and/or unsuitable fill materials as well as old foundation remnants, will likely be encountered and should be evaluated at the time of construction by the Geotechnical Engineer. The stripped and cleared materials should be properly disposed of as they are generally considered unsuitable for use/reuse as fill materials.

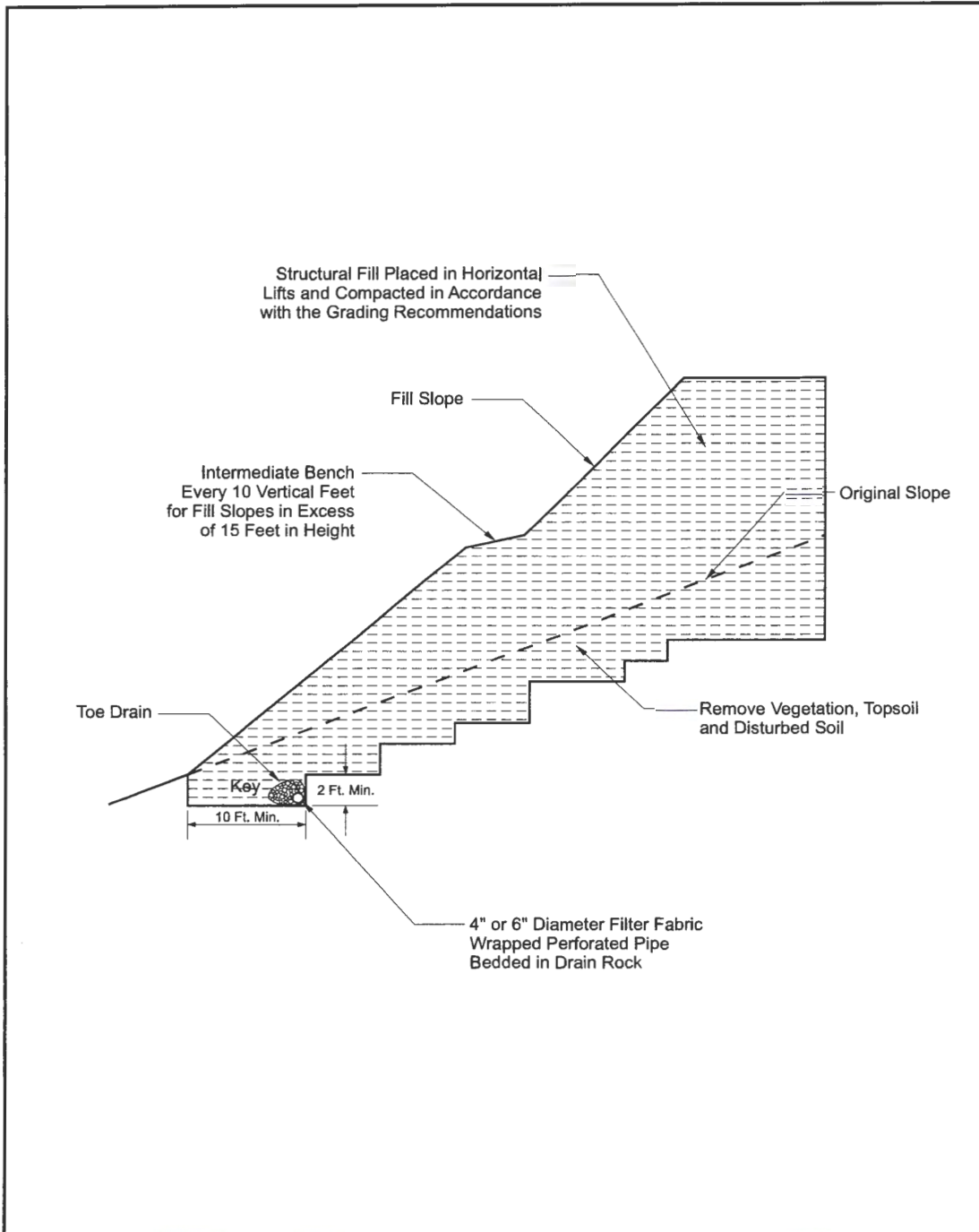
Following the completion of the site stripping and clearing work and prior to the placement of any required structural fill materials and/or structural improvements, the exposed subgrade soils within the planned structural improvement area(s) should be inspected and approved by the Geotechnical Engineer and possibly proof-rolled with a half and/or fully loaded dump truck. Areas found to be soft or otherwise unsuitable should be over-excavated and removed or scarified and recompacted as structural fill. During wet and/or inclement weather conditions, proof rolling and/or scarification and recompaction as noted above may not be appropriate.

The on-site native sandy, clayey silt subgrade soil materials are generally considered suitable for use/reuse as structural fill materials provided that they are free of organic materials, debris, and rock fragments in excess of about 6 inches in dimension. However, if site grading is performed during wet or inclement weather conditions, the use of some of the on-site native soil materials which contain significant silt and clay sized particles will be difficult at best. In this regard, during wet or inclement weather conditions, we recommend that an import structural fill material be utilized which should consist of a free-draining (clean) granular fill (sand & gravel) containing no more than about 5 percent fines. Representative samples of the materials which are to be used as structural fill materials should be submitted to the Geotechnical Engineer and/or laboratory for approval and determination of the maximum dry density and optimum moisture content for compaction.

In general, all site earthwork and grading activities should be scheduled for the drier summer months (June through September) if possible. However, if wet weather site preparation and grading is required, it is generally recommended that the stripping of topsoil materials be accomplished with a tracked excavator utilizing a large smooth-toothed bucket working from areas yet to be excavated. Additionally, the loading of strippings into trucks and/or protection of moisture sensitive subgrade soils will also be required during wet weather grading and construction. In this regard, we recommend that areas in which construction equipment will be traveling be protected by covering the exposed subgrade soils with a geotextile fabric such as Mirafi FW404 followed by at least 12 inches or more of crushed aggregate base rock. Further, the geotextile fabric should have a minimum Mullen burst strength of at least 250 pounds per square inch for puncture resistance and an apparent opening size (AOS) between the U.S. Standard No. 70 and No. 100 sieves.

All structural fill materials placed within the new building and/or pavement areas should be moistened or dried as necessary to near (within 3 percent) optimum moisture conditions and compacted by mechanical means to a minimum of 92 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Structural fill materials should be placed in lifts (layers) such that when compacted do not exceed about 8 inches. Additionally, all fill materials placed within five (5) lineal feet of the perimeter (limits) of the proposed single-family and/or multi-family structures and/or pavements should be considered structural fill. Additionally, due to the sloping site conditions, we recommend that all structural fill materials planned in areas where existing surface and/or slope gradients exceed about 20 percent (1V:5H) be properly benched and/or keyed into the native (natural) slope subgrade soils. In general, a bench width of about eight (8) to ten (10) feet and a keyway depth of about one (1) to one and one-half (1.5) feet is recommended (see Typical Key and Bench Fill Slope Detail, Figure No. 3). However, the actual bench width and keyway depth should be determined at the time of construction by the Geotechnical Engineer. Further, all fill slopes should be constructed with a finish slope surface gradient no steeper than about 2H:1V. All aspects of the site grading, including a review of the proposed site grading plan(s), should be approved and/or monitored by a representative of Redmond Geotechnical Services, LLC.

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**TYPICAL KEY AND BENCH FILL SLOPE DETAIL**

Project No. 1861.001.G	<b>VISTA LOOP APARTMENTS Tax Lot's 600, 700, 900 and 1000</b>	Figure No. 3
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### **Foundation Support**

Based on the results of our investigation, it is our opinion that the site of the proposed new Vista Loop Apartments development is suitable for support of the planned single- and/or three-story wood-frame structures provided that the following foundation design recommendations are followed. The following sections of this report present specific foundation design and construction recommendations for the planned new single-family and/or multi-family structures.

#### **Shallow Foundations**

In general, conventional shallow continuous (strip) footings and individual (spread) column footings may be supported by approved native (untreated) subgrade soil materials and/or clayey silt structural fill soils based on an allowable contact bearing pressure of about 2,000 pounds per square foot (psf). This recommended allowable contact bearing pressure is intended for dead loads and sustained live loads and may be increased by one-third for the total of all loads including short-term wind or seismic loads. In general, continuous strip footings should have a minimum width of at least 16 inches and be embedded at least 18 inches below the lowest adjacent finish grade (includes frost protection). Individual column footings (where required) should be embedded at least 18 inches below grade and have a minimum width of at least 24 inches. Additionally, if foundation excavation and construction work is planned to be performed during wet and/or inclement weather conditions, we recommend that a 2- to 4-inch layer of compacted crushed rock be used to help protect the exposed foundation bearing surfaces until the placement of concrete.

Total and differential settlements of foundations constructed as recommended above and supported by approved native subgrade soils or by properly compacted structural fill materials are expected to be well within the tolerable limits for this type of wood-frame structure and should generally be less than about 1-inch and 1/2-inch, respectively.

Allowable lateral frictional resistance between the base of the footing element and the supporting subgrade bearing soil can be expressed as the applied vertical load multiplied by a coefficient of friction of 0.30 and 0.45 for native silty subgrade soils and/or import gravel fill materials, respectively. In addition, lateral loads may be resisted by passive earth pressures on footings poured "neat" against in-situ (native) subgrade soils or properly backfilled with structural fill materials based on an equivalent fluid density of 300 pounds per cubic foot (pcf). This recommended value includes a factor of safety of approximately 1.5 which is appropriate due to the amount of movement required to develop full passive resistance.

#### **Floor Slab Support**

In order to provide uniform subgrade reaction beneath concrete slab-on-grade floors, we recommend that the floor slab area be underlain by a minimum of 6 inches of free-draining (less than 5 percent passing the No. 200 sieve), well-graded, crushed rock. The crushed rock should help provide a capillary break to prevent migration of moisture through the slab.



However, additional moisture protection can be provided by using a 10-mil polyolefin geo-membrane sheet such as StegoWrap.

The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Where floor slab subgrade materials are undisturbed, firm and stable and where the underslab aggregate base rock section has been prepared and compacted as recommended above, we recommend that a modulus of subgrade reaction of 150 pci be used for design.

**Retaining/Below Grade Walls**

Retaining and/or below grade walls should be designed to resist lateral earth pressures imposed by native soils or granular backfill materials as well as any adjacent surcharge loads. For walls which are unrestrained at the top and free to rotate about their base, we recommend that active earth pressures be computed on the basis of the following equivalent fluid densities:

**Non-Restrained Retaining Wall Pressure Design Recommendations**

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Silt (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	35	30
3H:1V	60	50
2H:1V	90	80

For walls which are fully restrained at the top and prevented from rotation about their base, we recommend that at-rest earth pressures be computed on the basis of the following equivalent fluid densities:

**Restrained Retaining Wall Pressure Design Recommendations**

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Silt (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	45	35
3H:1V	65	60
2H:1V	95	90

The above recommended values assume that the walls will be adequately drained to prevent the buildup of hydrostatic pressures. Where wall drainage will not be present and/or if adjacent surcharge loading is present, the above recommended values will be significantly higher. For seismic loading, we recommend an additional uniform earth pressure of 8H where H is the height of the wall in feet.

Backfill materials behind walls should be compacted to 90 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Special care should be taken to avoid over-compaction near the walls which could result in higher lateral earth pressures than those indicated herein. In areas within three (3) to five (5) feet behind walls, we recommend the use of hand-operated compaction equipment.

### Pavements

Flexible pavement design for the proposed new public street improvements as well as the proposed new private drives and parking area improvements for the Vista Loop Apartments development was determined in accordance with the City of Sandy and/or Clackamas County Department of Public Works standards.

The subgrade soil samples collected at the site were tested in the laboratory in accordance with the ASTM Vol. 4.08 Part D-2844-69 (AASHTO T-190-93) test method for the determination of the subgrade soil "R"-value and expansion pressure. The results of the "R"-value testing was then converted to an equivalent Resilient Modulus ( $M_{RSG}$ ) in accordance with current AASHTO methodology. The results of the laboratory "R"-value tests revealed that the subgrade soils have an apparent "R"-value of between 29 and 31 with an average "R"-value of 30 (see Figure No. A-12). Using the current AASHTO methodology for converting "R"-value to Resilient Modulus ( $M_{RSG}$ ), the subgrade soils have a Resilient Modulus ( $M_{RSG}$ ) of about 6,070 psi which is classified a "Fair" ( $M_{RSG}$  = 5,000 psi to 10,000 psi). Based on the above, we recommend that the asphaltic concrete pavement section(s) for the new The Views planned development areas at the site consist of the following:

### Collector Streets

The following documents and/or design input parameters were used to help determine the flexible pavement section design for improvements to new and/or existing Collector Streets:

- . **Street Classification:** Collector Street
- . **Design Life:** 20 years
- . **Serviceability:** 4.2 initial, 2.5 terminal
- . **Traffic Loading Data:** 1,000,000 18-kip EAL's
- . **Reliability Level:** 90%
- . **Drainage Coefficient:** 1.0 (asphalt), 0.8 (aggregate)
- . **Asphalt Structural Coefficient:** 0.41
- . **Aggregate Structural Coefficient:** 0.10

Based on the above design input parameters and using the design procedures contained within the AASHTO 1993 Design of Pavement Structures Manual, a Structural Number (SN) of 4.1 was determined. In this regard, we recommend the following flexible pavement section for the new improvements to new and/or existing Collector Streets:

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<u>Material Type</u>	<u>Pavement Section (inches)</u>
Asphaltic Concrete	5.0
Aggregate Base Rock	14.0

**Local Residential Streets**

The following documents and/or design input parameters were used to help determine the flexible pavement section design for new local residential streets:

- . **Street Classification:** Local Residential Street
- . **Design Life:** 25 years
- . **Serviceability:** 4.2 initial, 2.5 terminal
- . **Traffic Loading Data:** 100,000 18-kip EAL's
- . **Reliability Level:** 90%
- . **Drainage Coefficient:** 1.0 (asphalt), 0.8 (aggregate)
- . **Asphalt Structural Coefficient:** 0.41
- . **Aggregate Structural Coefficient:** 0.10

Based on the above design input parameters and using the design procedures contained within the AASHTO 1993 Design of Pavement Structures Manual, a Structural Number (SN) of 2.6 was determined. In this regard, we recommend the following flexible pavement section for the construction of new Local Residential Streets:

<u>Material Type</u>	<u>Pavement Section (inches)</u>
Asphaltic Concrete	4.0
Aggregate Base Rock	10.0

**Private Access Drives and Parking Areas**

We recommend that the asphaltic concrete pavement section(s) for any private access drives and parking areas associated with The Views planned development areas consist of the following:

	<u>Asphaltic Concrete Thickness (inches)</u>	<u>Crushed Base Rock Thickness (inches)</u>
Automobile Parking Areas	3.0	8.0
Automobile Drive Areas	3.5	10.0

Note: Where heavy vehicle traffic is anticipated such as those required for fire and/or garbage trucks, we recommend that the automobile drive area pavement section be increased by adding 0.5 inches of asphaltic concrete and 2.0 inches of aggregate base rock. Additionally, the above recommended flexible pavement section(s) assumes a design life of 20 years.

#### **Pavement Subgrade, Base Course & Asphalt Materials**

The above recommended pavement section(s) were based on the design assumptions listed herein and on the assumption that construction of the pavement section(s) will be completed during an extended period of reasonably dry weather. All thicknesses given are intended to be the minimum acceptable. Increased base rock sections and the use of a woven geotextile fabric may be required during wet and/or inclement weather conditions and/or in order to adequately support construction traffic and protect the subgrade during construction. Additionally, the above recommended pavement section(s) assume that the subgrade will be prepared as recommended herein, that the exposed subgrade soils will be properly protected from rain and construction traffic, and that the subgrade is firm and unyielding at the time of paving. Further, it assumes that the subgrade is graded to prevent any ponding of water which may tend to accumulate in the base course.

Pavement base course materials should consist of well-graded 1-1/2 inch and/or 3/4-inch minus crushed base rock having less than 5 percent fine materials passing the No. 200 sieve. The base course and asphaltic concrete materials should conform to the requirements set forth in the latest edition of the Oregon Department of Transportation, Standard Specifications for Highway Construction. The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. The asphaltic concrete paving materials should be compacted to at least 92 percent of the theoretical maximum density as determined by the ASTM D-2041 (Rice Gravity) test method.

#### **Wet Weather Grading and Soft Spot Mitigation**

Construction of the proposed new paved site improvements is generally recommended during dry weather. However, during wet weather grading and construction, excavation to subgrade can proceed during periods of light to moderate rainfall provided that the subgrade remains covered with aggregate. A total aggregate thickness of 8- to 12-inches may be necessary to protect the subgrade soils from heavy construction traffic. Construction traffic should not be allowed directly on the exposed subgrade but only atop a sufficient compacted base rock thickness to help mitigate subgrade pumping. If the subgrade becomes wet and pumps, no construction traffic shall be allowed on the road alignment. Positive site drainage shall be maintained if site paving will not occur before the on-set of the wet season.

Depending on the timing for the project, any soft subgrade found during proof-rolling or by visual observations can either be removed and replaced with properly dried and compacted fill soils or removed and replaced with compacted crushed aggregate. However, and where approved by the Geotechnical Engineer, the soft area may be covered with a bi-axial geogrid and covered with compacted crushed aggregate.

### **Soil Shrink-Swell and Frost Heave**

The results of the laboratory "R"-value tests indicate that the native subgrade soils possess a low to moderate expansion potential. As such, the exposed subgrade soils should not be allowed to completely dry and should be moistened to near optimum moisture content (plus or minus 3 percent) at the time of the placement of the crushed aggregate base rock materials. Additionally, exposure of the subgrade soils to freezing weather may result in frost heave and softening of the subgrade. As such, all subgrade soils exposed to freezing weather should be evaluated and approved by the Geotechnical Engineer prior to the placement of the crushed aggregate base rock materials.

### **Excavation/Slopes**

Temporary excavations of up to about four (4) feet in depth may be constructed with near vertical inclinations. Temporary excavations greater than about four (4) feet but less than eight (8) feet should be excavated with inclinations of at least 1 to 1 (horizontal to vertical) or properly braced/shored. Where excavations are planned to exceed about eight (8) feet, this office should be consulted. All shoring systems and/or temporary excavation bracing for the project should be the responsibility of the excavation contractor. Permanent slopes should be constructed no steeper than about 2H to 1V unless approved by the Geotechnical Engineer.

Depending on the time of year in which trench excavations occur, trench dewatering may be required in order to maintain dry working conditions if the invert elevations of the proposed utilities are located at and/or below the groundwater level. If groundwater is encountered during utility excavation work, we recommend placing trench stabilization materials along the base of the excavation.

Trench stabilization materials should consist of 1-foot of well-graded gravel, crushed gravel, or crushed rock with a maximum particle size of 4 inches and less than 5 percent fines passing the No. 200 sieve. The material should be free of organic matter and other deleterious material and placed in a single lift and compacted until well keyed.

### **Surface Drainage/Groundwater**

We recommend that positive measures be taken to properly finish grade the site so that drainage waters from the residential structures and landscaping areas as well as adjacent properties or buildings are directed away from the new single- and/or multi-family residential structures foundations and/or floor slabs. All roof drainage should be directed into conduits that carry runoff water away from the residential structures to a suitable outfall. Roof downspouts should not be connected to foundation drains. A minimum ground slope of about 2 percent is generally recommended in unpaved areas around the proposed new residential structures.

Groundwater was not encountered at the site within any of the exploratory test pits excavated at the site at the time of excavation to depths of up to 8.0 feet beneath existing site grades. However, the northerly, easterly and southerly portion(s) of the site contain existing seasonal drainage basins. Further, groundwater elevations in the area and/or across the subject property may fluctuate seasonally and may temporarily pond/perch near the ground surface during periods of prolonged rainfall.

As such, based on our current understand of the possible site grading required to bring the subject site to finish design grade(s), we are of the opinion that an underslab drainage system is generally not required for the proposed multi-family residential structures. However, a perimeter foundation drain is recommended for any perimeter footings and/or below grade retaining walls. A typical recommended perimeter footing/retaining wall drain detail is shown on Figure No. 4. Additionally, a subdrain is recommended beneath and/or within all structural fills which are constructed within and/or above the existing seasonal drainage basins. Further, due to our understanding that various storm water detention and/or infiltration basins will be utilized for the project as well as the relatively low infiltration rates of the near surface sandy, clayey silt subgrade soils and/or highly weathered bedrock deposits anticipated within and/or near to the foundation bearing level of the proposed residential structures, we are generally of the opinion that storm water detention basins and/or infiltration systems should not be utilized around and/or up-gradient of the proposed residential structures unless approved by the Geotechnical Engineer.

### **Design Infiltration Rates**

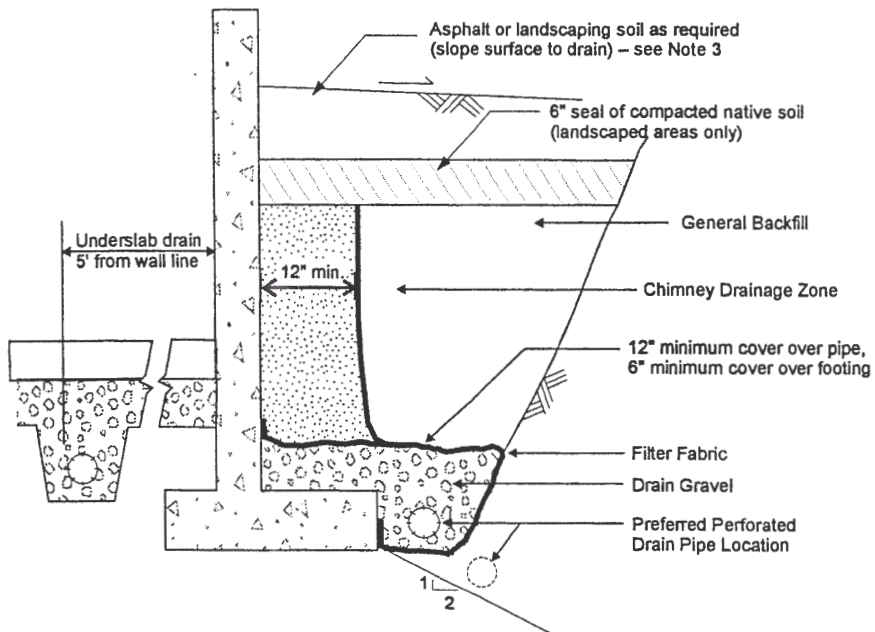
Based on the results of our field infiltration testing, we recommend using the following infiltration rate to design any on-site near surface storm water infiltration and/or disposal systems for the project:

<b>Subgrade Soil Type</b>	<b>Recommended Infiltration Rate</b>
sandy, clayey SILT (ML)	less than 0.1 inches per hour (in/hr)

Note: A safety factor of two (2) was used to calculate the above recommended design infiltration rate. Additionally, given the gradational variability of the on-site sandy, clayey sit subgrade soils beneath the site as well as the anticipation of some site grading for the project, it is generally recommended that field testing be performed during and/or following construction of any on-site storm water infiltration system(s) in order to confirm that the above recommended design infiltration rates are appropriate.

### **Seismic Design Considerations**

Structures at the site should be designed to resist earthquake loading in accordance with the methodology described in the 2019 and/or latest edition of the State of Oregon Structural Specialty Code (OSSC), ASCE 7-16 and/or Amendments to the 2018 International Building Code (IBC).



**SCHEMATIC - NOT TO SCALE**

**NOTES:**

1. Filter Fabric to be non-woven geotextile (Amoco 4545, Mirafi 140N, or equivalent)
2. Lay perforated drain pipe on minimum 0.5% gradient, widening excavation as required. Maintain pipe above 2:1 slope, as shown.
3. All-granular backfill is recommended for support of slabs, pavements, etc. (see text for structural fill).
4. Drain gravel to be clean, washed ¾" to 1½" gravel.
5. General backfill to be on-site gravels, or ¾"-0 or 1½"-0 crushed rock compacted to 92% Modified Proctor (AASHTO T-180).
6. Chimney drainage zone to be 12" wide (minimum) zone of clean washed, medium to coarse sand or drain gravel if protected with filter fabric. Alternatively, prefabricated drainage structures (Miradrain 6000 or similar) may be used.

**PERIMETER FOOTING/RETAINING WALL DRAIN DETAIL**

Project No. 1861.001.G

**VISTA LOOP APARTMENTS  
Tax Lot's 600, 700, 900 and 1000**

Figure No. 4



The maximum considered earthquake ground motion for short period and 1.0 period spectral response may be determined from the Oregon Structural Specialty Code, ASCE 7-16 and/or from the 2015 National Earthquake Hazard Reduction Program (NEHRP) "Recommended Provisions for Seismic Regulations for New Buildings and Other Structures" published by the Building Seismic Safety Council. We recommend Site Class "D" be used for design. Using this information, the structural engineer can select the appropriate site coefficient values ( $F_a$  and  $F_v$ ) from the 2018 IBC and/or ASCE 7-16 to determine the maximum considered earthquake spectral response acceleration for the project. However, we have assumed the following response spectrum for the project:

**Table 1. ASCE 7-16 Seismic Design Parameters**

Site Class	$S_s$	$S_1$	$F_a$	$F_v$	$S_{MS}$	$S_{M1}$	$S_{DS}$	$S_{D1}$
D	0.705	0.314	1.236	1.986	0.871	0.623	0.581	0.416

Notes: 1.  $S_s$  and  $S_1$  were established based on the ASCE 7-16 mapped maximum considered earthquake spectral acceleration maps for 2% probability of exceedence in 50 years.

2.  $F_a$  and  $F_v$  were established based on the ASCE 7-16 using the selected  $S_s$  and  $S_1$  values.

**CONSTRUCTION MONITORING AND TESTING**

We recommend that **Redmond Geotechnical Services, LLC** be retained to provide construction monitoring and testing services during all earthwork operations for the proposed new Vista Loop Apartments development. The purpose of our monitoring services would be to confirm that the site conditions reported herein are as anticipated, provide field recommendations as required based on the actual conditions encountered, document the activities of the grading contractor and assess his/her compliance with the project specifications and recommendations. It is important that our representative meet with the contractor prior to any site grading to help establish a plan that will minimize costly over-excavation and site preparation work. Of primary importance will be observations made during site preparation and stripping, structural fill placement, footing excavations and construction as well as retaining wall backfill.

**CLOSURE AND LIMITATIONS**

This report is intended for the exclusive use of the addressee and/or their representative(s) to use to design and construct the proposed new single- and/or multi-family residential structures and their associated site improvements described herein as well as to prepare any related construction documents. The conclusions and recommendations contained in this report are based on site conditions as they presently exist and assume that the explorations are representative of the subsurface conditions between the explorations and/or at other locations across the study area. The data, analyses, and recommendations herein may not be appropriate for other structures and/or purposes.

We recommend that parties contemplating other structures and/or purposes contact our office. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report. Additionally, the above recommendations are contingent on Redmond Geotechnical Services, LLC being retained to provide all site inspections and construction monitoring services for this project. Redmond Geotechnical Services, LLC will not assume any responsibility and/or liability for any engineering judgment, inspection and/or testing services performed by others.

It is the owners/developers responsibility for insuring that the project designers and/or contractors involved with this project implement our recommendations into the final design plans, specifications and/or construction activities for the project. Further, in order to avoid delays during construction, we recommend that the final design plans and specifications for the project be reviewed by our office to evaluate as to whether our recommendations have been properly interpreted and incorporated into the project.

If during any future site grading and construction, subsurface conditions different from those encountered in the explorations are observed or appear to be present beneath excavations, we should be advised immediately so that we may review these conditions and evaluate whether modifications of the design criteria are required. We also should be advised if significant modifications of the proposed site development are anticipated so that we may review our conclusions and recommendations.

#### **LEVEL OF CARE**

The services performed by the Geotechnical Engineer for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in the area under similar budget and time restraints. No warranty or other conditions, either expressed or implied, is made.



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# **Appendix "A"**

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**Test Pit Logs and Laboratory Test Data**

## **APPENDIX**

### **FIELD EXPLORATIONS AND LABORATORY TESTING**

#### **FIELD EXPLORATION**

Subsurface conditions at the site were explored by excavating eight (8) exploratory test pits (TH-#1 through TH-#8) on October 20, 2020. The approximate location of the test pit explorations are shown in relation to the existing site features and/or site improvements on the Site Exploration Plan, Figure No. 2.

The test pits were excavated using track-mounted excavating equipment in general conformance with ASTM Methods in Vol. 4.08, D-1586-94 and D-1587-83. The test pits were excavated to depths ranging from about 6.0 to 7.0 feet beneath existing site grades. Detailed logs of the test pits are presented on the Log of Test Pits, Figure No's. A-4 through A-7. The soils were classified in accordance with the Unified Soil Classification System (USCS), which is outlined on Figure No. A-3.

The exploration program was coordinated by a field engineer who monitored the excavating and exploration activity, obtained representative samples of the subsurface soils encountered, classified the soils by visual and textural examination, and maintained continuous logs of the subsurface conditions. Disturbed and/or undisturbed samples of the subsurface soils were obtained at appropriate depths and/or intervals and placed in plastic bags and/or with a thin walled ring sample.

Groundwater was not encountered within any of the exploratory test pits (TH-#1 through TH-#8) at the time of excavating to depths of up to 7.0 feet beneath existing surface grades.

#### **LABORATORY TESTING**

Pertinent physical and engineering characteristics of the soils encountered during our subsurface investigation were evaluated by a laboratory testing program to be used as a basis for selection of soil design parameters and for correlation purposes. Selected tests were conducted on representative soil samples. The program consisted of tests to evaluate the existing (in-situ) moisture-density, maximum dry density and optimum moisture content, Atterberg Limits and gradational characteristics as well as direct shear strength and "R"-value tests.

##### **Dry Density and Moisture Content Determinations**

Density and moisture content determinations were performed on both disturbed and relatively undisturbed samples from the test pit explorations in general conformance with ASTM Vol. 4.08 Part D-216. The results of these tests were used to calculate existing overburden pressures and to correlate strength and compressibility characteristics of the soils. Test results are shown on the test pit logs at the appropriate sample depths.

## A-2

### **Maximum Dry Density**

Two (2) Maximum Dry Density and Optimum Moisture Content tests were performed on representative samples of the on-site sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-1557. This test was conducted to help establish various engineering properties for use as structural fill. The test results are presented on Figure No. A-8.

### **Atterberg Limits**

Two (2) Liquid Limit (LL) and Plastic Limit (PL) tests were performed on representative samples of the sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-4318-85. These tests were conducted to facilitate classification of the soils and for correlation purposes. The test results appear on Figure No. A-9.

### **Gradation Analysis**

Two (2) Gradation analyses were performed on representative samples of the sandy, clayey silt subsurface soils in accordance with ASTM Vol. 4.08 Part D-422. The test results were used to classify the soil in accordance with the Unified Soil Classification System (USCS). The test results are shown graphically on Figure No. A-10.

### **Direct Shear Strength Test**

One (1) Direct Shear Strength test was performed on an undisturbed and/or remolded sample of the sandy, clayey silt subgrade soils at a continuous rate of shearing deflection (0.02 inches per minute) in accordance with ASTM Vol. 4.08 Part D-3080-79. The test results were used to determine engineering strength properties and are shown graphically on Figure No. A-11.

### **"R"-Value Tests**

Two (2) "R"-value tests were performed on remolded samples of the sandy, clayey silt subgrade soils in accordance with ASTM Vol. 4.08 Part D-2844. The test results were used to help evaluate the subgrade soils supporting and performance capabilities when subjected to traffic loading. The test results are shown on Figure No. A-12.

The following figures are attached and complete the Appendix:

Figure No. A-3	Key To Exploratory Test Pit Logs
Figure No's. A-4 through A-7	Log of Test Pits
Figure No. A-8	Maximum Dry Density
Figure No. A-9	Atterberg Limits Test Results
Figure No. A-10	Gradation Test Results
Figure No. A-11	Direct Shear Strength Test Results
Figure No. A-12	Results of "R"-Value Tests
Figure No's. A-13 and A-14	Field Infiltration Test Results

**REDMOND GEOTECHNICAL SERVICES**

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

**DEFINITION OF TERMS**

SILTS AND CLAYS	U.S. STANDARD SERIES SIEVE			CLEAR SQUARE SIEVE OPENINGS			COBBLES	BOULDERS
	200	40	10	4	3/4"	3"		
	SAND			GRAVEL				
	FINE	MEDIUM	COARSE	FINE	COARSE			

**GRAIN SIZES**

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT <sup>†</sup>
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50


CLAYS AND PLASTIC SILTS	STRENGTH <sup>‡</sup>	BLOWS/FOOT <sup>†</sup>
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

**RELATIVE DENSITY**

<sup>†</sup> Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

<sup>‡</sup> Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

**CONSISTENCY**

 <p><b>REDMOND GEOTECHNICAL SERVICES</b> PO BOX 20547 • PORTLAND, OREGON 97294</p>	<b>KEY TO EXPLORATORY TEST PIT LOGS</b>		
	<b>Unified Soil Classification System (ASTM D-2487)</b>		
	VISTA LOOP APARTMENTS 40808 and 41010 Highway 26		
	PROJECT NO.	DATE	Figure A-3
1861.001.G	11/23/20		



BACKHOE COMPANY: Inland Company

BUCKET SIZE: 24 inches

DATE: 10/20/20

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#1 ELEVATION 1058'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
X				35.5	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5	X			40.3		Becomes very stiff
						Total Depth = 7.0 feet No groundwater encountered at time of exploration

						TEST PIT NO. TH-#2 ELEVATION 1067'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
						Total Depth = 6.0 feet No groundwater encountered at time of exploration

**LOG OF TEST PITS**

PROJECT NO. 1861.001.C	VISTA LOOP APARTMENTS	FIGURE NO. A-4
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**REDMOND GEOTECHNICAL SERVICES**



BACKHOE COMPANY: Inland Company      BUCKET SIZE: 24 inches      DATE: 10/20/20

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#3      ELEVATION 1075'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
	X			36.1	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
	X			41.7		
						Total Depth = 7.0 feet No groundwater encountered at time of exploration

TEST PIT NO. TH-#4      ELEVATION 1082'±						
DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
0					ML	Dark brown, wet, very soft, highly organic, sandy, clayey SILT (Topsoil)
	X			35.5	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
						Total Depth = 7.0 feet No groundwater encountered at time of exploration

**LOG OF TEST PITS**

PROJECT NO. 1861,001.G      VISTA LOOP APARTMENTS      FIGURE NO. A-5

**REDMOND GEOTECHNICAL SERVICES**

BACKHOE COMPANY: Inland Company      BUCKET SIZE: 24 inches      DATE: 10/20/20

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#5      ELEVATION 1095'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
					ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
						Total Depth = 6.0 feet No groundwater encountered at time of exploration

TEST PIT NO. TH-#6      ELEVATION 1075'±						
DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						0
	X			34.9	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5	X			41.4		Becomes very stiff
						Total Depth = 7.0 feet No groundwater encountered at time of exploration

**LOG OF TEST PITS**

PROJECT NO. 1861.001.G      VISTA LOOP APARTMENTS      FIGURE NO. A-6

**REDMOND GEOTECHNICAL SERVICES**

BACKHOE COMPANY: Inland Company      BUCKET SIZE: 24 inches      DATE: 10/20/20

DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#7      ELEVATION 1085'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
1	X			35.7	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
10						Total Depth = 6.0 feet No groundwater encountered at time of exploration
15						

TEST PIT NO. TH-#8      ELEVATION 1120'±						
DEPTH (FEET)	BAG SAMPLE	DENSITY TEST	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION
						TEST PIT NO. TH-#8      ELEVATION 1120'±
0					ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
1	X			36.7	ML	Medium to reddish-brown, very moist, stiff, sandy, clayey SILT
5						Becomes very stiff
10						Total Depth = 7.0 feet No groundwater encountered at time of exploration
15						

**LOG OF TEST PITS**

PROJECT NO. 1861.001.G      VISTA LOOP APARTMENTS      FIGURE NO. A-7

**REDMOND GEOTECHNICAL SERVICES**

**MAXIMUM DENSITY TEST RESULTS**

SAMPLE LOCATION	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
TH-#3 @ 2.5'	Medium to reddish-brown, sandy, clayey, SILT (ML)	104.0	28.0

**EXPANSION INDEX TEST RESULTS**

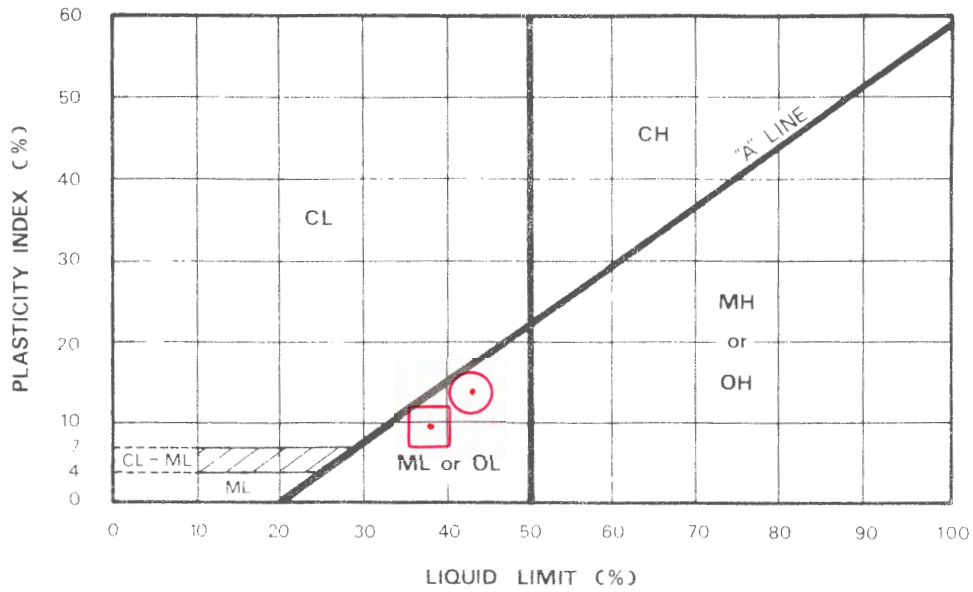
SAMPLE LOCATION	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (pcf)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (%)	EXPANSION INDEX	EXPANSIVE CLASS.

**MAXIMUM DENSITY & EXPANSION INDEX TEST RESULTS**

PROJECT NO.: 1861.001.G	VISTA LOOP APARTMENTS	FIGURE NO.: A-8
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**REDMOND GEOTECHNICAL SERVICES**





KEY SYMBOL	BORING NO	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
	TH-#1	2.0	35.5	38.2	9.9	77.3		ML
	TH-#1	5.0	40.3	42.6	12.7	85.5		ML

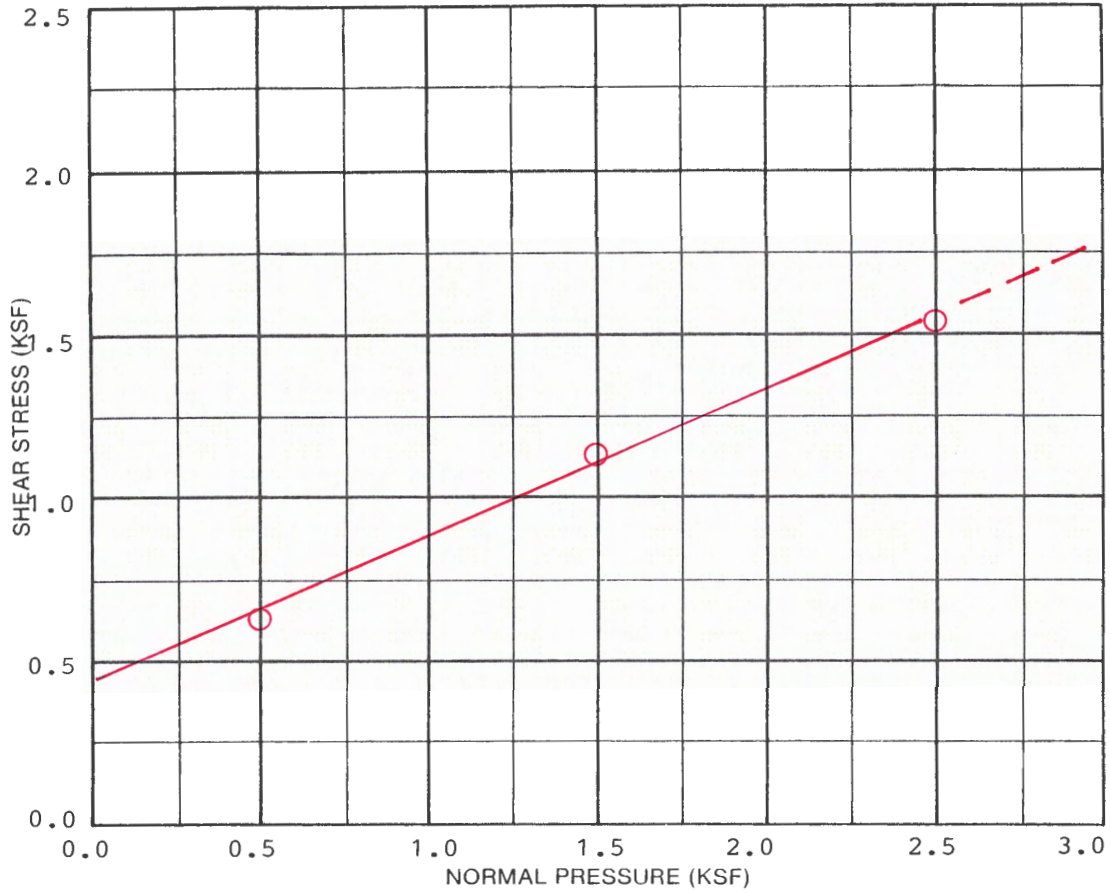
PLASTICITY CHART AND DATA



VISTA LOOP APARTMENTS  
40808 and 41010 Highway 26

PROJECT NO	DATE	Figure A-9
1861.001.G	11/23/20	





SAMPLE DATA	
DESCRIPTION: Medium to reddish-brown sandy, clayey SILT (ML) (Remolded)	
BORING NO.: TH-#3	
DEPTH (ft): 2.5	ELEVATION (ft):
TEST RESULTS	
APPARENT COHESION (C): 450 psf	
APPARENT ANGLE OF INTERNAL FRICTION ( $\phi$ ): 24°	

TEST DATA				
TEST NUMBER	1	2	3	4
NORMAL PRESSURE (KSF)	0.5	1.5	2.5	
SHEAR STRENGTH (KSF)	0.6	1.1	1.5	
INITIAL H <sub>2</sub> O CONTENT (%)	28.0	28.0	28.0	
FINAL H <sub>2</sub> O CONTENT (%)	28.9	23.2	16.6	
INITIAL DRY DENSITY (PCF)	95.0	95.0	95.0	
FINAL DRY DENSITY (PCF)	95.7	98.9	103.3	
STRAIN RATE: 0.02 inches per minute				



DIRECT SHEAR TEST DATA		
VISTA LOOP APARTMENTS 40808 and 41010 <sup>th</sup> Highway 26		
PROJECT NO.	DATE	Figure A-11
1861.001.G	11/23/20	



### RESULTS OF R (RESISTANCE) VALUE TESTS

**SAMPLE LOCATION: TH-#3**

**SAMPLE DEPTH: 2.5 feet bgs**

Specimen	A	B	C
Exudation Pressure (psi)	219	329	431
Expansion Dial (0.0001")	0	1	2
Expansion Pressure (psf)	0	3	8
Moisture Content (%)	17.6	14.4	11.1
Dry Density (pcf)	93.4	98.2	102.6
Resistance Value, "R"	17	30	41
"R"-Value at 300 psi Exudation Pressure = 29			

**SAMPLE LOCATION: TH-#6**

**SAMPLE DEPTH: 2.0 feet bgs**

Specimen	A	B	C
Exudation Pressure (psi)	208	326	439
Expansion Dial (0.0001")	0	1	2
Expansion Pressure (psf)	0	3	8
Moisture Content (%)	17.3	14.1	10.7
Dry Density (pcf)	94.9	99.1	103.7
Resistance Value "R"	19	32	43
"R"-Value at 300 psi Exudation Pressure = 31			

### Division 004 Appendix C - Infiltration Testing

<b>Location:</b> Vista Loop Apartments	<b>Date:</b> October 20, 2020	<b>Test Hole:</b> TH-#3
<b>Depth to Bottom of Hole:</b> 4.0 feet	<b>Hole Diameter:</b> 6 inches	<b>Test Method:</b> Encased Falling Head
<b>Tester's Name:</b> Daniel M. Redmond, P.E., G.E.		
<b>Tester's Company:</b> Redmond Geotechnical Services, LLC		<b>Tester's Contact Number:</b> 503-285-0598
<b>Depth (feet)</b>	<b>Soil Characteristics</b>	
0-1.0	Dark brown Topsoil	
1.0-4.0	Medium to reddish-brown, sandy, clayey SILT (ML)	

Time	Time Interval (Minutes)	Measurement (inches)	Drop in Water (inches)	Infiltration Rate (inches/hour)	Remarks
11:00	0	48.00	----		Filled w/12" water
11:20	20	48.20	0.20	0.60	
11:40	20	48.34	0.14	0.42	
12:00	20	48.45	0.11	0.33	
12:20	20	48.54	0.09	0.27	
12:40	20	48.62	0.08	0.24	
1:00	20	48.69	0.07	0.21	
1:20	20	48.76	0.07	0.21	
1:40	20	48.83	0.07	0.21	

Infiltration Test Data Table

Figure No. A-13

**Division 004 Appendix C - Infiltration Testing**

<b>Location:</b> Vista Loop Apartments	<b>Date:</b> October 20, 2020	<b>Test Hole:</b> TH-#4
<b>Depth to Bottom of Hole:</b> 5.0 feet	<b>Hole Diameter:</b> 6 inches	<b>Test Method:</b> Encased Falling Head
<b>Tester's Name:</b> Daniel M. Redmond, P.E., G.E.		
<b>Tester's Company:</b> Redmond Geotechnical Services, LLC		<b>Tester's Contact Number:</b> 503-285-0598
<b>Depth (feet)</b>	<b>Soil Characteristics</b>	
0-1.0	Dark brown Topsoil	
1.0-5.0	Medium to reddish-brown, sandy, clayey SILT (ML)	

Time	Time Interval (Minutes)	Measurement (inches)	Drop in Water (inches)	Infiltration Rate (inches/hour)	Remarks
11:30	0	60.00	----		Filled w/12" water
11:50	20	60.15	0.15	0.45	
12:10	20	60.25	0.10	0.30	
12:30	20	60.32	0.07	0.21	
12:50	20	60.37	0.05	0.15	
1:10	20	60.41	0.04	0.12	
1:30	20	60.44	0.03	0.09	
1:50	20	60.47	0.03	0.09	
2:10	20	60.50	0.03	0.09	

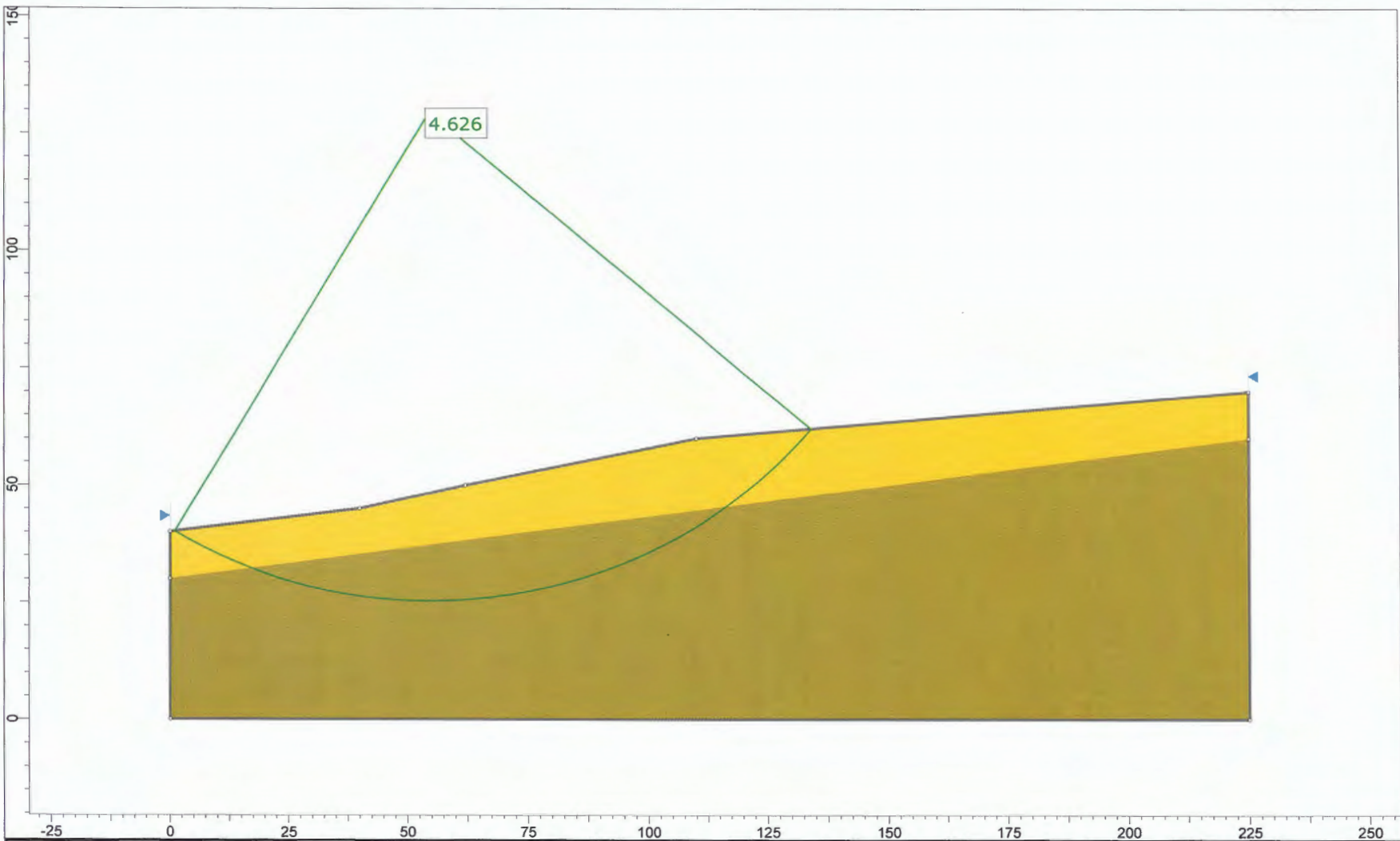
Infiltration Test Data Table


Figure No. A-14

# **Appendix "B"**

**Slope Stability Analysis**





 <small>SLIDEINTERPRET 8.020</small>	<b>Project</b> Vista Loop Apartments			
	<b>Analysis Description</b>			
	<b>Drawn By</b> Daniel M. Redmond, P.E., G.E.	<b>Scale</b> 1:333	<b>Company</b> Redmond Geotechnical Services, LLC	
	<b>Date</b> November 21, 2020		<b>File Name</b> Vista Loop Apartments Static.slmd	

## *Slide Analysis Information*

### *Vista Loop Apartments Static*

#### *Project Summary*

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File Name: Vista Loop Apartments Static.slmd  
 Slide Modeler Version: 8.02  
 Compute Time: 00h:00m:01.150s  
 Project Title: Vista Loop Apartments  
 Author: Daniel M. Redmond, P.E., G.E.  
 Company: Redmond Geotechnical Services, LLC  
 Date Created: November 21, 2020

#### *General Settings*

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Units of Measurement: Imperial Units  
 Time Units: days  
 Permeability Units: feet/second  
 Data Output: Standard  
 Failure Direction: Right to Left

#### *Analysis Options*

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Slices Type: Vertical

##### **Analysis Methods Used**

	Bishop simplified
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

#### *Groundwater Analysis*

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Groundwater Method: Water Surfaces  
 Pore Fluid Unit Weight [lbs/ft3]: 62.4  
 Use negative pore pressure cutoff: Yes  
 Maximum negative pore pressure [psf]: 0  
 Advanced Groundwater Method: None

**Random Numbers**

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Pseudo-random Seed: 10116  
 Random Number Generation Method: Park and Miller v.3

**Surface Options**

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Surface Type: Circular  
 Search Method: Auto Refine Search  
 Divisions along slope: 20  
 Circles per division: 10  
 Number of iterations: 10  
 Divisions to use in next iteration: 50%  
 Composite Surfaces: Disabled  
 Minimum Elevation: Not Defined  
 Minimum Depth: Not Defined  
 Minimum Area: Not Defined  
 Minimum Weight: Not Defined



**Seismic Loading**

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Advanced seismic analysis: No  
 Staged pseudostatic analysis: No

**Materials**

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Property	Material 1	Material 5
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	110	110
Cohesion [psf]	450	350
Friction Angle [°]	24	26
Water Surface	None	None
Ru Value	0	0



## Global Minimums

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### Method: bishop simplified

	FS	4.626110
Center:		54.656, 129.596
Radius:		104.317
Left Slip Surface Endpoint:		1.015, 40.127
Right Slip Surface Endpoint:		134.197, 62.104
Resisting Moment:		1.90519e+07 lb-ft
Driving Moment:		4.11834e+06 lb-ft
Total Slice Area:		2301.38 ft <sup>2</sup>
Surface Horizontal Width:		133.182 ft
Surface Average Height:		17.28 ft

### Method: janbu simplified

	FS	4.243600
Center:		58.497, 104.803
Radius:		81.443
Left Slip Surface Endpoint:		7.895, 40.987
Right Slip Surface Endpoint:		127.487, 61.521
Resisting Horizontal Force:		162738 lb
Driving Horizontal Force:		38349 lb
Total Slice Area:		2275.47 ft <sup>2</sup>
Surface Horizontal Width:		119.591 ft
Surface Average Height:		19.027 ft

## Valid/Invalid Surfaces

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### Method: bishop simplified

Number of Valid Surfaces: 12126  
 Number of Invalid Surfaces: 44

#### Error Codes:

Error Code -112 reported for 44 surfaces

### Method: janbu simplified

Number of Valid Surfaces: 11229  
 Number of Invalid Surfaces: 941

**Error Codes:**

Error Code -108 reported for 342 surfaces

Error Code -111 reported for 599 surfaces

**Error Codes**

*The following errors were encountered during the computation:*

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient  $M\text{-Alpha} = \cos(\alpha)(1 + \tan(\alpha)\tan(\phi))/F < 0.2$  for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

***Slice Data***

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- **Global Minimum Query (bishop simplified) - Safety Factor: 4.62611**

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]
1	2.67883	278.075	-30.0942	Material 1	450	24	113.6	525.528	169.639	0	169.639
2	2.67883	818.959	-28.4075	Material 1	450	24	133.654	618.297	378.003	0	378.003
3	2.67883	1330.02	-26.7473	Material 1	450	24	152.452	705.26	573.323	0	573.323
4	2.67883	1812.58	-25.1109	Material 1	450	24	170.066	786.742	756.335	0	756.335
5	2.67883	2267.82	-23.4962	Material 1	450	24	186.555	863.025	927.668	0	927.668
6	2.67883	2696.74	-21.9011	Material 1	450	24	201.974	934.356	1087.88	0	1087.88
7	2.68435	3107.05	-20.322	Material 5	350	26	205.722	951.694	1233.66	0	1233.66
8	2.68435	3487.49	-18.7573	Material 5	350	26	220.528	1020.18	1374.08	0	1374.08
9	2.68435	3843.89	-17.207	Material 5	350	26	234.279	1083.8	1504.51	0	1504.51
10	2.68435	4176.87	-15.6696	Material 5	350	26	247.013	1142.71	1625.3	0	1625.3
11	2.68435	4486.99	-14.1437	Material 5	350	26	258.763	1197.07	1736.74	0	1736.74
12	2.68435	4774.73	-12.628	Material 5	350	26	269.557	1247	1839.12	0	1839.12
13	2.68435	5040.51	-11.1212	Material 5	350	26	279.419	1292.62	1932.66	0	1932.66
14	2.68435	5284.68	-9.62213	Material 5	350	26	288.373	1334.04	2017.59	0	2017.59
15	2.68435	5516.31	-8.12971	Material 5	350	26	296.785	1372.96	2097.39	0	2097.39
16	2.68435	5787.61	-6.64283	Material 5	350	26	306.737	1419	2191.78	0	2191.78
17	2.68435	6049.7	-5.16044	Material 5	350	26	316.277	1463.13	2282.25	0	2282.25
18	2.68435	6291.13	-3.6815	Material 5	350	26	324.951	1503.26	2364.54	0	2364.54
19	2.68435	6512.03	-2.20502	Material 5	350	26	332.774	1539.45	2438.74	0	2438.74
20	2.68435	6712.49	-0.729997	Material 5	350	26	339.754	1571.74	2504.93	0	2504.93
21	2.68435	6892.53	0.744538	Material 5	350	26	345.895	1600.15	2563.18	0	2563.18
22	2.68435	7052.16	2.21957	Material 5	350	26	351.202	1624.7	2613.53	0	2613.53
23	2.68435	7190.8	3.69607	Material 5	350	26	355.662	1645.33	2655.81	0	2655.81

24	2.68435	7298.45	5.17504	Material 5	350	26	358.885	1660.24	2686.39	0	2686.39
25	2.68435	7381.43	6.65747	Material 5	350	26	361.126	1670.61	2707.65	0	2707.65
26	2.68435	7443.58	8.1444	Material 5	350	26	362.542	1677.16	2721.07	0	2721.07
27	2.68435	7484.7	9.63688	Material 5	350	26	363.126	1679.86	2726.62	0	2726.62
28	2.68435	7504.53	11.136	Material 5	350	26	362.875	1678.7	2724.23	0	2724.23
29	2.68435	7502.75	12.6429	Material 5	350	26	361.779	1673.63	2713.85	0	2713.85
30	2.68435	7479	14.1587	Material 5	350	26	359.831	1664.62	2695.38	0	2695.38
31	2.68435	7432.87	15.6847	Material 5	350	26	357.021	1651.62	2668.72	0	2668.72
32	2.68435	7363.87	17.2223	Material 5	350	26	353.334	1634.56	2633.74	0	2633.74
33	2.68435	7271.44	18.7727	Material 5	350	26	348.753	1613.37	2590.29	0	2590.29
34	2.68435	7154.97	20.3376	Material 5	350	26	343.262	1587.97	2538.21	0	2538.21
35	2.68435	7013.74	21.9184	Material 5	350	26	336.84	1558.26	2477.3	0	2477.3
36	2.68435	6846.94	23.5171	Material 5	350	26	329.463	1524.13	2407.32	0	2407.32
37	2.68435	6653.67	25.1354	Material 5	350	26	321.103	1485.46	2328.04	0	2328.04
38	2.68435	6432.87	26.7754	Material 5	350	26	311.731	1442.1	2239.14	0	2239.14
39	2.68435	6183.38	28.4396	Material 5	350	26	301.311	1393.9	2140.31	0	2140.31
40	2.68435	5903.86	30.1304	Material 5	350	26	289.805	1340.67	2031.17	0	2031.17
41	2.68435	5585.54	31.8506	Material 5	350	26	276.899	1280.97	1908.76	0	1908.76
42	2.68435	5162.95	33.6037	Material 5	350	26	260.208	1203.75	1750.45	0	1750.45
43	2.68435	4686.95	35.3931	Material 5	350	26	241.642	1117.86	1574.35	0	1574.35
44	2.5412	3964.63	37.1733	Material 1	450	24	230.597	1066.77	1385.28	0	1385.28
45	2.5412	3470	38.9466	Material 1	450	24	212.188	981.604	1194	0	1194
46	2.5412	2938.5	40.7654	Material 1	450	24	192.584	890.917	990.316	0	990.316
47	2.5412	2367.06	42.6355	Material 1	450	24	171.707	794.335	773.39	0	773.39
48	2.5412	1752.02	44.5637	Material 1	450	24	149.461	691.424	542.247	0	542.247

49	2.5412	1088.94	46.5583	Material 1	450	24	125.738	581.676	295.749	0	295.749
50	2.5412	372.395	48.6292	Material 1	450	24	100.406	464.488	32.5414	0	32.5414

- **Global Minimum Query (janbu simplified) - Safety Factor: 4.2436**

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]
1	2.53101	312.373	-37.2927	Material 1	450	24	129.324	548.801	221.911	0	221.911
2	2.53101	916.276	-35.0855	Material 1	450	24	155.483	659.808	471.238	0	471.238
3	2.53101	1480.1	-32.9366	Material 1	450	24	179.604	762.168	701.141	0	701.141
4	2.53101	2006.79	-30.8388	Material 1	450	24	201.875	856.675	913.408	0	913.408
5	2.53101	2498.8	-28.786	Material 1	450	24	222.448	943.98	1109.5	0	1109.5
6	2.39611	2789.74	-26.8256	Material 5	350	26	229.639	974.496	1280.41	0	1280.41
7	2.39611	3175.29	-24.9514	Material 5	350	26	248.05	1052.63	1440.6	0	1440.6
8	2.39611	3535.88	-23.1054	Material 5	350	26	265.08	1124.89	1588.77	0	1588.77
9	2.39611	3872.56	-21.2844	Material 5	350	26	280.805	1191.62	1725.58	0	1725.58
10	2.39611	4186.26	-19.4858	Material 5	350	26	295.287	1253.08	1851.59	0	1851.59
11	2.39611	4477.75	-17.7069	Material 5	350	26	308.584	1309.51	1967.28	0	1967.28
12	2.39611	4747.73	-15.9455	Material 5	350	26	320.744	1361.11	2073.08	0	2073.08
13	2.39611	4996.8	-14.1995	Material 5	350	26	331.808	1408.06	2169.34	0	2169.34
14	2.39611	5250.62	-12.4668	Material 5	350	26	343.051	1455.77	2267.16	0	2267.16
15	2.39611	5523.46	-10.7457	Material 5	350	26	355.165	1507.18	2372.58	0	2372.58
16	2.39611	5777.12	-9.0343	Material 5	350	26	366.281	1554.35	2469.28	0	2469.28
17	2.39611	6011.49	-7.33102	Material 5	350	26	376.395	1597.27	2557.28	0	2557.28
18	2.39611	6226.8	-5.63424	Material 5	350	26	385.529	1636.03	2636.75	0	2636.75
19	2.39611	6423.25	-3.94241	Material 5	350	26	393.699	1670.7	2707.83	0	2707.83
20	2.39611	6600.97	-2.25402	Material 5	350	26	400.919	1701.34	2770.65	0	2770.65
21	2.39611	6760.06	-0.567591	Material 5	350	26	407.199	1727.99	2825.3	0	2825.3
22	2.39611	6900.56	1.11835	Material 5	350	26	412.548	1750.69	2871.85	0	2871.85
23	2.39611	7019.52	2.80526	Material 5	350	26	416.832	1768.87	2909.12	0	2909.12

24	2.39611	7111.33	4.49461	Material 5	350	26	419.792	1781.43	2934.87	0	2934.87
25	2.39611	7183.84	6.18789	Material 5	350	26	421.807	1789.98	2952.4	0	2952.4
26	2.39611	7237.43	7.88662	Material 5	350	26	422.9	1794.62	2961.92	0	2961.92
27	2.39611	7271.9	9.59236	Material 5	350	26	423.07	1795.34	2963.38	0	2963.38
28	2.39611	7286.97	11.3067	Material 5	350	26	422.304	1792.09	2956.73	0	2956.73
29	2.39611	7282.32	13.0314	Material 5	350	26	420.598	1784.85	2941.88	0	2941.88
30	2.39611	7257.56	14.7683	Material 5	350	26	417.938	1773.56	2918.72	0	2918.72
31	2.39611	7212.24	16.5191	Material 5	350	26	414.304	1758.14	2887.11	0	2887.11
32	2.39611	7145.82	18.2859	Material 5	350	26	409.68	1738.52	2846.88	0	2846.88
33	2.39611	7057.67	20.071	Material 5	350	26	404.044	1714.6	2797.84	0	2797.84
34	2.39611	6947.07	21.8767	Material 5	350	26	397.368	1686.27	2739.76	0	2739.76
35	2.39611	6813.2	23.7055	Material 5	350	26	389.622	1653.4	2672.37	0	2672.37
36	2.39611	6655.1	25.5604	Material 5	350	26	380.771	1615.84	2595.35	0	2595.35
37	2.39611	6471.66	27.4444	Material 5	350	26	370.77	1573.4	2508.35	0	2508.35
38	2.39611	6261.59	29.3613	Material 5	350	26	359.574	1525.89	2410.94	0	2410.94
39	2.39611	6023.4	31.315	Material 5	350	26	347.13	1473.08	2302.65	0	2302.65
40	2.39611	5755.36	33.3102	Material 5	350	26	333.366	1414.67	2182.9	0	2182.9
41	2.39611	5455.42	35.3522	Material 5	350	26	318.211	1350.36	2051.04	0	2051.04
42	2.39611	5121.14	37.4474	Material 5	350	26	301.576	1279.77	1906.31	0	1906.31
43	2.39611	4732.47	39.603	Material 5	350	26	282.605	1199.26	1741.25	0	1741.25
44	2.39611	4247.71	41.8282	Material 5	350	26	259.53	1101.34	1540.48	0	1540.48
45	2.24803	3501.02	44.0598	Material 1	450	24	244.603	1038	1320.66	0	1320.66
46	2.24803	2989.47	46.305	Material 1	450	24	221.266	938.966	1098.24	0	1098.24
47	2.24803	2431.11	48.6467	Material 1	450	24	196.126	832.279	858.613	0	858.613
48	2.24803	1819.15	51.103	Material 1	450	24	168.971	717.044	599.791	0	599.791



49	2.24803	1144.63	53.6982	Material 1	450	24	139.535	592.13	319.227	0	319.227
50	2.24803	395.219	56.4655	Material 1	450	24	107.474	456.075	13.6445	0	13.6445

**Interslice Data**

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- Global Minimum Query (bishop simplified) - Safety Factor: 4.62611

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	1.01512	40.1269	0	0	0
2	3.69395	38.5744	567.672	0	0
3	6.37278	37.1255	1473.38	0	0
4	9.0516	35.7754	2655.79	0	0
5	11.7304	34.5199	4060.92	0	0
6	14.4093	33.3554	5640.99	0	0
7	17.0881	32.2784	7353.62	0	0
8	19.7724	31.2843	9132.26	0	0
9	22.4568	30.3727	10976.8	0	0
10	25.1411	29.5414	12856.4	0	0
11	27.8255	28.7884	14743.3	0	0
12	30.5098	28.1119	16612.7	0	0
13	33.1942	27.5105	18442.3	0	0
14	35.8785	26.9828	20212.2	0	0
15	38.5629	26.5278	21904.4	0	0
16	41.2472	26.1443	23505.3	0	0
17	43.9316	25.8317	25013.9	0	0
18	46.6159	25.5892	26416.1	0	0
19	49.3003	25.4165	27696.8	0	0
20	51.9846	25.3132	28842.1	0	0
21	54.669	25.279	29839.8	0	0
22	57.3533	25.3139	30678.8	0	0
23	60.0377	25.4179	31349.6	0	0
24	62.722	25.5913	31843.8	0	0
25	65.4064	25.8344	32154	0	0
26	68.0907	26.1477	32275	0	0
27	70.7751	26.5319	32202.9	0	0
28	73.4594	26.9877	31934.8	0	0
29	76.1438	27.5161	31469.4	0	0
30	78.8281	28.1182	30806.4	0	0
31	81.5125	28.7954	29947	0	0
32	84.1968	29.5492	28893.7	0	0
33	86.8812	30.3813	27650.7	0	0
34	89.5655	31.2937	26223.5	0	0
35	92.2498	32.2886	24619.4	0	0
36	94.9342	33.3687	22847.8	0	0
37	97.6185	34.5369	20920.1	0	0
38	100.303	35.7963	18850	0	0
39	102.987	37.1509	16653.8	0	0
40	105.672	38.6047	14350.9	0	0
41	108.356	40.1626	11964.4	0	0
42	111.04	41.8303	9524.49	0	0
43	113.725	43.614	7100.64	0	0

44	116.409	45.5212	4746.69	0	0
45	118.95	47.4482	2663.21	0	0
46	121.491	49.5021	750.037	0	0
47	124.033	51.6929	-930.196	0	0
48	126.574	54.0326	-2303.34	0	0
49	129.115	56.5354	-3280.67	0	0
50	131.656	59.2187	-3754.75	0	0
51	134.197	62.1041	0	0	0

- **Global Minimum Query (janbu simplified) - Safety Factor: 4.2436**

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	7.89535	40.9869	0	0	0
2	10.4264	39.0593	755.076	0	0
3	12.9574	37.2815	1986.4	0	0
4	15.4884	35.6418	3590.62	0	0
5	18.0194	34.1307	5481.81	0	0
6	20.5504	32.7401	7587.73	0	0
7	22.9465	31.5283	9689.44	0	0
8	25.3426	30.4135	11889.8	0	0
9	27.7387	29.3912	14149.2	0	0
10	30.1348	28.4577	16432.8	0	0
11	32.5309	27.6099	18710.2	0	0
12	34.927	26.8449	20954.6	0	0
13	37.3231	26.1603	23142.3	0	0
14	39.7193	25.554	25252.6	0	0
15	42.1154	25.0243	27275.6	0	0
16	44.5115	24.5695	29205.5	0	0
17	46.9076	24.1886	31023.9	0	0
18	49.3037	23.8803	32714.1	0	0
19	51.6998	23.6439	34261.2	0	0
20	54.0959	23.4788	35651.7	0	0
21	56.492	23.3845	36873.6	0	0
22	58.8881	23.3607	37916.4	0	0
23	61.2842	23.4075	38770.5	0	0
24	63.6803	23.5249	39427.7	0	0
25	66.0764	23.7133	39880.8	0	0
26	68.4726	23.973	40124.5	0	0
27	70.8687	24.305	40154.7	0	0
28	73.2648	24.7099	39968.4	0	0
29	75.6609	25.189	39563.8	0	0
30	78.057	25.7436	38940.1	0	0
31	80.4531	26.3752	38097.9	0	0
32	82.8492	27.0858	37039	0	0
33	85.2453	27.8776	35766.5	0	0
34	87.6414	28.7531	34285.2	0	0
35	90.0375	29.7152	32601.4	0	0
36	92.4336	30.7673	30723.4	0	0
37	94.8298	31.9133	28661.5	0	0
38	97.2259	33.1577	26428.6	0	0
39	99.622	34.5057	24040.2	0	0
40	102.018	35.9634	21515.3	0	0
41	104.414	37.5379	18877	0	0
42	106.81	39.2378	16153.1	0	0
43	109.206	41.0729	13377.4	0	0

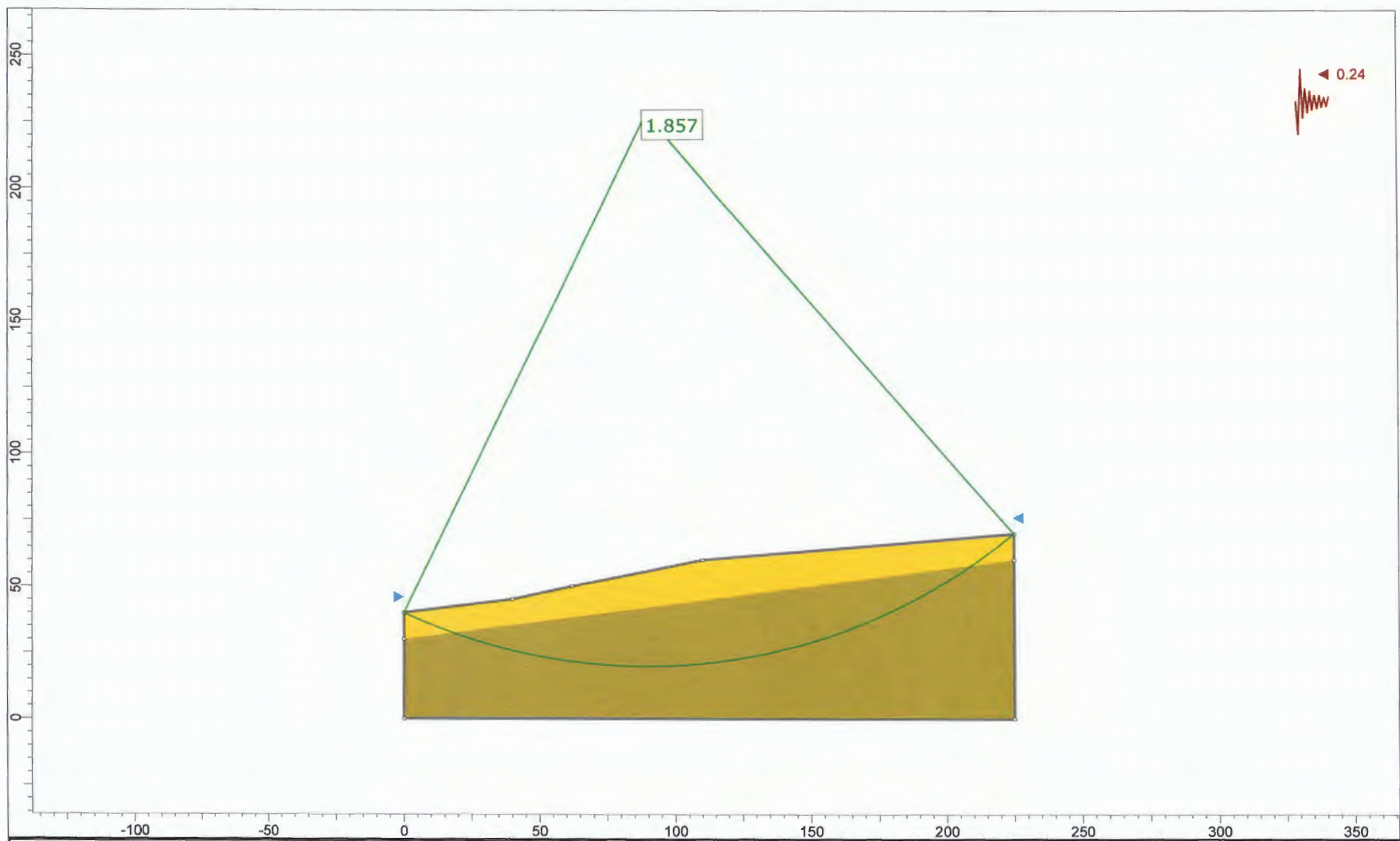
44	111.603	43.0553	10602.6	0	0
45	113.999	45.1998	7920.92	0	0
46	116.247	47.3753	5597.76	0	0
47	118.495	49.7281	3511.2	0	0
48	120.743	52.2822	1759.13	0	0
49	122.991	55.0685	467.77	0	0
50	125.239	58.1286	-195.43	0	0
51	127.487	61.5206	0	0	0


### Entity Information

Group: Group 1 

Shared Entities

Type	Coordinates	
External Boundary	X	Y
	225	0
	225	60
	225	70
	110	60
	62	50
	40	45
	0	40
	0	30
Material Boundary	X	Y
	0	30
	225	60



	Project				Vista Loop Apartments	
	Analysis Description					
	Drawn By	Daniel M. Redmond, P.E., G.E.	Scale	1:587	Company	Redmond Geotechnical Services, LLC
	Date	November 21, 2020			File Name	Vista Loop Apartments Seismic.slmd

SLIDEINTERPRET 8.020

# Slide Analysis Information

## Vista Loop Apartments Seismic

### Project Summary

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File Name: Vista Loop Apartments Seismic.slmd  
 Slide Modeler Version: 8.02  
 Compute Time: 00h:00m:00.963s  
 Project Title: Vista Loop Apartments  
 Author: Daniel M. Redmond, P.E., G.E.  
 Company: Redmond Geotechnical Services, LLC  
 Date Created: November 21, 2020

### General Settings

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Units of Measurement: Imperial Units  
 Time Units: days  
 Permeability Units: feet/second  
 Data Output: Standard  
 Failure Direction: Right to Left

### Analysis Options

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Slices Type: Vertical

#### Analysis Methods Used

Bishop simplified  
 Janbu simplified  
 Number of slices: 50  
 Tolerance: 0.005  
 Maximum number of iterations: 75  
 Check malpha < 0.2: Yes  
 Create Interslice boundaries at intersections with water tables and piezos: Yes  
 Initial trial value of FS: 1  
 Steffensen Iteration: Yes

### Groundwater Analysis

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Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

### **Random Numbers**

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Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

### **Surface Options**

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Surface Type:	Circular
Search Method:	Auto Refine Search
Divisions along slope:	20
Circles per division:	10
Number of iterations:	10
Divisions to use in next iteration:	50%
Composite Surfaces:	Disabled
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

### **Seismic Loading**



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Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Seismic Load Coefficient (Horizontal): 0.24

### **Materials**

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Property	Material 1	Material 5
Color		
Strength Type	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	110	110
Cohesion [psf]	450	350
Friction Angle [°]	24	26
Water Surface	None	None
Ru Value	0	0

### Global Minimums

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#### Method: bishop simplified

<b>FS</b>	<b>1.856590</b>
Center:	89.369, 228.460
Radius:	208.568
Left Slip Surface Endpoint:	0.015, 40.002
Right Slip Surface Endpoint:	224.980, 69.998
Resisting Moment:	8.13211e+07 lb-ft
Driving Moment:	4.38013e+07 lb-ft
Total Slice Area:	5650.2 ft2
Surface Horizontal Width:	224.966 ft
Surface Average Height:	25.1158 ft

#### Method: janbu simplified

<b>FS</b>	<b>1.731380</b>
Center:	95.068, 183.089
Radius:	171.782
Left Slip Surface Endpoint:	0.015, 40.002
Right Slip Surface Endpoint:	224.322, 69.941
Resisting Horizontal Force:	446877 lb
Driving Horizontal Force:	258104 lb
Total Slice Area:	7072.08 ft2
Surface Horizontal Width:	224.307 ft
Surface Average Height:	31.5286 ft

### Valid/Invalid Surfaces

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#### Method: bishop simplified

Number of Valid Surfaces:	11493
Number of Invalid Surfaces:	0

**Method: janbu simplified**

Number of Valid Surfaces: 11438

Number of Invalid Surfaces: 55

**Error Codes:**

Error Code -108 reported for 41 surfaces

Error Code -111 reported for 4 surfaces

Error Code -112 reported for 10 surfaces

**Error Codes***The following errors were encountered during the computation:*

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-111 = safety factor equation did not converge

-112 = The coefficient M-Alpha =  $\cos(\alpha)(1+\tan(\alpha)\tan(\phi)/F) < 0.2$  for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

**Slice Data**

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- Global Minimum Query (bishop simplified) - Safety Factor: 1.85659

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]
1	4.53789	662.052	-24.6812	Material 1	450	24	311.709	578.715	289.1	0	289.1
2	4.53789	1953.83	-23.3164	Material 1	450	24	385.462	715.645	596.65	0	596.65
3	4.53789	3181.93	-21.9656	Material 1	450	24	454.478	843.78	884.444	0	884.444
4	4.53789	4348.21	-20.6274	Material 1	450	24	519.003	963.575	1153.51	0	1153.51
5	4.4484	5336.64	-19.314	Material 5	350	26	554.736	1029.92	1394.04	0	1394.04
6	4.4484	6344.29	-18.0239	Material 5	350	26	615.808	1143.3	1626.51	0	1626.51
7	4.4484	7297.93	-16.7433	Material 5	350	26	672.648	1248.83	1842.88	0	1842.88
8	4.4484	8198.68	-15.4712	Material 5	350	26	725.429	1346.83	2043.79	0	2043.79
9	4.4484	9048.48	-14.207	Material 5	350	26	774.371	1437.69	2230.09	0	2230.09
10	4.4484	9977.17	-12.9497	Material 5	350	26	827.711	1536.72	2433.13	0	2433.13
11	4.4484	10947.5	-11.6987	Material 5	350	26	883.054	1639.47	2643.79	0	2643.79
12	4.4484	11868.4	-10.4534	Material 5	350	26	934.703	1735.36	2840.4	0	2840.4
13	4.4484	12740.4	-9.21307	Material 5	350	26	982.775	1824.61	3023.41	0	3023.41
14	4.4484	13563.7	-7.97707	Material 5	350	26	1027.34	1907.35	3193.04	0	3193.04
15	4.4484	14313.4	-6.74479	Material 5	350	26	1066.95	1980.88	3343.82	0	3343.82
16	4.4484	15000.7	-5.51565	Material 5	350	26	1102.35	2046.62	3478.58	0	3478.58
17	4.4484	15640.9	-4.28904	Material 5	350	26	1134.55	2106.4	3601.14	0	3601.14
18	4.4484	16234.3	-3.06441	Material 5	350	26	1163.61	2160.34	3711.75	0	3711.75
19	4.4484	16781	-1.84117	Material 5	350	26	1189.58	2208.56	3810.62	0	3810.62
20	4.4484	17281.3	-0.618778	Material 5	350	26	1212.51	2251.14	3897.92	0	3897.92
21	4.4484	17735	0.603335	Material 5	350	26	1232.46	2288.18	3973.86	0	3973.86
22	4.4484	18142.4	1.82572	Material 5	350	26	1249.47	2319.75	4038.59	0	4038.59
23	4.4484	18503.2	3.04895	Material 5	350	26	1263.56	2345.91	4092.24	0	4092.24

24	4.4484	18817.4	4.27356	Material 5	350	26	1274.77	2366.73	4134.91	0	4134.91
25	4.4484	19068	5.50013	Material 5	350	26	1282.17	2380.46	4163.06	0	4163.06
26	4.4484	19078.9	6.72924	Material 5	350	26	1275.7	2368.46	4138.45	0	4138.45
27	4.4484	18987.5	7.96147	Material 5	350	26	1263.43	2345.68	4091.75	0	4091.75
28	4.4484	18848.4	9.19742	Material 5	350	26	1248.53	2318.01	4035.01	0	4035.01
29	4.4484	18660.9	10.4377	Material 5	350	26	1231	2285.46	3968.28	0	3968.28
30	4.4484	18424.7	11.683	Material 5	350	26	1210.84	2248.04	3891.55	0	3891.55
31	4.4484	18139	12.9338	Material 5	350	26	1188.07	2205.76	3804.88	0	3804.88
32	4.4484	17803.1	14.191	Material 5	350	26	1162.67	2158.61	3708.2	0	3708.2
33	4.4484	17416.2	15.4552	Material 5	350	26	1134.66	2106.59	3601.55	0	3601.55
34	4.4484	16977.5	16.7272	Material 5	350	26	1104	2049.68	3484.86	0	3484.86
35	4.4484	16485.9	18.0077	Material 5	350	26	1070.7	1987.85	3358.08	0	3358.08
36	4.4484	15940.3	19.2976	Material 5	350	26	1034.73	1921.07	3221.18	0	3221.18
37	4.4484	15339.5	20.5978	Material 5	350	26	996.084	1849.32	3074.06	0	3074.06
38	4.4484	14682	21.9091	Material 5	350	26	954.734	1772.55	2916.65	0	2916.65
39	4.4484	13966.4	23.2326	Material 5	350	26	910.648	1690.7	2748.84	0	2748.84
40	4.4484	13190.9	24.5694	Material 5	350	26	863.799	1603.72	2570.5	0	2570.5
41	4.4484	12353.6	25.9207	Material 5	350	26	814.149	1511.54	2381.52	0	2381.52
42	4.4484	11452.5	27.2876	Material 5	350	26	761.66	1414.09	2181.72	0	2181.72
43	4.4484	10485.2	28.6715	Material 5	350	26	706.292	1311.3	1970.95	0	1970.95
44	4.4484	9449.05	30.074	Material 5	350	26	647.991	1203.05	1749.02	0	1749.02
45	4.4484	8341.23	31.4967	Material 5	350	26	586.704	1089.27	1515.73	0	1515.73
46	4.4484	7158.45	32.9414	Material 5	350	26	522.372	969.831	1270.84	0	1270.84
47	4.4484	5897.03	34.4101	Material 5	350	26	454.932	844.622	1014.13	0	1014.13
48	5.17765	5161.99	36.0301	Material 1	450	24	409.975	761.156	698.868	0	698.868

49	5.17765	3201.89	37.8098	Material 1	450	24	329.402	611.564	362.879	0	362.879
50	5.17765	1093	39.6335	Material 1	450	24	244.462	453.865	8.68085	0	8.68085

- **Global Minimum Query (janbu simplified) - Safety Factor: 1.73138**

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]
1	4.54862	872.643	-32.6947	Material 1	450	24	370.438	641.369	429.822	0	429.822
2	4.54862	2568.82	-30.9091	Material 1	450	24	478.934	829.217	851.736	0	851.736
3	4.54862	4169.44	-29.1563	Material 1	450	24	578.719	1001.98	1239.77	0	1239.77
4	4.43565	5521.15	-27.454	Material 5	350	26	647.664	1121.35	1581.5	0	1581.5
5	4.43565	6876.98	-25.7987	Material 5	350	26	739.714	1280.73	1908.27	0	1908.27
6	4.43565	8156.16	-24.1663	Material 5	350	26	824.441	1427.42	2209.03	0	2209.03
7	4.43565	9361.69	-22.5545	Material 5	350	26	902.367	1562.34	2485.65	0	2485.65
8	4.43565	10496.2	-20.9613	Material 5	350	26	973.946	1686.27	2739.75	0	2739.75
9	4.43565	11562.5	-19.3849	Material 5	350	26	1039.6	1799.94	2972.81	0	2972.81
10	4.43565	12685.6	-17.8236	Material 5	350	26	1108.26	1918.82	3216.55	0	3216.55
11	4.43565	13841.4	-16.2759	Material 5	350	26	1178.18	2039.88	3464.76	0	3464.76
12	4.43565	14933.9	-14.7404	Material 5	350	26	1242.77	2151.7	3694.05	0	3694.05
13	4.43565	15964.6	-13.2156	Material 5	350	26	1302.26	2254.71	3905.24	0	3905.24
14	4.43565	16934.5	-11.7003	Material 5	350	26	1356.86	2349.24	4099.04	0	4099.04
15	4.43565	17820.5	-10.1932	Material 5	350	26	1405.15	2432.84	4270.46	0	4270.46
16	4.43565	18631.5	-8.69326	Material 5	350	26	1447.82	2506.73	4421.96	0	4421.96
17	4.43565	19384.5	-7.19928	Material 5	350	26	1486.16	2573.11	4558.06	0	4558.06
18	4.43565	20080.3	-5.71022	Material 5	350	26	1520.28	2632.18	4679.18	0	4679.18
19	4.43565	20719.3	-4.22502	Material 5	350	26	1550.3	2684.15	4785.72	0	4785.72
20	4.43565	21302	-2.74266	Material 5	350	26	1576.3	2729.17	4878.02	0	4878.02
21	4.43565	21828.5	-1.26213	Material 5	350	26	1598.38	2767.4	4956.41	0	4956.41
22	4.43565	22299.1	0.217548	Material 5	350	26	1616.61	2798.96	5021.13	0	5021.13
23	4.43565	22713.9	1.69737	Material 5	350	26	1631.05	2823.96	5072.39	0	5072.39



24	4.43565	23072.6	3.17833	Material 5	350	26	1641.75	2842.5	5110.39	0	5110.39
25	4.43565	23364.8	4.66143	Material 5	350	26	1648.12	2853.53	5133.01	0	5133.01
26	4.43565	23416.2	6.14766	Material 5	350	26	1639.49	2838.58	5102.34	0	5102.34
27	4.43565	23342.7	7.63805	Material 5	350	26	1623.24	2810.44	5044.65	0	5044.65
28	4.43565	23211.8	9.13367	Material 5	350	26	1603.61	2776.45	4974.97	0	4974.97
29	4.43565	23022.8	10.6356	Material 5	350	26	1580.61	2736.64	4893.34	0	4893.34
30	4.43565	22774.9	12.145	Material 5	350	26	1554.25	2690.99	4799.75	0	4799.75
31	4.43565	22467.2	13.6629	Material 5	350	26	1524.52	2639.53	4694.23	0	4694.23
32	4.43565	22098.5	15.1908	Material 5	350	26	1491.42	2582.22	4576.71	0	4576.71
33	4.43565	21667.6	16.7297	Material 5	350	26	1454.93	2519.04	4447.19	0	4447.19
34	4.43565	21173.1	18.2813	Material 5	350	26	1415.02	2449.94	4305.52	0	4305.52
35	4.43565	20613.2	19.8468	Material 5	350	26	1371.67	2374.89	4151.65	0	4151.65
36	4.43565	19986.1	21.4279	Material 5	350	26	1324.84	2293.81	3985.4	0	3985.4
37	4.43565	19289.7	23.0264	Material 5	350	26	1274.49	2206.62	3806.64	0	3806.64
38	4.43565	18521.5	24.6441	Material 5	350	26	1220.55	2113.24	3615.17	0	3615.17
39	4.43565	17678.8	26.283	Material 5	350	26	1162.97	2013.55	3410.79	0	3410.79
40	4.43565	16758.6	27.9455	Material 5	350	26	1101.69	1907.44	3193.22	0	3193.22
41	4.43565	15757.1	29.634	Material 5	350	26	1036.61	1794.76	2962.19	0	2962.19
42	4.43565	14670.5	31.3513	Material 5	350	26	967.639	1675.35	2717.38	0	2717.38
43	4.43565	13494	33.1006	Material 5	350	26	894.691	1549.05	2458.4	0	2458.4
44	4.43565	12222.2	34.8854	Material 5	350	26	817.637	1415.64	2184.87	0	2184.87
45	4.43565	10849	36.71	Material 5	350	26	736.353	1274.91	1896.35	0	1896.35
46	4.43565	9367.16	38.5791	Material 5	350	26	650.7	1126.61	1592.28	0	1592.28
47	4.43565	7767.99	40.4982	Material 5	350	26	560.518	970.47	1272.15	0	1272.15
48	4.43565	6041.34	42.474	Material 5	350	26	465.638	806.196	935.34	0	935.34

49	5.52855	4890.6	44.7759	Material 1	450	24	388.242	672.195	499.057	0	499.057
50	5.52855	1684.4	47.438	Material 1	450	24	264.207	457.444	16.7184	0	16.7184

**Interslice Data**

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- Global Minimum Query (bishop simplified) - Safety Factor: 1.85659

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	0.0146863	40.0018	0	0	0
2	4.55258	37.9164	1858.09	0	0
3	9.09047	35.9606	4304.83	0	0
4	13.6284	34.1303	7221.71	0	0
5	18.1662	32.4222	10503	0	0
6	22.6146	30.8631	13862.6	0	0
7	27.063	29.4157	17432.8	0	0
8	31.5114	28.0775	21138.9	0	0
9	35.9598	26.8462	24913.7	0	0
10	40.4082	25.72	28697.3	0	0
11	44.8566	24.6971	32472.5	0	0
12	49.305	23.776	36207.4	0	0
13	53.7534	22.9553	39846.9	0	0
14	58.2018	22.2338	43341.2	0	0
15	62.6502	21.6104	46645.1	0	0
16	67.0986	21.0843	49713.9	0	0
17	71.547	20.6548	52510.3	0	0
18	75.9954	20.3211	55003.4	0	0
19	80.4438	20.083	57165.8	0	0
20	84.8922	19.94	58973.5	0	0
21	89.3406	19.892	60405.5	0	0
22	93.789	19.9388	61443.9	0	0
23	98.2374	20.0806	62073.6	0	0
24	102.686	20.3175	62282.4	0	0
25	107.134	20.65	62060.9	0	0
26	111.583	21.0783	61403.3	0	0
27	116.031	21.6032	60325.5	0	0
28	120.479	22.2253	58841.5	0	0
29	124.928	22.9456	56963.9	0	0
30	129.376	23.765	54707.9	0	0
31	133.825	24.6849	52091.1	0	0
32	138.273	25.7065	49134.3	0	0
33	142.721	26.8313	45860.9	0	0
34	147.17	28.0612	42297.4	0	0
35	151.618	29.3981	38473.6	0	0
36	156.067	30.8442	34422.6	0	0
37	160.515	32.4018	30181.2	0	0
38	164.963	34.0736	25790.1	0	0
39	169.412	35.8627	21294.1	0	0
40	173.86	37.7723	16742.8	0	0
41	178.309	39.806	12190.7	0	0
42	182.757	41.968	7697.59	0	0
43	187.205	44.2628	3329.68	0	0

44	191.654	46.6953	-840.208	0	0
45	196.102	49.2713	-4731.66	0	0
46	200.551	51.9969	-8255.71	0	0
47	204.999	54.8793	-11313.7	0	0
48	209.447	57.9263	-13795.9	0	0
49	214.625	61.6923	-15544.6	0	0
50	219.803	65.7099	-16065.9	0	0
51	224.98	69.9983	0	0	0

- **Global Minimum Query (janbu simplified) - Safety Factor: 1.73138**

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	0.0146863	40.0018	0	0	0
2	4.5633	37.0823	2731.9	0	0
3	9.11192	34.359	6615.27	0	0
4	13.6605	31.8214	11395.3	0	0
5	18.0962	29.5169	16590.1	0	0
6	22.5318	27.3727	22315.2	0	0
7	26.9675	25.3824	28414.5	0	0
8	31.4031	23.5402	34752.9	0	0
9	35.8388	21.8409	41213.2	0	0
10	40.2744	20.2802	47693.2	0	0
11	44.7101	18.854	54156.1	0	0
12	49.1457	17.559	60551.7	0	0
13	53.5814	16.392	66795.8	0	0
14	58.017	15.3503	72813.6	0	0
15	62.4526	14.4317	78538.5	0	0
16	66.8883	13.6342	83905.6	0	0
17	71.3239	12.956	88860.6	0	0
18	75.7596	12.3957	93360	0	0
19	80.1952	11.9521	97365.4	0	0
20	84.6309	11.6244	100843	0	0
21	89.0665	11.412	103765	0	0
22	93.5022	11.3142	106107	0	0
23	97.9378	11.3311	107847	0	0
24	102.373	11.4625	108970	0	0
25	106.809	11.7088	109463	0	0
26	111.245	12.0705	109316	0	0
27	115.68	12.5483	108537	0	0
28	120.116	13.1431	107140	0	0
29	124.552	13.8562	105140	0	0
30	128.987	14.6892	102556	0	0
31	133.423	15.6438	99408.4	0	0
32	137.859	16.722	95722.8	0	0
33	142.294	17.9264	91528.3	0	0
34	146.73	19.2597	86857.9	0	0
35	151.166	20.725	81749.3	0	0
36	155.601	22.326	76244.7	0	0
37	160.037	24.0668	70391.9	0	0
38	164.473	25.9521	64244	0	0
39	168.908	27.987	57860.9	0	0
40	173.344	30.1776	51309.3	0	0
41	177.779	32.5307	44664.3	0	0
42	182.215	35.0539	38010.2	0	0
43	186.651	37.7563	31441.8	0	0

44	191.086	40.6479	25066.4	0	0
45	195.522	43.7406	19005.8	0	0
46	199.958	47.048	13399	0	0
47	204.393	50.5863	8405.74	0	0
48	208.829	54.3745	4210.72	0	0
49	213.265	58.4353	1029.74	0	0
50	218.793	63.9208	-733.296	0	0
51	224.322	69.941	0	0	0

### Entity Information

Group: Group 1 

Shared Entities

Type	Coordinates	
External Boundary	X	Y
	225	0
	225	60
	225	70
	110	60
	62	50
	40	45
	0	40
	0	30
Material Boundary	X	Y
	0	30
	225	60



## REDMOND GEOTECHNICAL SERVICES

Project No. 1861.001.G

Page No. 1

### EXHIBIT J

Mr. Dave Vandehey  
Roll Tide Property Corporation  
P.O. Box 703  
Cornelius, Oregon 97113

Dear Mr. Vandehey:

**Re: Supplemental Geotechnical Consultation Services, Proposed Deer Meadows Residential Subdivision, Tax Lot No's. 9000 and 1000, 40808 and 41010 Highway 26, Sandy (Clackamas County), Oregon**

In accordance with your request, we have completed our review of the proposed site development plans for the above subject Deer Meadows (previously Vista Loop Apartments) residential subdivision project. As you are aware, we previously performed a Geotechnical Investigation and Consultation Services for the proposed Vista Loop Apartments development the results of which were presented in our formal report dated November 23, 2020.

Specifically, we understand that present plans are to development subject property by constructing thirty-two (32) new single-family residential homes at the site as well as new public street improvements. Reportedly, the new residential homes will be single- and/or two-story wood frame structures constructed with wood-framing and raised wooden post and beam floors.

Earthwork and site grading for the project is anticipated to result in cuts and/or fills of about five (5) feet or less.

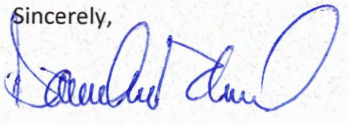
In this regard, based on the results of our previous Geotechnical Investigation report as well as the results of our review of the currently proposed Deer Meadows residential subdivision project, it is our professional opinion that the findings, conclusions and/or recommendations presented in the above subject Geotechnical report are applicable and/or suitable for use with the proposed Deer Meadows residential subdivision site and/or project. As such, we take no exceptions at this time with regard to the proposed Deer Meadows residential subdivision project plans.

PO Box 20547 • PORTLAND, OREGON 97294 • FAX 503/286-7176 • PHONE 503/285-0598



We appreciate this opportunity to be of service to you at this time and trust that the above information is suitable to your present needs. Should you have any questions or require any additional information, please do not hesitate to call.

Sincerely,



Daniel M. Redmond, P.E., G.E.  
President/Principal Engineer



**REDMOND GEOTECHNICAL SERVICES**

## EXHIBIT K

March 31, 2021

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr., Director  
City of Sandy Planning Department  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

RE: Application by Roll Tide Properties Corporation for Approval of the Deer Meadows Tentative Residential Subdivision Application (the "Application") for 32 Lots in the R-1, R-2, C-3 Zoning Districts on 15.91 Acres; March 31, 2021 Submittal Date

Dear Mr. O'Neill:

This office represents the Applicant.

Enclosed with this letter is a completed City of Sandy (the "City") land use application form signed by the property owners and a check in the amount of \$5,543.00 made payable to the City. Sandy Development Code ("SDC") 17.18.30.A. The Applicant will submit the remainder of the required application materials within 180 days of this submittal date of March 31, 2021, or by September 27, 2021. The application form and check are sufficient to start the City's thirty-day completeness review period for the Application under ORS 227.178(2).

The relevant approval criteria for the Application are those in effect on the date of the Application submittal. ORS 227.178(3). Subsequently enacted land use regulations will not be applicable to the Application as long as it is made complete within 180 days of the submittal date.

The Application is both a limited land use application ("LLUA") and a residential application within the City's Urban Growth Boundary (the "UGB"). The statutes described below are not the opinion of the Applicant but represent decisions made by the Oregon Legislature that require Oregon cities to apply the statutes to a housing or residential application in order to remove all discretion from review and approval of such applications.

The Application is a LLUA as defined in ORS 197.015(12) because it requests approval of a tentative subdivision application within the UGB. LLUAs are subject to ORS 197.195(1). This statute provides that the City may apply Comprehensive Plan (the "Plan") policies, including elements of the Plan, such as a Parks Master Plan or a Transportation System Plan, to an application only if the Plan policies are expressly incorporated into the land use regulations. The relevant approval criteria in the SDC, the City's land use regulations, for this Application include only Plan policies that have been specifically incorporated into the SDC. *Paterson v. City of*

Mr. Kelly O'Neill, Jr., Director  
March 31, 2021  
Page 2

*Bend*, 201 Or App 344 (2005); *Oster v. City of Silverton*, \_\_ Or LUBA \_\_ (LUBA No. 2018-103, July 7, 2019).

The Application is also a residential application within the UGB. The Application seeks approval of a tentative subdivision application to create lots for single family detached and attached dwellings. ORS 197.303(1). The residential application is for property located in the UGB. The City has only a single approval path for tentative subdivision applications, so the Applicant does not have a choice of application paths. ORS 197.307(6). *See also* ORS 227.175(4)(b)(iii). Because only a single path is available to the Applicant, the City may apply only clear and objective approval procedures, standards and conditions to the Application. ORS 197.307(4). The City may apply conditions to an application but the conditions must be clear and objective. ORS 197.307(7). The Application narrative will explain which SDC standards are clear and objective and may be applied to the Application and which SDC standards are not clear and objective and may not be applied to the Application.

The exceptions in ORS 197.303(5) and (6) and 197.307(5) do not apply to this Application.

In the event that the City finds that a relevant approval criteria is not met, the City must offer the Applicant an opportunity to either amend the Application, or to offer a condition of approval to satisfy the approval criteria. ORS 197.522(3).

Finally, ORS 227.175(4)(b) provides that the City may not deny an application for a housing development within the UGB if the application complies with clear and objective approval criteria. The City may not approve a housing development application within the UGB conditioned upon a reduction in density or height unless necessary to resolve a health, safety or habitability issue, or to comply with a protective measure adopted pursuant to a Statewide Planning Goal. ORS 227.175(4)(e). The City did not identify any such protective measures in the pre-application conference with the Applicant on March 17, 2021.

The Applicant held the required pre-application conference on March 17, 2021 after the Planning Director cancelled the first pre-application conference scheduled for February 10, 2021. SDC 17.18.20.

This Application is not prohibited by SDC 17.18.90, "Re-Application Following Denial." The Planning Director told the participants at the pre-application conference that he found this Application not to be prohibited by this standard. Notwithstanding the Director's finding, this standard is not clear and objective because it contains non-clear and objective standards and requires a non-clear and objective procedure for determining compliance and may, therefore, not be applied to the Application.

Please provide me, Mr. Dave Vandehey ([dave.vandehey@accessmax.com](mailto:dave.vandehey@accessmax.com)) and Mr. Brown with the City's completeness determination, all correspondence to and from the City concerning this Application and all notices of public hearings for this Application.

schwabe.com

Mr. Kelly O'Neill, Jr., Director  
March 31, 2021  
Page 3

Very truly yours,

A handwritten signature in blue ink that reads "Michael C. Robinson". The signature is written in a cursive style.

Michael C. Robinson

MCR:jmhi  
Enclosures

cc: Mr. Dave Vandehey (*via email*) (*w/enclosures*)  
Mr. Carey Sheldon (*via email*) (*w/enclosures*)  
Mr. Alex Reverman (*via email*) (*w/enclosures*)  
Mr. Tracy Brown (*via email*) (*w/enclosures*)  
Mr. Ray Moore (*via email*) (*w/enclosures*)  
Mr. Mike Ard (*via email*) (*w/enclosures*)  
Ms. Shelley Denison (*via email*) (*w/enclosures*)  
Mr. David Doughman (*via email*) (*w/enclosures*)

PDX\126769\255102\MCR\30488479.1

**EXHIBIT L**

June 11, 2021

**Michael C. Robinson**

Admitted in Oregon

T: 503-796-3756

C: 503-407-2578

mrobinson@schwabe.com

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr., Director  
City of Sandy Development Services Department  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE

Dear Mr. O'Neill:

This office represents the Applicant for the above-referenced Application. This letter confirms the discussion that you and I had on June 1, 2021 regarding your request that the Applicant consider an initial extension of the 120-day period as authorized by ORS 227.178(5).

The Applicant will submit its completeness response on or about June 14, 2021. Rather than have the 120-day period start on the date of submittal when all missing materials are provided in accordance with state law, the Applicant will extend the 120-day period from the submittal date through July 27, 2021. The 120-day period will start on July 27, 2021 and the 120-day period will end on November 24, 2021. The Applicant is not required to further extend the 120-day period.

The extension is conditioned upon your scheduling the initial evidentiary hearing before the Sandy Planning Commission on September 27, 2021. The final decision must be issued by November 24, 2021 based on this extension.

The Applicant hereby extends the 120-day period from the submittal date through July 27, 2021. Please place this letter in the official Development Services Department file for this Application.

Very truly yours,



Michael C. Robinson

MCR:jmhi

cc: Mr. Dave Vandehey (via email)  
Mr. Carey Sheldon (via email)  
Mr. Alex Reverman (via email)  
Mr. Tracy Brown (via email)

Mr. Kelly O'Neill, Jr., Director  
June 10, 2021  
Page 2

Mr. Ray Moore (*via email*)  
Mr. Mike Ard (*via email*)  
Ms. Shelley Denison (*via email*)  
Mr. David Doughman (*via email*)

PDX\126769\255102\MCR\31043687.1

[schwabe.com](http://schwabe.com)



## **EXHIBIT M**

# SANDY FIRE DISTRICT NO. 72

## Fire Prevention Division

### E-mail Memorandum

To: Sandy Planning Department

From: Gary Boyles

Date: August 10, 2021

Re: Deer Meadows 32-lot Subdivision File No. 21-014 SUB/TREE

---

Review and comments are based upon the current version of the Oregon Fire Code (OFC) as adopted by the Oregon Office of State Fire Marshal. The scope of this review is typically limited to fire apparatus access and water supply, although the applicant shall comply with all applicable OFC requirements. When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access and water supply may be modified as approved by the fire code official. References, unless otherwise specified, include provisions found in the Metro Code Committee's Fire Code Applications Guide, OFC Chapter 5 and appendices B, C and D.

### **COMMENTS:**

#### General

1. All future construction activities shall comply with the applicable Oregon Fire Code.
2. Compliance with the following conditions is required prior to the commencement of any new use or occupancy.
  - a. construction plans detailing access and water supply requirements are to be submitted to the Fire District for review and approval.
  - b. Any additional information required by the Fire District, such as details and specifications, must be provided.
  - c. All required inspections, corrections, and final approvals from the Fire District must be obtained.
3. Construction documents detailing compliance with fire apparatus access and fire protection water supply requirements shall be provided to Sandy Fire District for review and approval upon building permit submittal.



4. Where fire apparatus access roads or a water supply for fire protection are required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except where approved alternative methods of protection are provided.
5. Buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property, including monument signs.

#### Fire Apparatus Access

**FIRE APPARATUS ACCESS ROAD** (as defined by the OFC). A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as *fire lane*, public street, private street, parking lot lane and access roadway.

1. Fire apparatus access roads shall be within 150 feet of all portions of the exterior wall of the first story of any building as measured by an approved route around the exterior of the building. An approved turnaround will be required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet.
2. Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround.
3. Fire apparatus access roadway grades shall not exceed 10 percent. Intersections and turnarounds shall be as level as possible and have a maximum of 5 percent grade with the exception of crowning for water run-off. Considerations of grades up to 15 percent may be allowed with a proposed alternate in accordance with the provisions of ORS 455.610(5).
4. Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet and an unobstructed vertical clearance of 13 feet 6 inches is to be maintained.
5. When the Sandy Planning De distance between the grade plane and a building's highest roof surface exceeds 30 feet, approved aerial fire apparatus access roads shall be provided. For purposes of this requirement, the highest roof surface shall be determined by measurements to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater. If buildings are more than 30 feet in height, as measured above, the following requirements apply:
  - a. Aerial fire apparatus access roads shall be provided and have a minimum unobstructed width of 26 feet exclusive of shoulders or parking, in the immediate vicinity of the building or portion thereof that will accommodate aerial operations.
  - b. The aerial fire apparatus access road shall be located not less than 15 feet nor greater than 30 feet from the building and shall be positioned parallel to one entire side of the building.
  - c. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

- d. Overhead utility and power lines shall not be located within the aerial fire apparatus access road or between the aerial fire apparatus access road and the building.
6. The inside turning radius and outside turning radius for fire apparatus access roads shall be not less than 28 feet and 48 feet respectively, measured from the same center point.
7. Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "NO PARKING-FIRE LANE" signs shall be placed on one or both sides of the roadway and in turnarounds as needed.
8. Streets and roads shall be identified with approved signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles.

#### Firefighting Water Supplies

1. The minimum available fire-flow and flow duration for commercial and industrial buildings shall be as specified in OFC Appendix B. In no case shall the resulting fire-flow be less than 1,500 gpm at 20 psi residual.
2. The minimum available fire flow for one- and two-family dwellings served by a municipal water supply shall be 1,000 gpm at 20 psi residual provided the fire area of the dwelling(s) does not exceed 3,600 square feet. For dwellings that exceed 3,600 square feet, the required fire-flow shall be determined in accordance with OFC Appendix B, Table B105.1(2).
3. Fire flow testing will be required to determine available fire flow. Testing will be the responsibility of the applicant. Applicant to contact the City of Sandy Public Works for testing information and requirements and notify the Fire Marshal prior to fire flow testing.
4. For one- and two-family dwellings served by a municipal water system, all portions of the dwellings shall be located within 600 feet from a fire hydrant on a fire apparatus access road, as measured in an approved route that is approved by the fire code official (The intent is that not more than 600 feet of hose will have to be laid out to reach all portions of the exterior grade level of a structure).
5. Prior to the start of combustible construction, required fire hydrants shall be operational and accessible.
6. Fire hydrants installed within the Sandy Fire District shall comply with the following requirements:
  - a. Flow requirements and location of fire hydrants will be reviewed and approved by Sandy Fire upon building permit submittal.
  - b. Each new fire hydrant installed shall be ordered in an OSHA safety red finish and have a 4-inch non-threaded metal faced hydrant connection with cap installed on the steamer port. If a new building, structure, or dwelling is already served by an existing hydrant, the existing

hydrant shall also be OSHA safety red and have a 4-inch non-threaded metal faced hydrant connection with cap installed.

7. The minimum number and distribution of fire hydrants shall be in accordance with City of Sandy requirements and OFC Appendix C.

**NOTE:**

Sandy Fire District comments may not be all inclusive based on information provided. A more detailed review may be needed for future development to proceed.

**Please do not hesitate to contact Fire Marshal Gary Boyles at 503-891-7042 or [fmboyles.sandyfire@gmail.com](mailto:fmboyles.sandyfire@gmail.com) should you have any questions or concerns.**



# Oregon

Kate Brown, Governor

**Department of Transportation**  
Region 1 Headquarters  
123 NW Flanders Street  
Portland, Oregon 97209  
(503) 731.8200  
FAX (503) 731.8259

## EXHIBIT N

9/1/21

ODOT #11953

### ODOT Response

<b>Project Name:</b> Deer Meadows (Bull Run Terrace)	<b>Applicant:</b> Dave Vandehey, Roll Tide Properties, Corp.
<b>Jurisdiction:</b> City of Sandy	<b>Jurisdiction Case #:</b> 21-014 SUB/TREE
<b>Site Address:</b> 40808 and 41010 Highway 26, Sandy, OR	<b>Legal Description:</b> 02S 05E 18CD <b>Tax Lot(s):</b> 00900
<b>State Highway:</b> US 26	<b>Mileposts:</b> 25.56

The site of this proposed land use action is adjacent to US 26. ODOT has permitting authority for this facility and an interest in ensuring that this proposed land use is compatible with its safe and efficient operation. **Please direct the applicant to the District Contact indicated below to determine permit requirements and obtain application information.**

#### COMMENTS/FINDINGS

ODOT recommends that the City require the applicant to construct Dubarko Rd as shown in the adopted Transportation System Plan (TSP). Consistent with OAR 660-012-0045, completing this connection would implement the adopted road network in the TSP. The extension of this arterial would provide increased connectivity for the proposed development as well as other residents of the City. This would help reduce motor vehicle congestion and provide more options for those walking, biking, and using transit.

Planning within the City of Sandy has assumed the Dubark Rd connection for over a decade. For example, the Sandy Area Metro Transit Master Plan identifies this connection as a way to provide increased service on the east side of Sandy and to more efficiently serve residents along Vista Loop Rd. In addition, a signalized intersection at this location would provide a safer location for pedestrians and bicyclists to cross US 26 and for motor vehicles to access the southern part of the City.

This segment of highway is access controlled and ODOT and City policy support consolidating access points at public streets rather than allowing multiple private accesses to individual properties. Due to the high speeds at this location, additional highway access could be dangerous and difficult to approve, particularly for any commercially zoned property such as the parcel on the east side of this proposed development.

Finally, ODOT recommends that the City require frontage improvements consistent with City, ODOT, and ADA standards (Please see additional information below).

**ODOT RECOMMENDED LOCAL CONDITIONS OF APPROVAL**

Frontage Improvements and Right of Way

- Curb, sidewalk, cross walk ramp(s) bikeways and road widening shall be constructed as necessary to be consistent with local, ODOT and ADA standards.
- Right of way deeded to ODOT as necessary to accommodate the planned cross section shall be provided. The deed must be to the State of Oregon, Oregon Department of Transportation. The ODOT District contact will assist in coordinating the transfer. ODOT should provide verification to the local jurisdiction that this requirement has been fulfilled. The property owner must be the signatory for the deed and will be responsible for a certified environmental assessment of the site prior to transfer of property to the Department.

Note: It may take up to **3 months** to transfer ownership of property to ODOT.

**ADVISORY INFORMATION**

Access Control

- The applicant is advised that the subject property’s highway frontage is access controlled. ODOT has acquired and owns all access rights to the subject property and the proposed use does not have an access right to the highway.

Noise

- The applicant is advised that a residential development on the proposed site adjacent to the freeway may be exposed to traffic noise levels that exceed federal noise guidelines. Builders should take appropriate measures to mitigate this impact. It is generally not the State’s responsibility to provide mitigation for receptors that are built after the noise source is in place.

**Please send a copy of Notice of Decision including conditions of approval to:**

ODOT Region 1 Planning  
Development Review  
123 NW Flanders St  
Portland, OR 97209

[ODOT R1 DevRev@odot.state.or.us](mailto:ODOT_R1_DevRev@odot.state.or.us)

Development Review Planner: Seth Brumley	503.731.8234, Seth.A.Brumley@odot.state.or.us
Traffic Contact: Avi Tayar, P.E.	503.731.8221
District Contact: Loretta Kieffer	503.667.7441



Staff Report  
City of Sandy  
39250 Pioneer Blvd.,  
Sandy, OR 97055

## EXHIBIT O

To: Planning Commission

Date: August 30, 2021

From: Sarah Richardson, Staff Liaison Parks and Trails Advisory Board

Subject: Deer Meadow Proposed Development

Attachments: Bull Run Terrace Recommendation.

---

I am sending this communication on behalf of the Sandy Parks and Trails Advisory Board.

The board met on August 11<sup>th</sup>, 2021 and reviewed the proposed Deer Meadow development.

The subject property is adjacent to the Deer Pointe neighborhood and a portion abuts city owned parkland that was acquired in 2007 (dedicated as Tract D with Deer Pointe No. 2. Plat Number 4111, recorded on February 9, 2007). This parcel is about 1.4 acres in size.

The vision for this currently undeveloped park parcel has always included adjacent parkland dedication from the subject property. Additionally, a conceptual design has been prepared and has been through an initial public comment period as part of the updated Parks and Trails Master Plan.

The residents of the Deer Pointe and surrounding neighborhood have been waiting patiently since 2007 to see the dedicated parkland in their neighborhood developed.

The board received an overview of the Deer Meadow proposal from Development Services Director Kelly O'Neill and heard from the developer's representative Tracy Brown. The board is disappointed in the current proposal because it does not include the dedication of the land that would be adjacent to the Deer Pointe parcel.

The board feels strongly that their original recommendation should stand and recommends that the city require parkland dedication. It is the hope of the board that the city and the developer can reach an agreement that includes land dedication that is adjacent to the existing city owned property in the Deer Pointe neighborhood. This would allow the development of a true neighborhood park in an underserved area of the community.

*The updated Parks and Trails Master Plan defines a Neighborhood Park as close to home recreational opportunities that is 2-5 acres in size.*

We thank you for your consideration in this matter.

**Staff Contact:**

Sarah Richardson  
503-489-2150  
srichardson@cityofsandy.com

**REPLINGER & ASSOCIATES LLC**  
TRANSPORTATION ENGINEERING

**EXHIBIT P**

August 30, 2021

Mr. Kelly O'Neill  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055

**SUBJECT: REVIEW OF TRANSPORTATION IMPACT STUDY – DEER MEADOWS  
SUBDIVISION**

Dear Kelly:

In response to your request, I have reviewed materials submitted in support of the Deer Meadows on Dubarko Road in the east part of Sandy. The Transportation Impact Study (TIS), dated June 14, 2021, was prepared under the direction of Michael Ard, PE of Ard Engineering. A future street plan and preliminary plat, dated 7/26/2018, were also provided.

The site, with approximately 16 acres, is on the southwest side of US 26 and is bisected by Dubarko Road, a planned minor arterial road specified in the Sandy Transportation System Plan (TSP). TIS describes a proposal to subdivide the property; extend Dubarko Road from its present east terminus into the site; and create lots for low density dwellings and some apartments. A portion of the development is zoned for commercial uses but is not proposed to be developed at this time.

A significant feature of the development plan is that the applicant ignores the TSP and does not propose extending Dubarko Road, currently a stub street, to connect with US 26 opposite SE Vista Loop (West) as specified in the TSP. Instead, the TIS proposes "a new north/south collector roadway" as the eastern terminus of Dubarko Road.

It is also important to note that the analysis includes no development of the commercially zoned land, which is approximately 3 acres. The TIS indicates a need for further analysis when development of that commercial land is proposed.

**Overall**

TIS addresses some of the city's requirements but does not provide an adequate basis to evaluate impacts of the proposed development. Key deficiencies include a failure to provide for the extension of Dubarko Road to connect with US 26 as specified in the



Mr. Kelly O'Neill  
August 30, 2021  
Page 2

TSP and a failure to account for development of or access to the commercially zone land (approximately 3 acres) that comprises a portion of "Lot 32" in the proposed development.

### Comments

**1. Study Area.** The study includes analyses of:

- US 26 at SE Ten Eyck Road;
- US 26 at SE Langensand Road;
- Highway 211 at Dubarko Road; and
- Dubarko Road at SE Langensand Road.

Since the applicant assumes that Dubarko Road will not connect to US 26, the TIS does not include an analysis of this intersection.

**2. Traffic Counts.** The AM and PM peak hour traffic counts were conducted during March 2019. The engineer adjusted the traffic counts to account for seasonal variations. The engineer used a combination approach to account for seasonal variation of recreational traffic and separately for commuter traffic on US 26. Volumes on Highway 211 were adjusted by a straight 8 percent. The methodology appears consistent with the procedures defined by the Oregon Department of Transportation (ODOT).

The engineer's use of pre-COVID-19 counts is understandable, but new analyses needed to address the full impact of the development should be based on new traffic counts.

**3. Trip Generation.** The TIS uses trip generation for single-family dwellings and multi-family dwellings (land use code 210 and 220, respectively) from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. The engineer calculates that 32 single-family homes plus 120 apartments would produce 79 total AM peak hour trips; 99 total PM peak hour trips; and 1180 total daily trips. The calculation of trips generated by the residential development appears reasonable.

This calculation does not include potential trips associated with the future development of the commercially zoned land within the development area. The TIS states that "the nature of this future use has not yet been determined. Accordingly,

a future traffic study will be required as part of the design review application for the future commercial site use.”

By failing to any development of the commercially zoned land, the applicant has not shown the impact of the proposed removal of a key element of the TSP – namely Dubarko Road, which is shown connecting with US 26 at Vista Loop Drive (West).

- 4. Trip Distribution.** The TIS provided information about trip distribution from the site. The engineer assumed 65 percent of the traffic would travel to and from the northwest on US 26; 20 percent would travel to and from the southeast on US 26; and 15 percent would travel to and from the west on Dubarko Road. On a city-wide scale, the trip distribution seems reasonable. However, the proposed elimination of Dubarko Road results in localized impacts in the immediate vicinity that will result in different travel patterns than anticipated in the TSP.
- 5. Traffic Growth.** The TIS uses a 1.96 percent annual increase for Highway 26 based on projected volumes at the west boundary of Sandy. For Highway 211, the TIS uses an annual growth rate of 3.13 percent. For other facilities it uses a 2.0 percent annual growth rate to account for background traffic growth. The following in-process developments were included in the background traffic: the Clackamas County Health Clinic, Mt. Hood Senior Living, The Pad, The Views, Shaylee Meadows, Mt. View Ridge, Marshall Ridge, Jacoby Heights, Trimble PD, and Bornstedt Views. These assumptions account for future traffic and appear reasonable.
- 6. Analysis.** Traffic volumes were calculated for the intersections cited in #1, above. Intersection level-of-service (LOS) and the volume-to-capacity (v/c) ratio were provided. The intersection of US 26 with SE Ten Eyck Road is signalized; the other intersections are stop-controlled. The analyses were conducted for existing 2021 conditions, 2023 background conditions, and 2023 with the development.

The engineer calculates that the signalized intersection of US 26 with Ten Eyck meets the v/c standards specified by ODOT under all scenarios. At the intersection of US 26 with Langensand Road, the v/c for both the mainline and minor street approaches are calculated to meet ODOT's v/c standard. However, long delays (the basis for LOS) are calculated to occur on the minor street approaches under existing and future conditions.

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The intersection of Dubarko Road and Langensand Road is predicted to operate acceptably under all scenarios. The intersection will operate at LOS "B" or better, meeting city operational standards.

The engineer makes the following statement about the intersection of Highway 211 with Dubarko Road:

*The intersection of Oregon Highway 211 at Dubarko Road was previously under the jurisdiction of the Oregon Department of Transportation and subject to a volume-to-capacity ratio standard rather than level of service. The intersection would have met ODOT standards for operation, but with conversion to a city intersection it is projected to operate at level of service "E" either with or without the addition of site trips from the proposed development. If the intersection is converted to all-way stop control (as recommended in the safety analysis section of this report on page 20), the intersection is projected to operate at level of service D, thereby meeting the city's operational standard.*

Since the TIS did not examine the impact of development of the commercially zoned portion of the site, it is not clear that LOS D would be achieved with full development of the subject property. It appears that only a little more development in Sandy would push the Dubarko Road Highway 211 intersection to LOS E and cause the need for mitigation.

The engineer concluded that "All other intersections are projected to operate acceptably per the appropriate jurisdictional standards."

**7. Crash Information.** The TIA provides information on crashes for the most recent available five-year period covering 2015 through 2019.

At the intersection of US 26 and SE Ten Eyck Road, there were eight reported and a relatively low crash rate. At the intersection of US 26 and Langensand Road, there were seven reported crashes and a low crash rate. At the intersection of Dubarko Road and Langensand Road, there was one reported crash.

The intersection of Highway 211 and Dubarko Road has been a safety concern for years and has undergone safety improvements. During the five-year period, 27 crashes were reported. The crash rate is substantially above the 90<sup>th</sup> percentile crash rate for similar intersections. Crashes remain a problem following

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implementation of safety improvements that included realigning the Dubarko Road approaches and added striping on Highway 211. The engineer notes that the crash history indicates warrants are met for all-way stop control. He recommends consideration of the installation of all-way stop control to address safety issues. I concur.

**8. Site Plan and Access.** The site plan provides for the extension of Dubarko Road, but only to a "new north/south collector roadway." Until such time as other development occurs to the south, Dubarko Road will serve as the principal access to the development. The only other access proposed at this time is Fawn Street, which would connect to Meadow Avenue just west of the subdivision.

The site plan makes no provision for access to the commercially zoned land (a portion of "Lot 32"). The site plan does not show a new subdivision street abutting the commercially zoned portion of "Lot 32." The applicant appears to be assuming that the commercially zone portion of "Lot 32" would have direct driveway access to US 26, though this appears to conflict with ODOT access control policies. Alternatively, the applicant may be assuming some type of cross-easements or shared driveway connections involving the residentially zoned portion of "Lot 32" would be acceptable. Neither option appears viable.

The engineer failed to explain how the site would be developed to serve all uses in the absence of the Dubarko Road extension identified in the TSP. I think this is a serious deficiency. I recommend delaying any approvals until issues of access are fully developed and justified.

**9. Sight Distance.** The engineer did not analyze sight distance at the proposed intersections within the development. Given the terrain, sight distance is unlikely to be a problem and can be dealt with in subsequent proceeding.

**10. Traffic Signal Warrants.** The engineer conducted a preliminary traffic signal warrant analysis at several locations based on ODOT procedures. He concluded that traffic signal warrants were not met at any location.

He concluded that all-way stop-control was warranted at the intersection of Highway 211 and Dubarko Road based on the intersection crash history.

**11. Left-Turn Lane Warrants.** The TIS indicates that left-turn lanes are provided on eastbound US 26 at Langensand Road.

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August 30, 2021  
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According to the engineer, the intersection of Highway 211 at Dubarko Road currently meets warrants for a northbound left-turn lane and a northbound right-turn lane. However, he states that the need for these turn lanes is not materially related to the proposed development. He further states that turn lane may not be needed if all-way stop control is installed at the intersection as recommended based on his safety analysis.

According to the TIS, turn lanes are not warranted at the intersection of Dubarko Road and Langensand Road.

**12. Conclusions and Recommendations.** The engineer concludes that the intersections will meet ODOT and city operational standards for the study area intersections either with or without the development. Note that no development is assumed for the commercially zoned portion of the development.

While most study area intersections are operating relatively safely, the intersection of Highway 211 and Dubarko Road suffers from a high number of crashes and a high crash rate. It is substantially higher than the 90<sup>th</sup> percentile crash rate for comparable intersections. Recent safety improvements do not appear to have altered this trend. The proposed development is among those that are expected to increase the traffic using the intersection of Highway 211 and Dubarko Road. The engineer recommends consideration be given to converting the intersection of Highway 211 and Dubarko Road to all-way stop control for safety reasons based on the historical data. He recommends no other mitigation to address safety issues.

### **Conclusion and Recommendations**

As noted repeatedly above, the applicant is proposing to eliminate the planned connection of Dubarko Road with US 26 at Vista Loop Drive (West). Instead, he proposes to terminate Dubarko Road at a "new north/south collector roadway" near his property's west boundary. The TIS provides no justification for this change to the planned street system. There is no analysis showing the impacts on other portions of the street system caused by his proposed elimination of the minor arterial connection represented by Dubarko Road.

Another serious deficiency is the failure to account for development of the commercially zoned portion of "Lot 32." This land, totaling almost 3 acres, has the potential to generate substantial traffic. The traffic generated by this future commercial

Mr. Kelly O'Neill  
August 30, 2021  
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use cannot be ignored, especially considering the applicant's proposal to eliminate the planned connection of Dubarko Road to US 26.

The failure to explain site circulation and how all portions of the site will have access to the street network is another deficiency.

I recommend denial of the application based on the inadequacy of the TIS. I think the applicant has two paths to approval. The first involves submitting a new application that provides for the extension of Dubarko Road to US 26 as specified in the TSP. The second involves seeking a TSP amendment with an alternative arterial and collector street network that allows the regional needs to be met without the section of Dubarko Road he proposes to eliminate. Undertaking the necessary analysis to support this amendment and supporting the public process and adoption process would be an expensive and time-consuming undertaking.

If you have any questions or need any further information concerning this review, please contact me at [replinger-associates@comcast.net](mailto:replinger-associates@comcast.net).

Sincerely,



John Replinger, PE  
Principal

DeerMeadowsTIS083021



Sandy Transit  
16610 Champion Way  
Sandy, OR 97055

## EXHIBIT Q

### Memorandum

**Date:** August 26, 2021  
**To:** Kelly O'Neill, Planning Director; Marisol Martinez, Permit Technician I  
**From:** Andi Howell, Transit Director  
**Re:** Transit Requests Deer Meadows Subdivision Proposal

Per review of Deer Meadows Subdivision Proposal, the Transit Department requests the extension of Dubarko Rd from Meadow Ave to Highway 26. Dubarko Rd is a planned extension (page 50, Transit Master Plan) providing a minor arterial to Highway 26. Additionally, the Comprehensive Plan requires the street connections and walkability necessary for high transit ridership in high density and mixed use developments such as this proposal. Highway 26 access also allows for the most efficient operations of high ridership transit.

Two complimentary transit amenities will be required along the completed Dubarko Rd. The amenities required are a 6 ft long green metal bench (Fairweather model PL-3, powder-coated RAL6028) mounted on a 7' X 9.5' pad which could accommodate a 5' X 7.5' bus shelter. Transit suggests these are located at lot 3 and lot 32.

Please contact the Transit Department for specific location, amenity information and pad engineering specifications at 503-489-0925 or [ahowell@ci.sandy.or.us](mailto:ahowell@ci.sandy.or.us).

Andi Howell  
Transit Director





# EXHIBIT R

## MEMORANDUM

TO: KELLY O'NEILL, DEVELOPMENT SERVICES DIRECTOR  
FROM: MIKE WALKER, DIRECTOR OF PUBLIC WORKS  
RE: PUBLIC WORKS COMMENTS - FILE NO. 21 -014 SUB/TREE  
DATE: AUGUST 31, 2021

The following are Public Works' comments on the above-referenced application.

### **Transportation**

Dubarko Rd. and the public access lane identified as Street "C" create "T" intersections at their connection to Street "A" and Street "B" respectively. The distance between the two nearest edges of the right-of-way between Dubarko Rd. (an arterial) and the public access lane is less than the minimum 150 ft. dimension in sections 17.84.50(E)2 Sandy Municipal Code (SMC).

Street "B" is designated as a collector on the site plan and roughly corresponds to the location of a collector street depicted in the TSP. Section 17.98.80 states that "Accesses to arterials or collectors shall be located a minimum of 150 feet from any other access or street intersection." The distance between public access lane identified as Street "C" at its connection to Street "B" and Dubarko Road is less than the 150 ft. dimensional standard in this section of the Code.

Sheet C5 of the applicant's submission contains a statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops". No dimensional information is shown on the site plan to support this statement. The location, number and width of all driveway approaches in cul-de-sacs shall not exceed the dimensional standards in section 17.98.100 SMC.

The site plan does not depict frontage improvements (curbs, sidewalks, street lighting, storm drainage, etc.) on the Highway 26 frontage of the site required under section 17.84.50(F)1 and 17.84.30(A) SMC.

The proposed alignment of Dubarko does not connect to Hwy 26 as shown in the TSP and as required in section 17.84.50(D).

### **Utilities**

The proposed 10' wide public storm drainage easements depicted between lots 27 and 28 and at the rear of lots 9-13 do not meet the minimum dimensional requirement for public facility easements in section 17.84.90(A)2 SMC.

The applicant shall install all water lines and fire hydrants in compliance with the applicable standards in Section 17.100.230, which lists requirements for water facilities. The existing 8-inch diameter water line resides in an easement granted to the City of Sandy recorded at 2004-110340. The applicant shall replace the existing waterline with an 8-inch diameter water line at a depth approved by the City Engineer. There will be no

compensation or credits for replacement of the existing water line. This pipe is a standard pressure line and will be used to provide domestic water service to the development. The City's water master plan shows an 18-inch diameter water line in Dubarko Road south of Highway 26. The applicant shall install an 18-inch water line in Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26. Due to the elevation of the site relative to the existing water reservoirs on Vista Loop Drive this line will be a low-pressure, high-volume line and will be used for fire protection. The cost difference between a standard diameter water line and the required 18-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017.

Section 17.84.60D SMC states: "As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies)". The applicant shall extend the existing 12-inch water main in Highway 26 east from the proposed intersection of Dubarko Road and Highway 26 to the east boundary of the site. The cost difference between a standard diameter (8 inch) water line and the required 12-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017.

**General**

Public utility and street plans for land use applications are submitted to comply with the requirements in 17.100.60 SMC. Land use approval does not connote approval of utility or street construction plans which are subject to a separate submittal and review process.



Marisol Martinez <mmartinez@ci.sandy.or.us>  
**EXHIBIT S**

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## 21-014 SUB/TREE

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**Gary Roche** <groche51@gmail.com>  
To: planning@ci.sandy.or.us

Mon, Aug 16, 2021 at 9:46 AM

Deer Meadows  
File # 21-014 SUB/TREE

Planning Division,

This is going to be a traffic nightmare for the Deer Pointe neighborhood. The development has most of the new units using Street A or Fawn St to enter or leave the neighborhood.

Going on the worst case scenario where each new unit has two vehicles and they are each used once a day:

30 lots in R-1 = 60 vehicles

68 units in R-2 = 136 vehicles

C-3 zoned land = unknown number of vehicles

That means 196 vehicles times two trips a day equals 392 trips a day on Fawn, Meadow, Antler or Dubarko. I can't imagine 392 additional cars a day going past my house. It would be horrible. These are all narrow streets. When people park on both sides of the street, which they always do, only one vehicle can get through. Children play in the streets. It is only a matter of time before a car is sideswiped or a child is hit when you have that number

of vehicles on these narrow streets.

The developer should be required to connect the development to Hwy 26 to ease the burden on these residential streets. Or do something else to keep the vehicles off those streets and funnel them to Dubarko, which is wider with no parking.

And please add speed humps on those streets to slow the traffic.

Thank you

Gary and Val Roche  
40494 Fawn St

**EXHIBIT T**

The latest proposal has no R-3 zone which was our major opposition to the last two proposals. However this proposal does not have Dubarko going all the way to Route 26. That means that all the traffic into the new subdivision would come down Dubarko from Langensand. This puts a terrible burden on our neighborhood! We oppose any development that doesn't have Dubarko exiting to Route 26. Such a large new subdivision needs an entrance from Route 26

RECEIVED

AUG 23 2021

CITY OF SANDY

Your Name

Dave & Nancy Allan

Phone Number

503-826-0282

Address

18417 Meadow Ave, Sandy, OR

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.



Marisol Martinez <mmartinez@ci.sandy.or.us>  
**EXHIBIT U**

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## File # 21-014 SUB/TREE

1 message

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**Ashley** <yukich20@gmail.com>

Mon, Aug 23, 2021 at 9:11 PM

To: planning@ci.sandy.or.us, koneill@ci.sandy.or.us

To Whom It May Concern,

As a resident, I would like to provide my input on the potential new development located "South of Highway 26, east of Meadow Avenue."

I would like to see this proposed development denied.

These are my following reasons:

**Noise:**

It is important to keep the treeline and naturescape to limit the amount of noise coming into the neighborhood from HWY 26.

**Park:**

A community park is not sufficient when you are asking to rip out forest areas to build. I would like to see the entire "R-1 Zone "developed and committed to a significant park - Deer Point Park (trail through nature/trees, dog park, splash pad, playground area, picnic tables). This would show an understanding of the residents of Sandy and put a buffer in between infrastructures. This could also help with noise reduction if more trees were planted.

**Roadways:**

There needs to be roadway access into the new development directly from HWY 26. A stop light also needs to be put into place on HWY 26 to accommodate the amount of traffic new development would bring into the area. Fawn Street should NOT go through as the neighborhoods do not have the capacity for this much traffic. Dubarko is the only street (if any) that should lead into the new development from the west side. Traffic includes school buses, garbage/recycling trucks, public transportation, street parking, residential traffic, etc. SE Langensand RD and other roads in the neighborhood are not



8/24/2021

City of Sandy Mail - File # 21-014 SUB/TREE

maintained well enough for the current amount of traffic so there is no way that it could handle anymore.

**Multifamily Dwellings:**

Only single family homes should be built in this area. No Multifamily dwellings should be approved as the land cannot support this infrastructure long term.

Sincerely,

Ashley Yukich  
(503) 758-0359  
[18331 Antler Ave.](#)  
[Sandy, OR 97055](#)

**EXHIBIT V**

COMMENT SHEET for File No. 21-014 SUB/TREE:

My opinion on this matter has not changed. This is a small community + 66 units will effect traffic + parking is a big problem for that many units. Again this is not what we were told when we purchased our home, it was not multi family units it was single family homes + a small park for the children. I expect this to be carried out please.

RECEIVED

SEP 08 2021

CITY OF SANDY

Marilyn Euteneier

Your Name

(503) 964-1132

Phone Number

40482 Buck Street

Address

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.

## Exhibit W

Dear Planning Commission, City Planning Staff, and City Councilors:

Received 9.14.21

I have lived in the Deer Pointe neighborhood for the past 10 years. I moved to the City of Sandy because of its small town feel and the lower population compared to many other cities in the Urban Growth Boundary. We, as a community, have seen more and more cars and homeless people moving into the area. The traffic in this area has gotten severely worse over the last few years. There are times when you have to wait several minutes just to get onto 26. This is not acceptable and is only going to get worse when you add in more neighborhoods like the proposed one at the Deer Meadows Subdivision. You all need to think about the ramifications on the residents that currently live here and not the ones that will be moving here. I have no problem with the city growing, but make sure it is done correctly. Please make sure that the builders will adhere to the original plans and not build any apartment complexes. I have no problems with single family dwellings or low density housing.

Also, when we built here, we were told that the park across the street was going to be doubled in size. There was a plan to have a walking path, basketball courts, and a playground in the park. The new plans by the builders don't have a park at all and have houses built there instead. With every other neighborhood in the area, there is a park in the middle of it for the kids and families to use. The original plans should still be intact and not be replaced by more houses.

I don't understand why the citizens of the City of Sandy have to argue against building new subdivision housing areas. The amount of traffic that is going to be in the neighborhood of Deer Pointe is going to be at dangerous levels. The cars in the neighborhoods across the city are already packing the side streets to get away from Highway 26. With the new proposal of Deer Meadows it is going to be a problem with no outlet to Highway 26. All the houses in that neighborhood will have to all go through Deer Pointe. This is going to increase the traffic to an already congested neighborhood. There is no outlet on Dubarko because of the expense that the builders will have to incur. There has to be other outlets out of the neighborhood. Please take in consideration the citizens and their concerns and not just focus on the money that will be coming into the city.

Scott Ruehrdanz  
40498 Fawn Street  
Sandy, Oregon  
715-703-0839

## EXHIBIT X

**Schwabe**  
WILLIAMSON & WYATT®

February 8, 2021

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

RE: Roll Tide Properties, LLC / Bull Run

Dear Mr. O'Neill:

As we will discuss on February 10 for Bull Run, attached are sections of the Sandy Development Code that (a) include subjective standards and procedures and provide for subjective conditions; and (b) improperly incorporate or fail to incorporate the Sandy Comprehensive Plan, the Sandy TSP, and other public facilities plans. Also included for your reference are related Oregon statutes and case law discussing same. For ease of review, we have highlighted the subjective criteria and procedures (and related statutes/case law) in gold or yellow; and the incorporation of the various Plans (and related statutes/case law) in aqua.

We are looking forward to our next meeting.

Very truly yours,



Michael C. Robinson

MCR:jmhi  
Enclosures

cc: Mr. Dave Vandehey (via email) (w/enclosures)  
Mr. Alex Reverman (via email) (w/enclosures)  
Mr. Carey Sheldon (via email) (w/enclosures)  
Mr. Mike Ard (via email) (w/enclosures)  
Mr. Ray Moore (via email) (w/enclosures)  
Mr. Tracy Brown (via email) (w/enclosures)  
Christopher D. Crean, Esq. (via email) (w/enclosures)  
Ms. Shelley Denison (via email) (w/enclosures)  
Ms. Erin Forbes (via email) (w/enclosures)

PDX\126769\255102\MCR\30094350.1

**197.195 Limited land use decision; procedures.** (1) A limited land use decision shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.

(2) A limited land use decision is not subject to the requirements of ORS 197.763.

(3) A limited land use decision is subject to the requirements of paragraphs (a) to (c) of this subsection.

(a) In making a limited land use decision, the local government shall follow the applicable procedures contained within its acknowledged comprehensive plan and land use regulations and other applicable legal requirements.

(b) For limited land use decisions, the local government shall provide written notice to owners of property within 100 feet of the entire contiguous site for which the application is made. The list shall be compiled from the most recent property tax assessment roll. For purposes of review, this requirement shall be deemed met when the local government can provide an affidavit or other certification that such notice was given. Notice shall also be provided to any neighborhood or community organization recognized by the governing body and whose boundaries include the site.

(c) The notice and procedures used by local government shall:

(A) Provide a 14-day period for submission of written comments prior to the decision;

(B) State that issues which may provide the basis for an appeal to the Land Use Board of Appeals shall be raised in writing prior to the expiration of the comment period. Issues shall be raised with sufficient specificity to enable the decision maker to respond to the issue;

(C) List, by commonly used citation, the applicable criteria for the decision;

(D) Set forth the street address or other easily understood geographical reference to the subject property;

(E) State the place, date and time that comments are due;

(F) State that copies of all evidence relied upon by the applicant are available for review, and that copies can be obtained at cost;

(G) Include the name and phone number of a local government contact person;

(H) Provide notice of the decision to the applicant and any person who submits comments under subparagraph (A) of this paragraph. The notice of decision must include an explanation of appeal rights; and

(I) Briefly summarize the local decision making process for the limited land use decision being made.

(4) Approval or denial of a limited land use decision shall be based upon and accompanied by a brief statement that explains the criteria and standards considered relevant to the decision, states the facts relied upon in rendering the decision and explains the justification for the decision based on the criteria, standards and facts set forth.

(5) A local government may provide for a hearing before the local government on appeal of a limited land use decision under this section. The hearing may be limited to the record developed pursuant to the initial hearing under subsection (3) of this section or may allow for the introduction of additional testimony or evidence. A hearing on appeal that allows the introduction of additional testimony or evidence shall comply with the requirements of ORS 197.763. Written notice of the decision rendered on appeal shall be given to all parties who appeared, either orally or in writing, before the hearing. The notice of decision shall include an explanation of the rights of each party to appeal the decision. [1991 c.817 §3; 1995 c.595 §1; 1997 c.844 §1]

**197.303 “Needed housing” defined.** (1) As used in ORS 197.286 to 197.314, “needed housing” means all housing on land zoned for residential use or mixed residential and commercial use that is determined to meet the need shown for housing within an urban growth boundary at price ranges and rent levels that are affordable to households within the county with a variety of incomes, including but not limited to households with low incomes, very low incomes and extremely low incomes, as those terms are defined by the United States Department of Housing and Urban Development under 42 U.S.C. 1437a. “Needed housing” includes the following housing types:

(a) Attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490;

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions; and

(e) Housing for farmworkers.

(2) For the purpose of estimating housing needs, as described in ORS 197.296 (3)(b), a local government shall use the population projections prescribed by ORS 195.033 or 195.036 and shall consider and adopt findings related to changes in each of the following factors since the last review under ORS 197.296 (2)(a)(B) and the projected future changes in these factors over a 20-year planning period:

(a) Household sizes;

(b) Household demographics;

(c) Household incomes;

(d) Vacancy rates; and

(e) Housing costs.

(3) A local government shall make the estimate described in subsection (2) of this section using a shorter time period than since the last review under ORS 197.296 (2)(a)(B) if the local government finds that the shorter time period will provide more accurate and reliable data related to housing need. The shorter time period may not be less than three years.

(4) A local government shall use data from a wider geographic area or use a time period longer than the time period described in subsection (2) of this section if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to



subsection (2) of this section. The local government must clearly describe the geographic area, time frame and source of data used in an estimate performed under this subsection.

(5) Subsection (1)(a) and (d) of this section does not apply to:

(a) A city with a population of less than 2,500.

(b) A county with a population of less than 15,000.

(6) A local government may take an exception under ORS 197.732 to the definition of “needed housing” in subsection (1) of this section in the same manner that an exception may be taken under the goals. [1981 c.884 §6; 1983 c.795 §2; 1989 c.380 §1; 2011 c.354 §2; 2017 c.745 §4; 2019 c.639 §6; 2019 c.640 §10a]

**197.307 Effect of need for certain housing in urban growth areas; approval standards for residential development; placement standards for approval of manufactured dwellings.** (1) The availability of affordable, decent, safe and sanitary housing opportunities for persons of lower, middle and fixed income, including housing for farmworkers, is a matter of statewide concern.

(2) Many persons of lower, middle and fixed income depend on government assisted housing as a source of affordable, decent, safe and sanitary housing.

(3) When a need has been shown for housing within an urban growth boundary at particular price ranges and rent levels, needed housing shall be permitted in one or more zoning districts or in zones described by some comprehensive plans as overlay zones with sufficient buildable land to satisfy that need.

(4) Except as provided in subsection (6) of this section, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing. The standards, conditions and procedures:

(a) May include, but are not limited to, one or more provisions regulating the density or height of a development.

(b) May not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.

(5) The provisions of subsection (4) of this section do not apply to:

(a) An application or permit for residential development in an area identified in a formally adopted central city plan, or a regional center as defined by Metro, in a city with a population of 500,000 or more.

(b) An application or permit for residential development in historic areas designated for protection under a land use planning goal protecting historic areas.

(6) In addition to an approval process for needed housing based on clear and objective standards, conditions and procedures as provided in subsection (4) of this section, a local government may adopt and apply an alternative approval process for applications and permits for residential development based on approval criteria regulating, in whole or in part, appearance or aesthetics that are not clear and objective if:

(a) The applicant retains the option of proceeding under the approval process that meets the requirements of subsection (4) of this section;

(b) The approval criteria for the alternative approval process comply with applicable statewide land use planning goals and rules; and

(c) The approval criteria for the alternative approval process authorize a density at or above the density level authorized in the zone under the approval process provided in subsection (4) of this section.

(7) Subject to subsection (4) of this section, this section does not infringe on a local government's prerogative to:

- (a) Set approval standards under which a particular housing type is permitted outright;
- (b) Impose special conditions upon approval of a specific development proposal; or
- (c) Establish approval procedures.

(8) In accordance with subsection (4) of this section and ORS 197.314, a jurisdiction may adopt any or all of the following placement standards, or any less restrictive standard, for the approval of manufactured homes located outside mobile home parks:

(a) The manufactured home shall be multisectional and enclose a space of not less than 1,000 square feet.

(b) The manufactured home shall be placed on an excavated and back-filled foundation and enclosed at the perimeter such that the manufactured home is located not more than 12 inches above grade.

(c) The manufactured home shall have a pitched roof, except that no standard shall require a slope of greater than a nominal three feet in height for each 12 feet in width.

(d) The manufactured home shall have exterior siding and roofing which in color, material and appearance is similar to the exterior siding and roofing material commonly used on residential dwellings within the community or which is comparable to the predominant materials used on surrounding dwellings as determined by the local permit approval authority.

(e) The manufactured home shall be certified by the manufacturer to have an exterior thermal envelope meeting performance standards which reduce levels equivalent to the performance standards required of single-family dwellings constructed under the Low-Rise Residential Dwelling Code as defined in ORS 455.010.

(f) The manufactured home shall have a garage or carport constructed of like materials. A jurisdiction may require an attached or detached garage in lieu of a carport where such is consistent with the predominant construction of immediately surrounding dwellings.

(g) In addition to the provisions in paragraphs (a) to (f) of this subsection, a city or county may subject a manufactured home and the lot upon which it is sited to any development standard, architectural requirement and minimum size requirement to which a conventional single-family residential dwelling on the same lot would be subject. [1981 c.884 §5; 1983 c.795 §3; 1989 c.380 §2; 1989 c.964 §6; 1993 c.184 §3; 1997 c.733 §2; 1999 c.357 §1; 2001 c.613 §2; 2011 c.354 §3; 2017 c.745 §5; 2019 c.401 §7]

PARKVIEW TERRACE DEVELOPMENT LLC, Petitioner, and JOSEPHINE HOUSING AND COMMUNITY DEVELOPMENT COUNCIL, Intervenor-Petitioner,

v.

CITY OF GRANTS PASS, Respondent, and DAVID R. MANNIX, MELISSA S. CANON

EAVES, CAREY GILBERT, JAMES FREGO, CYNTHIA FREGO, SHAUN HOBACK, RANDY R. LEMMON, TONI J. LEMMON, DAVID J. HOLMAN and JOANNA H. LOFASO, Intervenor-Respondents.

LUBA No. 2014-024

LAND USE BOARD OF APPEALS OF THE STATE OF OREGON

July 23, 2014

FINAL OPINION AND ORDER

Appeal from City of Grants Pass.

Michael C. Robinson, Portland, filed a joint petition for review and argued on behalf of petitioner. With him on the brief were Seth J. King, Perkins Coie LLP, Benjamin E. Freudenberg and Davis, Adams, Freudenberg, Day & Galli.

Benjamin E. Freudenberg, Grants Pass, filed a joint petition for review

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on behalf of intervenor-petitioner. With him on the brief were Davis, Adams, Freudenberg, Day & Galli, Michael C. Robinson, Seth J. King, and Perkins Coie LLP.

No appearance by City of Grants Pass.

David R. Mannix, Grants Pass, filed the response brief and argued on his own behalf. Melissa S. Canon Eaves, Carey Gilbert, James Frego, Cynthia Frego, Shaun Hoback, Randy R. Lemmon, Toni J.

Lemmon, David J. Holman and Joanna H. Lofaso, Grants Pass, represented themselves.

HOLSTUN, Board Member; RYAN, Board Chair; BASSHAM, Board Member, participated in the decision.

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

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Opinion by Holstun.

NATURE OF THE DECISION

Petitioners appeal a city council decision denying its application for site plan approval and a variance from street and block length standards to permit construction of 50 units of federally assisted housing for low-income individuals.

INTERVENORS-RESPONDENTS

In a June 19, 2014 order, we allowed intervenor-respondent Mannix's response brief. In that order, we determined we would not consider intervenor-respondent Gilbert's response brief because it was not timely filed. No other intervenor-respondent filed a response brief. In this opinion, we therefore refer in the singular to the only intervenor-respondent who timely filed a response brief.

MOTION TO FILE REPLY BRIEF

Petitioner Parkview Terrace Development LLC, the applicant below, and intervenor-petitioner Josephine Housing and Community Development Council, which administers a federally supported housing voucher program and supports the proposal (together petitioners) move for permission to file a reply brief to respond to alleged "new matters" raised in the response brief. The reply brief is allowed.

MOTION TO STRIKE RESPONSE BRIEF



Petitioners move to strike portions of intervenor-respondent's response brief, including three exhibits that are not included in the record filed by the city in this matter, as well as related passages in the response brief that rely upon those exhibits, and additional parts of the response brief that include

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factual assertions that petitioners contend are not supported by evidence in the record.

With exceptions that do not apply here, LUBA's review is limited to the record filed by the local government. ORS 197.835(2). The three exhibits (exhibits A, C and D) are not included in the record, and we understand intervenor-respondent to offer those exhibits for their evidentiary value. Petitioners' motion to strike the exhibits is granted.

With regard to the portions of the response brief that petitioners contend rely on those exhibits and are not supported by the record, LUBA disregards any allegations of material fact that are not supported by the record. However, a lack of evidentiary support for arguments and factual allegations in a response brief is not a basis for striking those portions of the brief. *Hammock & Associates, Inc. v. Washington County*, 16 Or LUBA 75, 78, *aff'd* 89 Or App 40, 747 P2d 373 (1987).

#### STANDING

In his response brief, intervenor-respondent challenges intervenor-petitioner's standing, arguing that the Josephine Housing and Community Development Council, as an entity, did not "appear through counsel" in the local proceedings in this matter. Intervenor-Respondent's Brief 1. In our May 1, 2014 Order, we concluded that the Council had appeared through its executive director and that intervenor-respondent failed to establish that the Council was required under county procedures to appear through counsel. Intervenor-respondent offers no

reason in his response brief to question those conclusions, and we adhere to them.

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#### FACTS

The subject property is zoned High Density Residential (R-3) and includes approximately 3.02 acres. There are residential townhouses (Maple Park) to the south of the subject property, a warehouse to the north, a mini-storage facility to the east, and a city park to the west. Many of the intervenors-respondents reside in Maple Park.

In 2006, the City of Grants Pass approved the Maple Park planned unit development (Maple Park PUD). The city's Maple Park PUD approval decision authorized an 88-unit residential development in three phases. Simultaneously, the city also approved a major variance to the street section design, maximum cul-de-sac length, and street separation standards. The Maple Park PUD developer constructed 28 townhouse units in developing Phase I but failed to complete the remaining units that were to be constructed as Phases II and III, apparently due to the recent recession. Petitioner is a successor-in-interest to the original developer. Petitioner wishes to construct a 50-unit multi-family housing project (Parkview Terrace) in place of Phases II and III of the Maple Park PUD. The 50 units would be multi-family rental units, all owned by petitioner, rather than town houses that would be separately owned.

In addition to seeking approval for the site plan, petitioner also sought approval for a variance to the city's street block length standards. The city's staff reviewed petitioner's applications and recommended approval, subject to a number of conditions. The Urban Area Planning Commission (UAPC) held a public hearing on the applications and, on December 11, 2013, approved the site plan and variance applications with conditions.

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On December 19, 2013, intervenor-respondents and others appealed the UAPC's decision to the city council. The city council reversed the UAPC's decision and denied petitioner's applications. This appeal followed.

#### MAPLE PARK PUD PHASES II AND III

Before turning to petitioners' assignments of error, we note that a recurring point of dispute between the parties is the current status of Maple Park PUD Phases II and III. Many of the parties' evidentiary disputes also have to do with Maple Park PUD Phases II and III. The city council's decision is a revision of the UAPC's decision with unchanged text, strikeouts (city council deletions) and bold italic text (city council additions). In the city council's decision, text from the UAPC's decision stating that that Maple Park PUD Phases II and III are "active" is stricken through, indicating that text was deleted from the city council's decision and findings. Record 13. The following finding from the UAPC's decision was not changed by the city council:

"The applicant has notified the Planning Department of its withdrawal of the previous approval(s) for Phases II and III of Maple Park PUD." *Id.*

According to petitioners, the reference to the applicant's withdrawal is a reference to a January 17, 2014 letter from petitioner's executive director to the planning department that makes the following request:

"As the owner of the property identified by Josephine County Assessor's map ID #36-05-20-DC and tax lot #2201, we request irrevocable termination of any and all land development entitlement rights under the tentative PUD approval for Phase II & Phase III of the Maple Park Townhomes \* \* \* and hereby waive any right to forever rely on any entitlement

rights granted by said approval." Record 201.

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We understand the city council to have determined that the city's approval for Phases II and III of Maple Park PUD has been withdrawn or terminated and are no longer active.

In his response brief, intervenor-respondent argues:

"This particular application ignored the existence of the PUD when it submitted its plans. When opponents raised the question, supporters of the application came up with an ad hoc series of increasingly bizarre theories as to why the PUD did not currently exist. The last one was that a successor in interest (3 parties away from the original) could simply unilaterally revoke the PUD, and accordingly, in mid-process (February 2014) submitted a letter to the Planning Department saying in effect, 'I revoke.' The theory that a successor in interest may years later simply unilaterally revoke a PUD upon which many other parties have relied, is of course, logical nonsense. \* \* \*. Intervenor-Respondent's Brief 18.

We understand intervenor-respondent to challenge the above finding that the city's approval of Maple Park PUD Phases II and III has been withdrawn. Intervenor-respondent contends that the city's approval of Maple Park PUD Phases II and III remains effective and provides an independent basis for affirming the city council's decision to deny petitioner's site plan, which is inconsistent with Maple Park PUD Phases II and III.

There are two problems with intervenor-respondent's position regarding Maple Park PUD



Phases II and III. First, the city council adopted the opposite position from intervenor-respondent's regarding the continued existence of the city's prior approval of Maple Park PUD Phases II and III. Intervenor-respondent contends the above-quoted finding—that petitioner withdrew that approval—was prepared by the planning staff and was not adopted by the city council. While the above-quoted finding apparently was prepared by planning staff and adopted initially by the UAPC, the city council adopted the UAPC's

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decision, including its findings, as its own, except where the city council adopted additions and deletions. Those findings, as amended, were "Approved by the City Council." Record 24. Thus, while the city council may not have been the author of the disputed finding, the city council clearly adopted the finding.

The second problem with intervenor-respondent's position is that LUBA's rules expressly authorize intervenors-respondents to assign error to aspects of a decision on appeal, whether they agree or disagree with the ultimate disposition in the decision.

"Cross Petition: Any respondent or intervenor-respondent who seeks reversal or remand of an aspect of the decision on appeal regardless of the outcome under the petition for review may file a cross petition for review that includes one or more assignments of error. *A respondent or intervenor-respondent who seeks reversal or remand of an aspect of the decision on appeal only if the decision on appeal is reversed or remanded under the petition for review may file a cross petition for review that includes contingent cross-assignments of error, clearly labeled as such.* The cover page shall identify the petition as a cross petition and the party

filing the cross petition. *The cross petition shall be filed within the time required for filing the petition for review and must comply in all respects with the requirements of this rule governing the petition for review, except that a notice of intent to appeal need not have been filed by such party.*" OAR 661-010-0030(7) (emphases added).

Intervenor-respondent asks LUBA to reverse the finding regarding the city's prior approval of Maple Park PUD Phases II and III, so that the continued viability of Maple Park PUD Phases II and III would provide an independent basis for affirming the city council's denial decision in the event LUBA sustains one or more of petitioners' assignment of error. Intervenor-respondent did not file a cross petition for review with a contingent assignment of error

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assigning error to the city council's finding and making the arguments it makes in its response brief.

Citing *BenjFran Development v. Metro Service Dist.*, 17 Or LUBA 1009, 1011-1012 (1988), intervenor-respondent contends it was not required to file a cross petition for review. *BenjFran* was decided in 1988, when LUBA's rules simply authorized cross petitions for review, without specifying the circumstances in which they are to be filed. The reason LUBA adopted OAR 661-010-0030(7) is to require that arguments such as the one intervenor-respondent advances in its response brief be set out earlier in a cross petition for review, to avoid the possibility of delay, since response briefs typically are filed shortly before the date set for oral argument. Because intervenor-respondent did not file a cross petition for review in accordance with OAR 661-010-0030(7), we do not consider intervenor-respondent's arguments that the city's prior approval of Maple Park PUD Phases II and III remains effective or that the possible continued existence of city approval for Phases II and III





provides an independent basis for affirming the city council's decision to deny petitioner's application for site plan approval.

#### FIRST ASSIGNMENT OF ERROR

Under their first assignment of error, petitioners argue the proposal is a proposal for "needed housing," as that term is defined at ORS 197.303.<sup>1</sup> Because the proposal is a proposal for "needed housing," petitioners contend the proposal may only be subject to approval standards that are "clear and objective." Petitioners argue that the city was advised, during the proceedings below, that petitioners took the position that a number of standards that would

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otherwise apply to the proposal are not "clear and objective standards" and for that reason may not be applied to deny the proposal. Petitioners contend that the city council nevertheless applied a number of standards that are not "clear and objective" to deny the application for site plan approval. Petitioners argue the city council never responded to petitioners' contention that those standards may not be applied to a proposal for "needed housing." Petitioners assign error to the city's failure to respond to this issue in its findings and separately assign error to the city council's decision to apply those standards as bases for denial of the site plan.

#### A. Needed Housing

The Oregon Legislature has recognized a need to make housing available to people earning low, middle, or fixed incomes. ORS 197.307(1).<sup>2</sup> ORS

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197.303 defines "needed housing" as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels \* \* \*." Among other types, the statute identifies "[g]overnment assisted housing" as a type of

"needed housing." ORS 197.303(1)(b). The city's comprehensive plan identifies a need for over 4,100 housing units that are affordable to households with incomes of less than \$37,200. Record 832. The proposal is for government assisted housing that is affordable to persons with incomes of less than \$37,200 and therefore qualifies as "needed housing."

Intervenor-respondent does not really dispute that the proposal qualifies as "needed housing," but argues that the housing that would have been provided if Phases II and III of Maple Park PUD were completed as approved also qualifies as "needed housing." The definition of "needed housing" in ORS 197.303 is so broad that intervenor-respondent is likely correct. However, even if the proposal is a proposal to substitute one type of "needed housing" for another type of "needed housing," that does not mean the proposal is a proposal for something other than "needed housing."

#### B. Petitioners' Findings Challenge

As we explain in more detail below, we agree with petitioners that a number of standards that the city applied in this case to deny the proposal are not "clear and objective standards," as is required by ORS 197.307(4). Before doing so, we agree initially with petitioners that it was error for the city not to

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respond in its decision to the issue of whether those standards qualify as "clear and objective standards." As we explained in *Rosenzweig v. City of McMinnville*, 64 Or LUBA 402, 410-11 (2011):

"LUBA has consistently held 'that when a relevant issue is adequately raised by testimony or other evidence in the record, that issue must be addressed in the decision maker's findings.' *Blosser v. Yamhill County*, 18 Or LUBA 253, 264 (1989) (citing *Norvell v. Portland*



*Metropolitan LGBC*, 43 Or App 849, 852-53, 604 P2d 896 (1979)); *see also Friends of Umatilla County*, 55 Or LUBA 333, 337 (2007); *Marcott Holdings, Inc. v. City of Tigard*; 30 Or LUBA 101, 107-08 (1995). However, as we pointed out in *Faye Wright Neighborhood Planning Council v. Salem*, 1 Or LUBA 246, 252 (1980), 'not every assertion by a participant in a land use decision warrants a specific finding.' A petitioner at LUBA must (1) identify the issue raised, (2) demonstrate that the issue was *adequately* raised and (3) establish that the issue is relevant in some way (usually by showing that the issue raises a question regarding an applicable approval standard). \* \* \* (Emphasis in original.)

Petitioner identified seven standards that the city ultimately applied to deny the proposal and took the position that they are not "clear and objective" and could not be applied to deny petitioner's request for approval of a proposal for "needed housing." Grants Pass Development Code (GPDC) 19.052(2) (Record 261); GPDC 19.052(4) (Record 271); GPDC 19.052(5) (Record 272); GPDC 19.052(6) (Record 272); GPDC 19.052(8)(a) and (e) (Record 273-74); GPDC 19.052(9) (Record 274-75); GPDC 19.052(11) (Record 275). Petitioners have adequately identified the issue and demonstrated that the issue was adequately raised. Since the city relied on all of those subjective standards to deny the application, the issue is relevant. The city should have responded to that issue in its findings, and it erred by failing to do so.

### C. Clear and Objective Standards

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ORS 197.307(4) provides that local governments are only authorized to apply "clear and objective standards, conditions and

procedures" in reviewing applications for "needed housing." *See* n 2.

### 1. Intervenor-Respondent's Arguments

Intervenor-respondent offers a number of reasons why he believes the "clear and objective standards" requirement of ORS 197.307(4) either does not apply or was satisfied in this case.

First, intervenor-respondent contends the requirement for "clear and objective standards" only applies to "[a]esthetic criteria." Intervenor-Respondent's Brief 13. Intervenor-respondent does not identify the basis for that argument, and there is nothing in the text of ORS 197.307(4) that limits the requirement for "clear and objective standards" to aesthetic criteria. Petitioners speculate that intervenor-respondent may be relying on the pre-2011 version of ORS 197.307(3)(b). If so, that version of ORS 197.307(3)(b) was repealed in 2011. Or Laws 2011, ch 354, sec 3. Intervenor-respondent also fails to recognize that the pre-2011 version of ORS 197.307(3) subsections (b) and (c) were a nested exception to the general requirement for "clear and objective standards" for "needed housing" to allow certain large jurisdictions to impose aesthetic regulations on "needed housing." The pre-2011 version of ORS 197.307 also included a general requirement for "clear and objective standards." ORS 197.307(6) (2009).

Intervenor-respondent next argues that the requirement for "clear and objective standards" only applies in cases where the applicant establishes "impermissible bias or prejudice in the application process." Intervenor-Respondent's Brief 14. Again, there is simply no text in ORS 197.307(4) that

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limits the statute to cases where the decision maker exhibits bias or prejudice. *See* n 2.

Next, citing *Rogue Valley Assoc. of Realtors v. City of Ashland*, 158 Or App 1, 4, 970 P2d 685 (1999), intervenor-respondent contends a



standard only violates ORS 197.307(4) if the applicant demonstrates that the standards are "categorically incapable of being clearly and objectively applied under any circumstances where they may be applicable." The appeal in *Rogue Valley* was a facial challenge to an ordinance that adopted new standards and the requirement imposed by the quoted language in the Court of Appeals' decision was limited to facial challenges. We do not understand petitioners to make a facial challenge here. Even if they do, that part of the Court of Appeals' decision was overruled by the legislature in 1999. ORS 197.831.<sup>3</sup>

Intervenor-respondent next argues that the ORS 197.307(4) "clear and objective standards" requirement does not apply to requests for a variance. Intervenor-respondent is correct. *Linstromberg v. City of Veneta*, 47 Or LUBA 99, 108-09 (2004). But petitioners do not argue the city's standards for granting a variance must be "clear and objective." Rather, petitioners contend the city erroneously concluded under the applicable variance standards that

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petitioner's request for a variance could be denied.<sup>4</sup> Petitioners' "clear and objective standards" challenge is limited to standards the city applied to the proposed site plan.

## 2. The Challenged Site Plan Review Standards

Petitioners contend that seven of the site plan review standards that the city relied on in denying its application for site plan review approval are not "clear and objective standards," and thus may not be applied to the site plan.

### a. GPDC 19.052(2)

GPDC 19.052(2) requires that the proposal comply "with applicable elements of the Comprehensive Plan, including: Traffic Plan, Water Plan, Sewer Plan, Storm Drainage Plan, Bicycle Plan, and Park Plan." Record 19. The

UAPC found that the proposal satisfies GPDC 19.052(2) and adopted findings to support that conclusion. The city council adopted the UAPC's findings. However, the city council struck through the part of the UAPC's findings that concluded "Satisfied with conditions," and added the following sentence at the end of the UAPC's findings:

"The City Council found the request was not in compliance with the Comprehensive Plan for traffic management (Element 11 – Master Transportation Plan)." Record 19. (Bold and italics deleted.)

GPDC 19.052(2) includes no guidance for determining which elements of the city's comprehensive plan are applicable. The only element identified by the city council's decision is Element 11. Element 11 is the city's Master Transportation Plan. The Master Transportation Plan is eight chapters long.

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One of those chapters is chapter 3, which is 13 pages long and sets out numerous goals and objectives. Many of those goals and objectives are not "clear and objective."<sup>5</sup> We assume the city council was not applying the entire eight-chapter Master Transportation Plan, but the city council's findings do not identify what part it was applying. We agree with petitioners that in this case **the city council's application of the Master Transportation Plan, without identifying what part of that plan it was applying, applies a standard that is not "clear and objective," which is prohibited by ORS 197.307(4). The city council erred in doing so.**

### b. GPDC 19.052(4)

GPDC 19.052(4) requires that "[p]otential land use conflicts have been mitigated through specific conditions of development." Record 21. The UAPC decision found the proposal, with conditions, complies with GPDC 19.052(4). The City Council found that the criterion was "Not Satisfied," but did not identify why. Record 21.



We agree with petitioners that a standard that requires mitigation of "potential land use conflicts" is not a "clear and objective" standard. See *Rogue Valley*, 35 Or LUBA 159-60 (a standard requiring an applicant to "mitigate any potential negative impact caused by the development," is not "clear and objective"). GPDC 19.052(4) is not a "clear and objective" standard, and the city council erred in applying it to deny site plan approval.

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c. GPDC 19.052(5)

GPDC 19.052(5) requires that "[a]dequate basic urban services are available, or can be made available by the applicant as part of a proposed development, or are scheduled by the City Capital Improvement Plan." Record 21. The City Council found that this criterion was not satisfied. Record 21.<sup>6</sup>

Petitioners first argue that the meaning of the key terms "adequate" "basic urban services" and "available" is not explained in GPDC 19.052(5), and without some explanation, those terms are not "clear and objective." We agree with petitioners. See *Home Builders Association of Lane County v. City of Eugene*, 41 Or LUBA 370, 410, 414 (2002) (code requirement to provide "adequate" drainage is not "clear and objective;" a standard that requires an applicant to show that "public facilities and services are available to the site" but does not define the key terms "public facilities and services" or "available" is not "clear and objective"). The city council erred in applying GPDC 19.052(5) to deny petitioner's application for site plan approval.

d. GPDC 19.052(6)

GPDC 19.052(6) requires that the "[p]rovision of public facilities and services to the site will not cause service delivery shortages to existing development." Record 21. The City Council found that this criterion was not satisfied. *Id.*

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Petitioners argue that GPDC 19.052(6) provides no guidance regarding the scope of "public facilities and services" or how to go about determining if the proposal will "cause service delivery shortages to existing development" or what qualifies as a "shortage." Therefore, petitioners argue, GPDC 19.052(6) is not "clear and objective." We agree with petitioners. See *Home Builders Association of Lane County v. City of Eugene*, 41 Or LUBA 370, 414 (2002) (a standard that requires an applicant to show that "public facilities and services are available to the site" but does not define the key terms "public facilities and services" or "available" is not "clear and objective"). The city council erred by applying GPDC 19.052(6) to deny petitioner's application for site plan approval.

e. GPDC 19.052(8)(a) and (e)

GPDC 19.052(8) requires that "[t]he characteristics of existing adjacent development have been determined and considered in the development of the site plan. At a minimum, special design consideration shall be given to:

"(a) Areas of land use conflicts, such as more restrictive use adjacent or across street from proposal. Mitigate by orienting business operations away from use, additional setbacks, screening/buffering, landscaping, direct traffic away from use.

\*\*\*\*\*

"(e) Lighting. Exterior lighting shall not impact adjacent development or traveling motorist." Record 22. (Underscoring in original.)



The City Council found that these criteria were not satisfied. Record 22.

Neither the requirement to "mitigate" in GPDC 19.052(8)(a) nor the methods of suggested mitigation are "clear and objective," as ORS 197.307(4) requires. Neither is the GPDC 19.052(8)(e) requirement that "[e]xterior

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lighting shall not impact adjacent development or traveling motorist." See *Rogue Valley*, 35 Or LUBA at 158 ("'[n]eeded housing' is not to be subjected to standards, conditions, or procedures that involved subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on \* \* \* adjoining properties or community").

We agree with petitioners that GPDC 19.052(a) and (e) are not "clear and objective standards," as required by ORS 197.307(4). The city council erred in applying GPDC 19.052(a) and (e) to deny petitioner's application for site plan approval.

f. GPDC 19.052(9)

GPDC 19.052(9) requires that "[t]raffic conflicts and hazards are minimized on-site and off-site, as provided in Article 27." Record 23. The City Council found that this criterion was not satisfied. *Id.*

The GPDC 19.052(9) requirement that "[t]raffic conflicts and hazards [be] minimized on-site and off-site" is not, by itself, "clear and objective." See *Home Builders Association*, 41 Or LUBA 399 (a standard that requires that "on-site vehicular and pedestrian circulation shall be designed to minimize vehicular/pedestrian conflicts at driveway crossings within parking lots and at vehicle ingress/egress points," is not "clear and objective").

Petitioners next argue that GPDC's 19.052(9)'s reference to Article 27 is not sufficient to make GPDC 19.052(9) "clear and objective"

because the code does not identify which standards in Article 27 apply. Joint Petition for Review 19. GPDC Article 27 is 32 pages long and includes a variety of requirements. Petitioners point out that although GPDC 27.121(3) requires a traffic impact analysis, and the city council found the applicant's traffic impact analysis was flawed, GPDC 27.121(3) does not mention "traffic conflicts." A

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different section of Article 27, GPDC 27.121(11)(h)(8), does mention "traffic conflicts," but GPDC 27.121(11)(h)(8) only applies to developments that "abut[] or contain[] an existing or proposed arterial street." The subject property does not abut or contain an arterial street. Even if it did apply, GPDC 27.121(11)(h)(8) requires that the development design "minimize the traffic conflicts." That is not a "clear and objective" standard.

We agree with petitioners that GPDC's 19.052(9) is not "clear and objective" as required by ORS 197.307(4), and the City Council erred in applying GPDC's 19.052(9) to deny petitioner's application for site plan approval.

g. GPDC 19.052(11)

GPDC 19.052(11) requires that "[t]here are adequate provisions for maintenance of open space and other common areas." Record 23. The City Council found that this criterion was not satisfied. *Id.*

Petitioners argue that the City engaged in a subjective analysis to determine whether the maintenance of open space and other common areas is "adequate," because neither the text nor context of the code defines "adequate." For the same reasons explained in our discussion of GPDC 19.052(5), we agree with petitioners that a standard that requires an unguided inquiry to whether something is "adequate" is not a "clear and objective" standard.



Accordingly, we agree with petitioners that GPDC 19.052(11) is not a "clear and objective" standard, as it must be under ORS 197.307(4), if it is to be applied to an application for land use approval of "needed housing." The City Council erred in applying GPDC 19.052(11) to deny petitioner's application for site plan approval.

The first assignment of error is sustained.

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## SECOND ASSIGNMENT OF ERROR

Under the second assignment of error, petitioners argue that even if some site plan approval criteria were not barred by ORS 197.307(4) because they are not "clear and objective," the city erred on the merits in its application of all ten site plan approval standards it relied on to deny its application for site plan approval. We have concluded under the first assignment of error that seven of the nine site plan review standards that the city applied to deny petitioner's application for site plan approval are not "clear and objective" and should not have been applied to petitioner's application for "needed housing." We therefore need not and do not consider whether the city also erred on the merits in applying those seven standards.

Petitioners do not argue that two of the site plan review standards are not "clear and objective." We therefore limit our consideration under the second assignment of error to petitioners' challenge to the city council's decision with regard to the variance application and the two site plan review standards that petitioners do not argue the city was precluded from applying under ORS 197.307(4).

### A. The Remaining Site Plan Approval Standards

#### 1. GPDC 19.052(3)

GPDC 19.052(3) requires a site plan applicant to demonstrate the proposal "[c]omplies with all other applicable provisions of this Code, including

off-street parking, landscaping, buffering and screening, signage, environmental standards, and Special Purpose District standards." Record 20. The UAPC identified the off-street parking requirements set out at GPDC 25.042. GPDC 25.042 requires 1, 1.5 or 2 spaces per unit, depending on the number of bedrooms in each unit. The UAPC concluded that the 86 parking

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spaces petitioner proposed are sufficient to comply with GPDC 25.042. The city council adopted that finding, but added the following finding: "[t]he City Council found that the site plan did not provide adequate parking facilities." Record 20. (Boldface and italics deleted.)

Like the UAPC, the city council found that the proposal to provide 86 parking spaces complies with GPDC 25.042. *Id.* The city council did not identify any GPDC or other standard that requires the applicant to demonstrate that the proposed parking facilities are "adequate." Even if there were such a standard, it would not be "clear and objective" and could not be applied consistently with ORS 197.307(4).

The city council erred in finding that the proposal does not comply with GPDC 19.052(3). The city council found that the proposal satisfies the only GPDC parking standard that it identified. The city council did not identify the source of the "adequacy" standard it imposed to deny the application, and even if such a standard existed, ORS 197.307(4) would preclude applying such a standard to an application for approval for "needed housing."

#### 2. GPDC 19.052(12)

GPDC 19.052(12) requires that an applicant for site plan approval demonstrate that "[i]nternal circulation is accommodated for commercial, institutional and office park uses with walkways and bikeways as provided in Article 27." Record 23. The city council deleted the conditions of approval that the UAPC relied on to determine that the proposal satisfies GPDC 19.052(12). The





city council then concluded the standard is "Not Satisfied." Record 23-24.

Petitioners argue the City Council erred in denying its application based on GPDC 19.052(12). Petitioners contend the text of GPDC 19.052(12) makes

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it clear that it does not apply to its proposal for a residential development, because GPDC 19.052(12) only applies to "commercial, institutional and office park uses." We agree with petitioners.

B. The City Council's Denial of the Variance

As noted earlier, petitioner sought a variance from requirements for "[b]lock length for local streets \* \* \* and [t]otal length of a perimeter block for local streets \* \* \*." Record 9. The criteria that must be satisfied to grant the requested variances are set out at GPDC 6.060. The UAPC applied a total of 12 variance criteria, finding that with conditions of approval that were imposed by the UAPC and accepted by petitioner, all 12 variance criteria are satisfied. Record 224-29. Four of those criteria are relevant in this appeal.

Variance criterion 1 requires the applicant to demonstrate the variance is justified by a "unique physical constraint or characteristic of the property to which the variance application is related." Record 14. The UAPC found "[t]he property is constrained by existing development patterns in the area." *Id.* The UAPC set out a number of examples of those existing development patterns. *Id.*

Variance criterion 2 requires an applicant to establish that the unique physical constraint or characteristic identified under criterion 1 was not "self-created." *Id.* If it was self-created, criterion 2 imposes additional requirements. The UAPC found "[t]he existing constrains on the property were not self-created." Record 15.

In relevant part, variance criterion 3 requires the applicant to demonstrate "that a variance is necessary to overcome at least one of three situations:

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"(a) Allow Reasonable Use of an Existing Property. Due to the unique physical constraint or characteristic of an existing lot or parcel, strict application of the provisions of the Development Code would create a hardship by depriving the owner of the rights commonly enjoyed by other properties in the same zoning district subject to the same regulation. *The variance is necessary for preservation of a property right of the owner, substantially the same as is possessed by owners of other property in the same district subject to the same regulation.*

\*\*\*\*\*

"(c) Allow Flexibility for Expansion of Existing Development. The location of existing development on the property poses a unique constraint to expansion in full compliance with the Code. The variance is needed for new construction and site improvements in order to provide for efficient use of the land or avoid demolition of existing development, where the public purpose can be substantially furthered in alternate ways with minimal deviation from standards." Record 15 (emphasis added).

The UAPC found "[t]he variance is necessary to overcome the conditions described under sub





criterion (a) and (b) [of variance criterion 3] \* \* \*." *Id.* For purposes of this appeal, this finding is particularly significant since in finding the variance was necessary under sub criterion (a), the UAPC found the variance was "necessary to preserve a property right."

Finally, criterion 9 imposes the following requirement:

"Mitigate Adverse Impacts. Adverse impacts shall be avoided where possible and mitigated to the extent practical. If a variance is not necessary to preserve a property right, or if the unique constraint in Subsection (1) was self-created, adverse impacts may be grounds for denial." Record 17.

Variance criterion 9 requires mitigation of adverse impacts, but may be grounds for denial in only two circumstances: (1) where the "variance is not

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necessary to preserve a property right" and (2) where the unique physical constraint or characteristic identified under criterion 1 is found to be self-created under criterion 2. The UAPC found criterion 9 was satisfied: "[a]dverse impacts that may occur as a result of approval of the requested variances can be mitigated by the conditions of approval listed below."<sup>2</sup>

In its decision, the city council adopted the UAPC's findings regarding 11 of the 12 variance criteria, including criteria 1, 2, and 3. The only deviation from the UAPC's findings in the city council decision was for criterion 9. The city council struck through the UAPC's criterion 9 finding that "[a]dverse impacts that may occur as a result of approval of the requested variances can be mitigated by the conditions of approval listed below." The city council added the following finding:

"Not Satisfied. The City Council found that the applicant did not provide adequate mitigation to avoid the adverse impacts of the development for traffic entering Fruitdale Drive." Record 17-18.

Under variance criterion 9, the city council could have required additional mitigation if it believed additional mitigation is required to avoid adverse traffic impacts on Fruitdale Drive. But variance criterion 9 authorizes the city council to deny the variance based on adverse impacts in only two circumstances: (1) where the "variance is not necessary to preserve a property right" and (2) where the unique physical constraint or characteristic identified under criterion 1 is found to be self-created under criterion 2. In the city's council's findings addressing criteria 1, 2 and 3, the city council found that

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neither of those circumstances is present here. The city council erred by applying criterion 9 to deny the application.

The second assignment of error is sustained.

#### REMEDY

Petitioners argue LUBA should reverse the city council's decision and order the city to approve its applications for a variance and site plan approval. ORS 197.835(10)(a)(A). ORS 197.835(10)(a) provides, in part:

"The board shall reverse a local government decision and order the local government to grant approval of an application for development denied by the local government if the board finds:

"(A) Based on the evidence in the record, that the local government decision is outside the range of



discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

The question posed under ORS 197.835(10)(a)(A) is whether the city council's decision to deny petitioner's site plan and variance application was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]" The city council gave a total of ten reasons why it denied the applications. Seven of the site plan review criteria the city council relied on to support its denial decision are barred by ORS 197.307(4), because the application for site plan approval is an application for approval of "needed housing" and those standards are not "clear and objective." As to those seven standards, the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Under GPDC 19.052(3), the city council relied on an "adequate" parking standard, but there is no "adequate" parking standard and the proposal

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complies with the only identified parking standard. Accordingly, as to GPDC 19.052(3), the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

GPDC 19.052(12) applies to "commercial, institutional and office park uses." GPDC 19.052(12) does not apply to the "residential" use proposed by petitioner. Therefore, as to GPDC 19.052(12), the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Finally, variance criterion 9 can only be applied to deny a request for variance approval in

two circumstances. The city council found that neither of those circumstances is present here. Therefore as to variance criterion 9, the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Because the city council's application of all ten of the reasons it gave for denying petitioner's applications for variance and site plan approval were "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances," the city council's decision is reversed and the city is ordered to approve petitioner's application.

The UAPC imposed a number of conditions of approval in its decision granting site plan and variance approval. Record 216-20. Since petitioner agreed to all of the conditions of approval that were imposed by the UAPC, the city council's decision to approve the application may include all of those conditions of approval. *Stewart v. City of Salem*, 58 Or LUBA 605, 622 (2009).

The city council's decision is reversed.

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Footnotes:

<sup>1</sup> We set out the relevant statutory text later in this opinion.

<sup>2</sup> ORS 197.307 provides, in part:

"(1) The availability of affordable, decent, safe and sanitary housing opportunities for persons of lower, middle and fixed income, including housing for farmworkers, is a matter of statewide concern.

"(2) Many persons of lower, middle and fixed income depend on government assisted housing as a



source of affordable, decent, safe and sanitary housing.

"(3) When a need has been shown for housing within an urban growth boundary at particular price ranges and rent levels, needed housing shall be permitted in one or more zoning districts or in zones described by some comprehensive plans as overlay zones with sufficient buildable land to satisfy that need.

"(4) [A] *local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of needed housing on buildable land described in subsection (3) of this section.* The standards, conditions and procedures may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay." (Emphasis added.)

<sup>3</sup> ORS 197.831 provides:

"In a proceeding before the Land Use Board of Appeals or an appellate court that involves an ordinance required to contain clear and objective approval standards, conditions and procedures for needed housing, the local government imposing the provisions of the ordinance shall demonstrate that the approval standards, conditions and procedures are capable of being imposed only in a clear and objective manner."

<sup>4</sup> We address petitioner's challenge to the city's variance findings later in this opinion.

<sup>5</sup> For example, policy 2.4.1 provides:

*"Policy 2.4.1: Integrate decisions about development and transportation investments to ensure the best fit between development in the urban area and the transportation facilities and services needed to serve it."*

<sup>6</sup> The city council found:

"Based upon the testimony, the City Council found that the application did not provide adequate service area and internal circulation with regards to fire access and trash/refuse removal." (Boldface and italics omitted.)

<sup>7</sup> A large number of conditions of approval were attached to the UAPC decision. Record 216-220.

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GENE R. OSTER, Petitioner,  
v.  
CITY OF SILVERTON, Respondent,  
and  
MARY ROSE BRANDT, Intervenor-  
Respondent.

LUBA No. 2018-103

LAND USE BOARD OF APPEALS OF THE  
STATE OF OREGON

May 7, 2019

FINAL OPINION AND ORDER

Appeal from City of Silverton.

Alan M. Sorem, Salem, filed the petition for review and argued on behalf of petitioner. With him on the brief was Saalfeld Griggs PC.

Spencer Q. Parsons, Portland, filed a response brief and argued on behalf of respondent. With him on the brief was Beery, Eisner & Hammond, LLP.

David E. Coulombe, Corvallis, filed a response brief and argued on behalf of intervenor-respondent. With him on the brief was Fewel, Brewer & Coulombe.

ZAMUDIO, Board Member; RYAN, Board Chair; RUDD, Board Member, participated in the decision.

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You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

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Opinion by Zamudio.

NATURE OF THE DECISION

Petitioner challenges a city council limited land use decision denying a tentative subdivision plan.

REPLY BRIEF

On January 15, 2019, petitioner filed a motion to file a reply brief. On January 29, 2019, the city filed an objection to petitioner's motion to file a reply brief. Petitioner's appeal was filed in 2018 and is subject to OAR 661-010-0039 (2017), which confines reply briefs "solely to new matters raised in the respondent's brief."<sup>1</sup> "Generally, responses warranting a reply brief tend to be arguments that assignments of error should fail regardless of their stated merits, based on facts or authority not involved in those assignments." *Wal-mart Stores, Inc. v. City of Gresham*, 54 Or LUBA 16, 19 (2007). Where arguments in a reply brief respond to arguments raised in the response brief that could not have been

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reasonably anticipated in the petition for review, we will generally allow the reply brief. *Id.* at 20.

In the petition for review, petitioner argued that the city's decision violated the Takings Clause of the Fifth Amendment of the United States Constitution, relying on *Koontz v. St. Johns River Water Mgmt. Dist.*, 570 US 595, 133 S Ct 2586 (2013). Petitioner also argued that ORS 197.522 is immaterial to the city's constitutional obligations. The city responded, arguing that the *Koontz* case is distinguishable, citing ORS 197.522(4). City's Response Brief 17-18.

In his reply brief, petitioner argues that ORS 197.522(4) is inapposite to his arguments and responds to the city's argument that *Koontz* is distinguishable. The two "matters" petitioner seeks to address in his reply brief at not "new matters" within the meaning of OAR 661-010-0039 (2017). In his petition for review, petitioner relied heavily on *Koontz* and argued that ORS 197.522 was immaterial. Petitioner could have anticipated that the city would attempt to distinguish *Koontz* and would rely on ORS



197.522. Petitioner's reply brief seeks to introduce surrebuttal arguments to the city's arguments in the response brief, and to elaborate upon arguments already set out in the petition for review. A reply brief making surrebuttal to argument in the response brief is not allowed. *Willamette Oaks, LLC v. City of Eugene*, 67 Or LUBA 351, 353, *aff'd*, 258 Or App 534, 311 P3d 527 (2013).

The motion to file a reply brief is denied.

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#### FACTS

The subject property is comprised of approximately 9.5 acres and is zoned single-family residential (R-1). The city annexed the subject property in 2016. On May 11, 2018, petitioner submitted an application for tentative plat approval to subdivide the property into 40 lots, at sizes permitted in the zone, and to develop those lots with housing at densities permitted in the R-1 zone under clear and objective standards. See ORS 197.307(4).<sup>2</sup>

The planning commission denied the application because the proposal would not result in improved performance of two off-site intersections to a level of service (LOS) that would satisfy the city, based on a level of service standard contained in the city's transportation system plan document (the LOS D standard). Petitioner's engineer estimated that improvements to comply with the LOS D standard would cost \$2,118,550.

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Petitioner appealed the planning commission decision to the city council. After an on-the-record hearing, the city council issued a decision adopting and affirming the planning commission's denial and adopting as findings the staff report in support of the denial. This appeal followed.

#### SECOND ASSIGNMENT OF ERROR



The city determined that Silverton Municipal Code, Title 18, Development Code and Zoning Map (SDC) incorporated by reference traffic standards in the City of Silverton Transportation System Plan (TSP). The city applied a minimum LOS D standard, derived from the TSP. The city denied the application because petitioner's traffic study showed that the proposed development would send additional peak hour traffic to two intersections at N 1st Street and Hobart Road, and N 1st Street and Jefferson Street, and the proposal did not include transportation system improvements that would bring those intersections to LOS D. No party disputes that the proposed development would slightly exacerbate traffic; however, even without the proposed development, at existing traffic volumes, those two intersections are failing to meet the LOS D standard and operating at LOS F. Record 13.

Under SDC 4.3.130 preliminary plat applicants must "describe the proposed access to and from the site and estimate potential vehicle traffic increases resulting from the project," and the community development director may require a traffic impact study, in accordance with SDC 4.1.900. Neither SDC

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4.3.130 or SDC 4.1.900 define traffic standards or include the LOS D standard that we describe above.

The city concluded that the LOS D standard was incorporated by reference into the SDC by SDC 4.3.140(A)(1) and (B)(7), which provide:

"A. General Review Criteria. The city shall consider the following review criteria and may approve, approve with conditions, or deny a preliminary plat based on the following; the applicant shall bear the burden of proof.

"1. The proposed preliminary plat

complies with the applicable development code sections and all other applicable ordinances and regulations. At a minimum, the provisions of this article, and the applicable chapters and sections of Article 2, Land Use (Zoning) Districts, and Article 3, Community Design Standards shall apply.  
\* \* \*

\*\*\*\*\*

"B. Layout and Design of Streets, Blocks and Lots. All proposed blocks (i.e., one or more lots bound by public streets), lots and parcels conform to the specific requirements below:

\* \* \* \* \*

"7. All applicable engineering design standards for streets, utilities, surface water management, and easements shall be met."

The city determined that those criteria incorporate SDC 3.4.010(A), which governs public facilities and provides:

"A. Purpose. This chapter provides general development standards and approval criteria for public improvements. The code incorporates by reference the city's public facility

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master plans, including plans for domestic water, sanitary sewer, storm drainage, parks, and transportation. The code also incorporates by reference Silverton's public works design standards. This chapter is intended to provide minimum requirements for public facilities. It is not intended to duplicate or replace the design standards contained in the above documents."

The city found that SDC 3.4.010(A) effectively incorporated the city's TSP, Chapter 2, Goal 4, Policy (f), which provides, in part:

"(f) The City shall implement performance standards for use in evaluating new development proposals.

*"Action: City performance standards shall be used to evaluate developments impacting City or County facilities. The level of service standard shall be LOS D based on the Highway Capacity Manual methodology and a [volume to capacity] v/c ratio of 0.85 for signalized and all-way stop controlled intersections. For unsignalized intersection, the level of service standard shall be LOS D based on the Highway Capacity Manual and*



*a v/c ratio of 0.90.  
ODOT v/c ratio  
standards shall apply  
to ODOT facilities."  
(Italics in original.)*<sup>3</sup>

In the second assignment of error, petitioner argues that city's decision violates ORS 197.195(1), which governs limited land use decisions and provides:

"A limited land use decision shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties

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shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision."

Petitioner argues that *Paterson v. City of Bend*, 49 Or LUBA 160, *aff'd, in part, rev'd and rem'd on other grounds*, 201 Or App 344, 118 P3d 842 (2005), supports his argument and is dispositive. We agree. In *Paterson*, the petitioner appealed a limited land use decision in which the city approved a tentative subdivision plan. The petitioner contended that the city had incorporated all comprehensive plan standards

applicable to subdivision approvals within the meaning of ORS 197.195(1), by requiring in Bend Subdivision Ordinance (BSO) 3.040(3) that the applicant for a tentative subdivision plan approval demonstrate compliance with the Bend Area General Plan. The petitioner identified several General Plan policies relating to transportation that petitioner argued applied to the proposed subdivision. We rejected that argument and explained:

"[I]n our view ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan. In order to 'incorporate' a comprehensive plan standard into a local government's land use regulations within the meaning of ORS 197.195(1), the local government must at least amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan apply to a limited land use decision as approval criteria. Under that standard, BSO 3.040(3) falls far short of incorporating any comprehensive plan provisions."

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*Id.* at 167.

The city responds that the city adopted the TSP in March 3, 2008, by a comprehensive plan text amendment, Ordinance 08-01.<sup>4</sup> That ordinance adopted the TSP "as a support document to the 2002 Silverton Comprehensive Plan." City's Response Brief, App 2, page 2. It is undisputed that the city adopted the TSP as a support document to the comprehensive plan. The dispute is whether the SDC sections applicable to a limited land use decision application sufficiently incorporated the action items in the TSP as approval criteria. Ordinance 08-01 does not support the city's position that the city has incorporated action items in the TSP as approval criteria. Instead, the findings for





Ordinance 08-01 indicate that the city intended further SDC amendments to implement the TSP. The findings attached to Ordinance 08-01 explain that the TSP "goals and policies have been developed to guide the City's twenty-year vision of transportation system needs. Each goal has a number of policies designed to guide the community in the direction of completing each goal. Some policies are provided with details of potential implementing actions." City's Response Brief, App 2, page 5.

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Intervenor argues that the city incorporated the TSP policies into the SDC by Ordinance 08-06, which codified SDC 3.1.100.<sup>5</sup> SDC 3.1.100 provides:

"The purpose of this chapter is to ensure that developments provide safe and efficient access and circulation for pedestrians and vehicles. SDC 3.1.200 provides standards for vehicular access and circulation. SDC 3.1.300 provides standards for pedestrian access and circulation. General street improvement requirements are provided in SDC 3.4.100, *with more specific requirements provided in the city of Silverton transportation system plan and the city's public works design standards.*" (Emphasis added.)

Intervenor argues that the "more specific requirement," *i.e.*, the LOS D standard, is incorporated into the SDC by SDC 3.4.100. The city did not rely on SDC 3.1.100 in the challenged decision and does not cite to it in defense of its decision on appeal. Nevertheless, intervenor's argument and the city's argument rely on the same underlying premise: that the city effectively incorporated the action items of the TSP into the SDC as approval criteria applicable to a limited land use decision by incorporating by reference the entire TSP into sections of the SDC.

The city attempts to distinguish *Paterson* by arguing that, unlike general comprehensive plan policies, "the City's TSP provides specific action items to be implemented under Policies." City's Response Brief 21. The city contends that ORS 197.195(1) does not require the city to codify all approval criteria and

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standards for limited land use decisions. Instead, the city emphasizes, ORS 197.195(1) requires the city to "*incorporate* all comprehensive plan standards applicable to limited land use decisions into their land use regulations." (Emphasis added.) However, the city's arguments are directed at the wrong question. **The question under ORS 197.195(1) and *Paterson* is not whether the LOS D standard is clear in the TSP or "codified" in the SDC; instead, the question is whether the SDC provisions that the city concluded incorporated the LOS D standard make clear what specific policies or standards in the TSP apply to a limited land use decision as approval criteria.**

**We conclude that the sections of the SDC that the city relied upon to deny the application, SDC 4.3.140(A)(1), (B)(7), and SDC 3.4.010(A), fall far short of incorporating the LOS D traffic performance standard in TSP, Chapter 2, Goal 4, Policy (f), under the "incorporation" standard in ORS 197.195(1), as interpreted in *Paterson*. Those provisions do not make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision. For example, SDC 4.3.140(A)(1) and (B)(7) do not refer to the TSP at all. Similarly, SDC 3.4.010(A) generally "incorporates by reference the city's public facility master plans, including plans for domestic water, sanitary sewer, storm drainage, parks, and transportation." Incorporation by reference of the entirety of each of the city's public facilities plans falls far short of satisfying the incorporation standard in ORS 197.195(1). We agree with petitioner that by applying the LOS D standard, the city violated ORS 197.195(1).**



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The second assignment of error is sustained.

FIRST AND THIRD ASSIGNMENTS OF ERROR

In the first assignment of error, first subassignment of error, petitioner argues that the city's decision violated ORS 197.307(4) by applying ambiguous approval standards in a manner that would result in unreasonable cost and unreasonable delay. See n 2. In the first assignment of error, second subassignment of error, petitioner argues that the city's decision violated his constitutional rights. ORS 197.835(9)(a)(E). Under the third assignment of error, petitioner argues that the city's decision misconstrued applicable law and lacks adequate findings with respect to the offsite traffic impacts. ORS 197.835(9)(a)(D), (C).

The city's denial relied solely on its application of the TSP standards. We conclude under the second assignment of error that, because the city did not incorporate the TSP standards into its subdivision regulations, the TSP does not apply to petitioner's application and the city may not use the TSP standard as a basis to deny the subdivision. Because we find that the TSP does not provide applicable approval criteria for a limited land use decision, we need not and do not decide whether the city's application of the TSP standard violates petitioner's constitutional rights or the requirement in ORS 197.307(4) that the city may apply only clear and objective standards in a manner that would not result in unreasonable cost or delay. Accordingly, we do not reach the first and third assignments of error.

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DISPOSITION

Petitioner requests that, if we reverse the city's decision under the first assignment of error, we instruct the city to approve the application subject only to unappealed conditions of approval. Petition for Review 2. We will reverse a

decision and order the local government to grant approval if the decision "is outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances." ORS 197.835(10)(a)(A).<sup>5</sup> Petitioner's request for relief invokes the authority granted to LUBA in ORS 197.835(10)(a)(A), notwithstanding petitioner's failure to specifically cite that statute. See *Stewart v. City of Salem*, 58 Or LUBA 605, 619, *aff'd*, 231 Or App 356, 219 P3d 46 (2009), *rev den*, 348 Or 415 (2010) (applying ORS 197.835(10)(a)(A), even where petitioner failed to cite that subsection).

ORS 197.835(10)(a) "requires reversal, and precludes remand, of a denial decision when LUBA determines on the basis of the record that the local

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government lacks the discretion to deny the development application." *Stewart*, 231 Or App at 375.

In *Parkview Terrace Dev. LLC v. City of Grants Pass*, 70 Or LUBA 37 (2014), we reversed a city council decision denying site plan approval and variance for a needed housing development. The city council gave a total of ten reasons why it denied the applications. Seven of the site plan review criteria the city council relied on to support its denial decision could not be applied to the application under ORS 197.307(4), because the application for site plan approval was an application for approval of "needed housing" and we determined those standards are not "clear and objective." The city council also inappropriately relied on three inapplicable criteria: (1) an "adequate" parking standard that did not exist in the city's code, (2) an internal circulation standard that did not apply to the proposed residential use, and (3) a variance criterion that did not apply under the circumstances surrounding the development. We concluded that all ten of the reasons that the city council gave for denying petitioner's applications were "outside the range of discretion allowed the local government under its comprehensive plan and



implementing ordinances." *Id.* at 57-58. Accordingly, we reversed the city council's decision and ordered the city to approve the petitioner's applications for variance and site plan approval. We instructed that the city council's decision to approve the application may include conditions of approval imposed by the urban area planning commission that the petitioner had agreed to. *Id.* at 58 (citing *Stewart*, 58 Or LUBA at 622).

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In this case, the city council gave only one reason for denial, failure of the development proposal to include improvements to failing intersections to satisfy the LOS D traffic performance standard. We have concluded that the TSP does not provide applicable criteria because the city failed to specifically incorporate TSP traffic standards into its land use regulations with the level of specificity required by ORS 197.195(1). Thus, the only reason that the city council gave for denying petitioner's application is "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances." Accordingly, we reverse the city council's decision and order the city to approve the petitioner's application.

On appeal, the city has not identified any applicable standards that would require any further review. Petitioner does not dispute that the city may impose conditions of approval that are "roughly proportional to the impact of the development on public facilities." SDC 3.4.010(D).<sup>1</sup> During the city proceedings,

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petitioner offered, as a compromise condition of approval, to construct a westbound left turn lane at the Highway 214/Hobart Road intersection to mitigate the impact of the proposed development on public facilities at an estimated cost of over twice the estimated proportionate share. Record 14. Despite denying the application, the city's decision appears to accept and adopt that condition of approval, subject to terms and

conditions. *Id.* Petitioner does not challenge that condition on appeal.<sup>2</sup> Accordingly, the city council's decision to approve the application may include that condition of approval.<sup>2</sup> *Parkview Terrace*, 70 Or LUBA at 58; *Stewart*, 58 Or LUBA at 622.

The city's decision is reversed, and the city is ordered to approve the application.

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Footnotes:

<sup>1</sup> OAR 661-010-0039 (2017) provided:

"A reply brief may not be filed unless permission is obtained from the Board. A request to file a reply brief shall be filed with the proposed reply brief together with four copies within seven days of the date the respondent's brief is filed. A reply brief shall be confined solely to new matters raised in the respondent's brief, state agency brief, or amicus brief. A reply brief shall not exceed five pages, exclusive of appendices, unless permission for a longer reply brief is given by the Board. A reply brief shall have gray front and back covers."

<sup>2</sup> ORS 197.307(4) provides:

"Except as provided in subsection (6) of this section, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing. The standards, conditions and procedures:

"(a) May include, but are not limited to, one or more provisions regulating the density or height of a development.



"(b) May not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay."

3. In a prior order in this appeal, we granted the city's motion to take official notice of Chapter 2 of the TSP. *Oster v. City of Silverton*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 9).

4. In a prior order in this appeal, we granted the city's motion to take official notice of Ordinance 08-01. *Oster*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 9).

5. In a prior order in this appeal, we granted intervenor's motion to take official notice of Ordinance 08-06. *Oster*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 10).

6. ORS 197.835(10)(a), provides, in part:

"The board shall reverse a local government decision and order the local government to grant approval of an application for development denied by the local government if the board finds:

"(A) Based on the evidence in the record, that the local government decision is outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

7. SDC 3.4.010(D) provides:

"Conditions of Development Approval. Development shall not occur until all required public facilities are in place or guaranteed, in conformance with the provisions of this code and the city's design standards. Improvements required

as a condition of development approval, when not voluntarily accepted by the applicant, must be roughly proportional to the impact of the development on public facilities. Findings in the development approval must indicate how the required improvements are directly related and roughly proportional to the impact of development."

8. In *Stewart*, we explained that the "application" required to be approved under ORS 197.835(10)(a) "refers to the application as proposed at the time of the local government's denial, including any conditions of approval that the applicant has proposed and the local government has accepted. Such applicant-proposed conditions can be understood to effectively modify or amend the application." *Stewart*, 58 Or LUBA at 622.

9. We do not intend to foreclose the possibility that, at the time that the city grants approval of the application as required by ORS 197.835(10)(a) and this decision, the city and petitioner might agree to include additional or modified conditions of approval.

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BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

ROBERT PATERSON  
*Petitioner,*

vs.

CITY OF BEND  
*Respondent,*

and

BRIAN DRAMEN, MARK DRAMEN  
and GORDON DRAMEN  
*Intervenors-Respondent.*

LUBA No. 2004-155

FINAL OPINION  
AND ORDER

Appeal from City of Bend.

William H. Sherlock, Eugene, filed the petition for review and argued on behalf of petitioner. With him on the brief was Hutchinson, Cox Coons, DuPriest, Orr, and Sherlock P.C.

No appearance by the City of Bend.

Elizabeth A. Dickson, Bend, filed the response brief and argued on behalf of intervenors-respondent. With her on the brief was Hurley, Lynch and Re, P.C.

BASSHAM, Board Member; HOLSTUN, Board Chair; DAVIES, Board Member, participated in the decision.

REMANDED 04/05/2005

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

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**NATURE OF THE DECISION**

Petitioner appeals city approval of a tentative subdivision plan authorizing a private road terminating in a cul-de-sac.

**FACTS**

The subject property is a narrow, rectangular 5-acre parcel zoned RS, Urban Standard Density Residential. The subject parcel is 165 feet wide from north to south, and 1,100 feet deep east to west. The property includes an existing single family dwelling at its east end, adjacent to Eagle Road. To the north the property abuts land owned by petitioner that has recently been approved for development as a residential subdivision. Petitioner’s subdivision includes Yellow Ribbon Drive, an east-west street that connects to Eagle Road. A short street, known only as “Future Street,” is stubbed from Yellow Ribbon Drive to the subject property’s northern property line, in the approximate middle of the subject property. The west end of the subject property adjoins a developed subdivision, where Red Oak Drive is stubbed to the property line. Red Oak Drive is a city-standard 60-foot wide right of way, with parking, curbs, planting strips and sidewalks. To the south the property abuts a large parcel for which a subdivision application (the Connors Park subdivision) has been approved.<sup>1</sup>

Intervenors-respondent (intervenors) seek to develop the subject property with 31 residential lots in three phases. Intervenors initially proposed that Red Oak Drive extend the length of the subject property, curve north around the existing dwelling, and connect to Eagle Road. However, to address neighbors’ concerns about through traffic, and to reduce impacts on the existing single family dwelling, intervenors modified the tentative plan to propose that Red Oak Drive end in a cul-de-sac just west of the existing dwelling, rather than extend all the way to Eagle Road. Additional access to the subdivision would be provided by connecting northward to Yellow

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<sup>1</sup> We understand that the Connors Park subdivision approval was withdrawn sometime after the decision in the present case.

1 Ribbon Drive via Future Street, and through two proposed connecting streets (“A” and “C”) to the  
2 Conners Park subdivision to the south. To maximize the number of lots on the narrow subject  
3 property, intervenors also proposed that after entering the property at the west end, Red Oak Drive  
4 would become a private street, with a reduced paved width and sidewalks flush with the road  
5 surface.

6 A city hearings officer approved the tentative plan on July 14, 2004. Petitioner, concerned  
7 that the design of Red Oak Drive directed traffic through his subdivision, appealed the hearings  
8 officer’s decision to the city council. The city council declined to hear petitioner’s appeal. This  
9 appeal followed.

10 **FIRST ASSIGNMENT OF ERROR**

11 Petitioner argues that the hearings officer erred in (1) approving the subdivision without  
12 ensuring street access for the first phase and without an adequate facility development plan, under  
13 Bend Subdivision Ordinance (BSO) 3.040, and (2) finding that the applicant need not demonstrate  
14 compliance with the Bend Area General Plan (General Plan), contrary to BSO 3.040(2).<sup>2</sup>

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<sup>2</sup> BSO 3.040 provides, in relevant part:

“**PHASED TENTATIVE PLAN.** An overall development plan shall be submitted for all developments affecting land under the same ownership for which phased development is contemplated. The Review Authority shall review a master development plan at the same time the tentative plan for the first phase of a phased subdivision is reviewed. The phased tentative plan shall include \* \* \* the following elements:

- “1. Overall development plan, including phase or unit sequence, and the schedule for initiation of improvements and projected completion date.
- “2. Show compliance with the Bend Area General Plan and implementing land use ordinances and policies.
- “3. Overall facility development plan, including transportation and utility facilities plans, that specify the traffic pattern plan for motor vehicles, bicycles, and pedestrians, water system plans, sewer system plans and utility plans.”



1           **A.     BSO 3.040(1) and (3)**

2           BSO 3.040(1) and (3) require that the development plan include a “schedule for initiation of  
3 improvements,” and “transportation and utility facilities plans.” See n 2. The application proposed  
4 development in three phases, with facilities development and final plan approval issuing for each  
5 phase before commencing with the next phase. The first phase is at the east end of the property,  
6 and includes the existing dwelling, cul-de-sac and surrounding lots. Noting that access to the phase  
7 1 area currently does not exist, the hearings officer stated:

8           “It is unclear from the information provided where street access during phase 1 is  
9 located. It will be a requirement of approval that the applicant demonstrate that  
10 there will be street access for each phase of development in accordance with City  
11 Standards prior to final plat approval. Based on the information provided by the  
12 applicant and this condition of approval the hearings officer finds the proposal  
13 satisfies [BSO 3.040(1)].” Record 30.

14           Petitioner argues that the hearings officer substituted a condition of approval for a finding of  
15 compliance with BSO 3.040(1). However, the hearings officer clearly found compliance with  
16 BSO 3.040(1), based on the submitted development plan and the condition of approval. Generally,  
17 where there is conflicting evidence regarding whether compliance with an approval criterion is  
18 feasible, the local government may determine that compliance is feasible and impose conditions of  
19 approval as necessary to ensure compliance. *Rhyne v. Multnomah County*, 23 Or LUBA 442,  
20 447-48 (1992). Although the application did not propose a specific plan for providing access to  
21 phase 1, the hearings officer obviously believed that providing such access was feasible, and  
22 imposed a condition requiring intervenors to specify how access would be provided. Petitioner  
23 does not argue that there is any reason to believe that providing access to phase 1 from Red Oak  
24 Drive or from one or more of the three connecting streets to the north and south is infeasible, prior  
25 to development of phases 2 and 3. Under these circumstances, we see no error in finding that the  
26 development plan complies with BSO 3.040(1), as conditioned.

27           With respect to BSO 3.040(3), petitioner argues that the hearings officer failed to find that  
28 the “overall facility plan” includes a transportation plan that specifies the “traffic pattern plan for

1 motor vehicles, bicycles, and pedestrians,” with respect to phase 1 development. *See* n 2. Instead,  
2 petitioner argues, the hearings officer’s finding regarding BSO 3.040(3) discusses only utility  
3 facilities and does not mention a transportation plan, other than a reference to a traffic study:

4 “The applicant has submitted an overall facility plan showing all existing and  
5 proposed utility extensions for the proposal. This data is shown on the face of the  
6 tentative plat and will be supplemented by engineered drawings for utility  
7 construction. A traffic study is included in the supporting materials for the tentative  
8 plan application.” Record 31.

9 It is not clear what BSO 3.043(3) requires in terms of a “transportation plan.” The above-  
10 quoted finding appears to view the tentative plan itself as being the “overall facility plan,” at least  
11 with respect to utilities. The finding does not expressly reference transportation facilities, but the  
12 same approach seems equally applicable. As with utilities, the approved tentative plan depicts the  
13 proposed street network and pedestrian pathways, with road and sidewalk cross-sections and  
14 details. The finding refers to the transportation impact analysis at Record 601 to 664, which  
15 includes a detailed analysis of the proposed and existing street network. It seems reasonably clear  
16 that the hearings officer believed that the tentative plan itself, as supplemented by engineered utility  
17 drawings and the transportation impact analysis, constituted the “transportation and utility facilities  
18 plans” required by BSO 3.043(3). While the finding could have stated that more clearly, petitioner  
19 identifies no error in that approach, and we see none. This subassignment of error is denied.

20 **B. BSO 3.040(3)**

21 BSO 3.040(3) requires that the tentative plan shall “[s]how compliance with the Bend Area  
22 General Plan and implementing land use ordinances and policies.” Intervenors argued, and the  
23 hearings officer agreed, that compliance with the General Plan is demonstrated by compliance with  
24 its implementing land use regulations, and that intervenors were not required to demonstrate that the  
25 plan complied with General Plan policies or provisions:

26 “The applicant states that it will comply with the General Plan and the implementing  
27 land use ordinances and policies by meeting the requirements of the regulations  
28 governing the tentative plan review process. While multiple decisions of the City  
29 have found that certain plan policies under specific circumstances constitute

1 mandatory criteria, the applicant is not required to demonstrate compliance with the  
2 provisions of the comprehensive plan inasmuch as the plan does not establish these  
3 mandatory approval criteria for land divisions. This is supported by two facts: (1)  
4 ORS 197.195(1) provides that comprehensive plan provisions do not apply to the  
5 review of limited land use decisions, such as subdivisions, unless the provisions are  
6 adopted as part of the City’s zoning or subdivision ordinances. A review of  
7 discrete Plan policies is therefore not appropriate; (2) the [General] Plan states that  
8 “[t]he policies in the General Plan are statements of public policy, and are used to  
9 evaluate any proposed changes to the General Plan. \* \* \*” Record 30-31.

10 ORS 197.195(1) provides in relevant part that in order to apply comprehensive plan  
11 policies directly to a limited land use decision as approval criteria, the local government must  
12 “incorporate all comprehensive plan standards applicable to limited land use decisions into their land  
13 use regulations” within two years of September 29, 1991.<sup>3</sup> A limited land use decision includes a  
14 decision that approves or denies a subdivision application within an urban growth boundary.  
15 ORS 197.015(12).

16 Petitioner contends that the city has “incorporated” all comprehensive plan standards  
17 applicable to subdivision approvals within the meaning of ORS 197.195(1), by requiring at  
18 BSO 3.040(3) that the applicant for a tentative subdivision plan approval demonstrate “compliance  
19 with the Bend Area General Plan.” Petitioner then identifies several comprehensive plan policies  
20 relating to transportation that petitioner believes are applicable to the proposed subdivision.

21 However, in our view ORS 197.195(1) contemplates more than a broad injunction to  
22 comply with unspecified portions of the comprehensive plan. In order to “incorporate” a

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<sup>3</sup> ORS 197.195(1) provides:

“A ‘limited land use decision’ shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.”

1 comprehensive plan standard into a local government’s land use regulations within the meaning of  
2 ORS 197.195(1), the local government must at least amend its land use regulations to make clear  
3 what specific policies or other provisions of the comprehensive plan apply to a limited land use  
4 decision as approval criteria. Under that standard, BSO 3.040(3) falls far short of incorporating  
5 any comprehensive plan provisions. The hearings officer did not err in concluding that the applicant  
6 was not required to demonstrate compliance with the comprehensive plan policies cited by  
7 petitioner. Because we sustain the hearings officer’s conclusion under ORS 197.195(1), we need  
8 not address petitioner’s challenges to the hearings officer’s alternative conclusion under the  
9 comprehensive plan.

10 The first assignment of error is denied.

11 **SECOND ASSIGNMENT OF ERROR**

12 BSO 3.060(1)(A) and (C) require in relevant part that the proposed land division contribute  
13 to the “orderly development” of the area.<sup>4</sup> Petitioner contends that the hearings officer erred in  
14 concluding that the proposed private street, ending in a cul-de-sac, contributes to “orderly  
15 development.” According to petitioner, the hearings officer’s determination on this point is

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<sup>4</sup> There are actually two separate “orderly development” standards, at BSO 3.060(1)(A) and (C). We follow petitioner in discussing them together as a single standard. BSO 3.060(1) provides, in relevant part:

“No application for subdivision or partition shall be approved unless the following requirements are met:

“A. The land division contributes to orderly development and land use patterns in the area, and provides for the preservation of natural features and resources and other natural resources to the maximum degree practicable as determined by the City of Bend.

\*\*\* \*\* \*

“C. The land division contributes to the orderly development of the Bend area transportation network of roads, bikeways, and pedestrian facilities, and does not conflict with existing public access easements within or adjacent to the land division.”

1 inconsistent with another hearings officer’s decision regarding a similar proposal for a private street  
2 in a different development application, known as the “Wolfe” decision.

3 The hearings officer rejected that argument, finding:

4 “\* \* \* The applicant proposes to extend Red Oak Drive as a private street through  
5 the subdivision culminating in a cul-de-sac at the [east] end of the property. Staff  
6 questioned whether this design constitutes orderly development within the meaning  
7 of [BSO 3.060(1)(A)]. It did because of a City hearings officer’s decision in file  
8 numbers PZ 03-651 and 03-652 (the ‘Wolfe Application’). There the hearings  
9 officer found that the proposed connection between public streets and private  
10 streets would not be orderly for the reason that the private street was found by the  
11 hearings officer to be an ‘integral link in the city’s street grid system’ and for the  
12 reason that the private street would also largely serve persons accessing land and  
13 subdivisions outside of the subdivision proposed in that application. It is noted that  
14 the same hearings officer has considered different facts (the Coulter subdivision) and  
15 allowed the use of a private street system, provided that certain factors or  
16 conditions were met, such as demonstrating a permanent maintenance source, lot  
17 configuration, etc. \* \* \* Other decisions of the City have also allowed private  
18 street connections under certain circumstances. \* \* \* In point of fact there are  
19 many private streets with public overlays that connect to publicly owned streets  
20 within the City. I agree with the applicant in that here the private street would not  
21 be an integral link to the City grid system given the number of existing and proposed  
22 connections to Eagle Road from other areas. Further, the private street will have  
23 public overlay, be permanently maintained by a homeowner’s association and  
24 would terminate before Eagle Road, thus serving mostly subdivision residents, at  
25 least from the connection with the ‘Future Road’ [to Yellow Ribbon Drive] to the  
26 north. The code provides for private streets in certain cases and sets standards for  
27 their construction. *See* table ‘B,’ Land Division Ordinance. \* \* \* I find that under  
28 the present circumstances, including the shape of the lot at issue, the density goal of  
29 the zone and the connections to the surrounding developments, the proposed  
30 private street would constitute orderly development. The traffic engineer does not  
31 object, but has commented that construction should be in accordance with Table B.  
32 These standards require a street that is 24 feet in width and bordered by sidewalks.  
33 The applicant intends to comply with such standards. Compliance with Table ‘B’  
34 shall be a condition of approval and this will promote safety, continuity and  
35 compatibility with street connections and the established density of surrounding  
36 development.” Record 33-34.

37 Petitioner quotes long passages from the Wolfe decision, and argues that for the same  
38 reasons expressed by the hearings officer in the Wolfe decision the hearings officer in the present

1 case should also conclude that the proposed private street and cul-de-sac do not constitute “orderly  
2 development.”

3 Even if the reasoning in the Wolfe decision is not persuasive, petitioner contends, the facts in  
4 the present case demonstrate that the proposed private street and cul-de-sac are not “orderly  
5 development.” With respect to the cul-de-sac, petitioner argues that it forces traffic to and from the  
6 subdivision to access Eagle Road through adjoining subdivisions. With respect to the private street,  
7 petitioner argues that it is unsafe to have public streets with 60-foot wide rights of way, parking,  
8 curbs, planting strips and sidewalks transition abruptly to a private street with 20-foot paved width,  
9 no parking, curbs or dividers and with sidewalks flush with the road pavement. Further, petitioner  
10 questions the ability of the homeowner’s association to enforce the no parking prohibition on the  
11 private street, or adequately maintain the private street.

12 Given the imprecision of the “orderly development” standard, the city has significant latitude  
13 in determining whether development complies with that standard.<sup>5</sup> As the hearings officer noted,  
14 there are significant factual distinctions between the circumstances in the Wolfe decision and the  
15 present case. In any case, petitioner does not explain why the present hearings officer is required to  
16 apply the same understanding of “orderly development” that was applied in the Wolfe case.

17 With respect to the cul-de-sac, it is often the case that traffic from a cul-de-sac will travel  
18 across local streets to reach collector or arterial streets. Petitioner does not explain why the

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<sup>5</sup> Elsewhere in the decision, the hearings officer notes in addressing the “orderly development” standard in BSO 3.060(1)(C):

“In other City land use decisions, and based upon the purpose statements contained in the land use ordinances, the term ‘orderly’ as applied to the above criteria has been found to mean a system or order that is a logical extension of the transportation system, that does not overtax the system, provides for maintenance thereof, that recognizes the limitations that the shape of the parcel and the topography have on the development, does not have internal conflicts with the very development being proposed, meets code layout and design requirements and does not foreclose future development.” Record 36.

Petitioner does not challenge that view of the “orderly development” standard, or explain why the hearings officer’s application of the standard under that view is erroneous.

1 “orderly development” standard requires the city to connect Red Oak Drive directly to Eagle Road,  
2 or prohibits the city from directing some traffic onto Yellow Ribbon Drive or other adjoining streets.

3 With respect to the safety of transitioning between a public street and a private street, the  
4 code allows private streets to be built to different standards than public streets, and the two must  
5 meet somewhere. The fact that private streets may be built to lesser standards, and need not  
6 include such amenities as curbs, planting strips, and parking lanes does not mean that such streets  
7 do not comply with the orderly development standard. Similarly, that private streets are maintained  
8 by homeowners’ associations rather than the city does not indicate disorderly development.  
9 Petitioner has not demonstrated that the hearings officer erred in concluding that the proposed  
10 private street complies with the orderly development standard.

11 Finally, petitioner argues that at several points in the decision the hearings officer indicated  
12 that he understood the proposed private street to have a paved width of 24 or perhaps 28 feet with  
13 curbs, whereas the approved tentative plan clearly provides for a private street with paved width of  
14 20 feet and no curbs. *See* above-quoted finding (“These standards require a street that is 24 feet in  
15 width and bordered by sidewalks. The applicant intends to comply with such standards”); Record  
16 44 (“The private street will be bounded by curbed sidewalks directing water to catch basins”); and  
17 Record 58 (condition of approval stating that “‘No Parking’ signs on 28-foot wide streets are  
18 required”). Petitioner speculates that the hearings officer’s confusion on these points may have  
19 erroneously led him to conclude that the private street complies with the orderly development  
20 standard, and that remand is necessary to allow the hearings officer to apply the standard under a  
21 correct appreciation of the facts.

22 It is not clear to us why the hearings officer referred to the private street as being 24 feet in  
23 width and bounded by curbs, in the above-quoted findings. The approved tentative plan, the  
24 application materials, the staff report, and everything cited to us in the record indicate that the  
25 private street was and always had been proposed as 20 feet in width, with no curbs, a design that is  
26 apparently allowed under Table B. Elsewhere in the hearings officer’s decision he indicates that he



1 understood that the private street will have a paved width of 20 feet. Record 47 (“Since the  
2 applicant is proposing a private street with a width of 20 feet, as a condition of approval, ‘No  
3 Parking’ signs shall be placed on both sides of the road \* \* \*”). Almost certainly the reference to  
4 the width of the street as 24 feet at Record 34 was simply a typographic error. Likewise, the  
5 reference to a requirement for “No Parking” signs for 28-foot wide streets is almost certainly a  
6 misstatement, since the hearings officer elsewhere indicates his understanding that “No Parking”  
7 signs are required for a 20-foot wide street. Record 47.

8 The reference to curbs at Record 44 may also be a misstatement, although that is less clear.  
9 That reference to curbs is part of the findings under BSO 6.020(7), which we discuss below, not  
10 part of the findings addressing the orderly development standard at BSO 3.040(1) or (3). As  
11 discussed below, we remand the hearings officer’s finding under BSO 6.020(7) for clarification with  
12 respect to curbs. For present purposes, however, it seems unlikely that the hearings officer relied  
13 upon the presence or absence of curbs in finding compliance with BSO 3.040(1) or (3). The  
14 findings addressing the orderly development do not mention curbs. Petitioner has not established  
15 that any misstatement with respect to curbs provides an independent basis for reversal or remand  
16 with respect to the orderly development standard.

17 The second assignment of error is denied.

18 **THIRD ASSIGNMENT OF ERROR**

19 Petitioner contends that the hearings officer misconstrued street and sidewalk design  
20 requirements of BSO 6.020 and failed to make adequate findings supported by substantial evidence  
21 in concluding that the proposed cul-de-sac and private street comply with those requirements.

22 **A. BSO 6.020(1)**

23 As relevant here, BSO 6.020(1) requires that “[f]acilities providing safe and convenient  
24 motor vehicle, pedestrian and bicycle access shall be provided within new subdivisions.” Petitioner  
25 repeats his arguments under the BSO 3.060(1) “orderly development” standard, but does not

1 explain why those arguments establish a basis for reversal or remand under BSO 6.020(1). This  
2 subassignment of error is denied.

3 **B. BSO 6.020(2)**

4 BSO 6.020(2) requires in relevant part that “[a]ll streets shall be improved to City  
5 standards with curbs, paving, drainage facilities and medians if required.”<sup>6</sup> Petitioner argues that the  
6 hearings officer’s finding under BSO 6.020(2) does not explain why that standard does not require  
7 curbs on the proposed private street.

8 The hearings officer finds that the private street will be constructed under standards for  
9 private streets set out in Table B. There is no dispute that Table B does not require curbs for a 20-  
10 foot wide private street. Petitioner’s quotation of BSO 6.020(2) in the petition for review omits the  
11 last two words, “if required.” That phrase is somewhat ambiguous, as it could modify only the  
12 preceding word “medians” or the entire list of design features including curbs. Petitioner apparently  
13 reads BSO 6.020(2) to require curbs on all streets, even if the applicable standards for certain  
14 streets do not require curbs. Petitioner’s interpretation brings the last sentence of BSO 6.020(2)  
15 and Table B into conflict. Although the hearings officer’s findings under BSO 6.020(2) do not  
16 address this issue, it seems to us that the better reading of the last sentence of BSO 6.020(2) is one  
17 that does not bring it into conflict with Table B. In other words, “[a]ll streets” must have curbs and  
18 other listed design features only “if required.” If other, more specific standards explicitly do not

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<sup>6</sup> BSO 6.020(2) provides, in full:

“New Streets. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, topographical conditions, public convenience and safety, and the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried considering the terrain. The subdivision shall provide for the continuation of the principal streets existing in the adjoining subdivision or of their proper projection. Where, in the opinion of the Hearings Body, topographic conditions make such continuation or conformity impractical, exception may be made. In cases where the City may adopt a plan or plat of a neighborhood or area of which the subdivision is a part, the subdivision shall conform to such adopted neighborhood or area plan. All streets shall be improved to City standards with curbs, paving, drainage facilities and medians if required.”

1 require curbs for a particular type of street, neither does BSO 6.020(2). With that understanding,  
2 we see no reversible error in the hearings officer's findings under BSO 6.020(2). This  
3 subassignment of error is denied.

4 **C. BSO 6.020(3)**

5 BSO 6.020(3) permits a cul-de-sac only when certain circumstances are present, including  
6 where "existing development on adjacent property prevents a street connection."<sup>7</sup> The hearings  
7 officer approved the cul-de-sac because "the applicant's property contains a large established  
8 family home and any such connection [of Red Oak Drive to Eagle Road] would require its  
9 removal." Record 43.<sup>8</sup>

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<sup>7</sup> BSO 6.020(3) provides:

"Street Layout and Cul-de-sacs. The street layout shall be generally in a rectangular grid pattern to provide or continue a network of inter-connecting streets. The subdivision streets shall be oriented on an east/west axis to the greatest extent possible to ensure solar access for lots within the subdivision. The grid pattern may be modified to adapt to topography and natural conditions. Cul-de-sacs and dead end streets shall only be permitted when the following conditions are met:

"A. One or more of the following conditions prevent a required street connection:

- natural slopes of 18% or more where it is not practical to construct streets with grades of 12%; or
- presence of a wetland or water body which cannot be crossed; or existing development on adjacent property prevents a street connection; and

"B. A street pattern which either meets standards for connections and spacing or requires less deviation from standards is not possible; \* \* \*"

<sup>8</sup> The decision states, in relevant part:

"The applicant has modified the subdivision proposal to include a cul-de-sac instead of another road connection to Eagle Road. The hearings officer finds that this connection is unnecessary given the number of already approved or planned connections. As described above the applicant's property contains a large established family home and any such connection would require its removal. The cul-de-sac includes a pedestrian access corridor at its terminus. While private streets are reviewed on case by case bases, the existing home, shape of the lot, requirements to create compatible infill and reduce neighborhood cut-through, makes the private road extension of Red Oak Drive appropriate in this case. The 'Future Street' and 'C' Street connections are proposed as a way to address block length and continue the street grid to adjoining properties where appropriate." Record 43.

1           Petitioner points out that BSO 6.020(3)(A) allows a cul-de-sac based on “existing  
2 development” only where the development is on “adjacent property.” The existing dwelling at the  
3 east end of the subject property is part of the property, petitioner argues, not on “adjacent  
4 property.” Even if the dwelling were on adjacent property, petitioner contends, there is no finding  
5 or explanation that a street pattern that either meets the standards for connections or requires less  
6 deviation from those standards is not possible, under BSO 6.020(3)(B). Petitioner notes, as do the  
7 findings, that the original tentative plan proposed that Red Oak Drive connect to Eagle Road, by  
8 going north of the existing dwelling. That proposed street pattern was changed, apparently at the  
9 request of neighbors to the west of the subject property, who did not want Red Oak Drive to  
10 become a through-street to Eagle Road. Petitioner argues that a street pattern without a cul-de-sac  
11 and without removing the existing dwelling is obviously possible. Even if moving or removing the  
12 existing dwelling were necessary to connect Red Oak Drive to Eagle Road, petitioner contends,  
13 there is no reason why the city could not require that the dwelling be moved or removed.

14           Intervenors do not respond to this argument. The hearings officer’s finding that “any  
15 connection” of Red Oak Drive to Eagle Road would require removing the existing dwelling is not  
16 supported by the record, as evidenced by the originally submitted tentative plan, which proposed  
17 just such a connection without removing the house. Further, petitioner is correct that under  
18 BSO 6.020(3)(A) “existing development” is only a basis for allowing a cul-de-sac where that  
19 development is on “adjacent property.” One could presumably avoid that restriction in the present  
20 case, by simply partitioning the parcel including the dwelling from the rest of the subject property,  
21 and then seeking subdivision plan approval for that remainder parcel. However, even if we assume  
22 that the restriction can be avoided in that manner, petitioner is correct that BSO 6.020(3)(A) and

1 (B) are conjunctive, and the decision does not explain why a cul-de-sac is warranted under  
2 BSO 6.020(3)(B).<sup>9</sup> This subassignment of error is sustained.

3 **D. BSO 6.020(7)**

4 BSO 6.020(7) requires that “street right-of-way and roadway surfacing widths shall be in  
5 conformance with the standards and specifications” set forth in Table A for public streets and Table  
6 B for private streets. As noted, Table B allows a private street with 20 feet of paved width if no  
7 curbs are proposed, but requires 24 feet of paved width if curbs are proposed. The hearings  
8 officer’s finding under BSO 6.020(7) states, in full:

9 “According to the latest revised tentative plan all existing and proposed streets will  
10 meet the City of Bend standards for both public and private streets. The private  
11 street will be bounded by curbed sidewalks directing water to catch basins. This  
12 criterion is met.” Record 44.

13 Petitioner argued below that without curbs there is nothing that will direct storm drainage to  
14 catch basins, and that water will simply flow over the flush sidewalks onto the adjoining lots, given  
15 the slope depicted on the street cross-sections. *See* Record 182 (letter from engineer opining that  
16 curbs are necessary to direct water to catch basins); Record 195. Petitioner also argued that  
17 adding curbs would require an additional four feet of right-of-way, in order to comply with the  
18 standards in Table B, which may affect lot configuration and minimum lot sizes. Petitioner notes the  
19 additional complication that the hearings officer found that the private street “will be bounded by  
20 curbed sidewalks directing water to catch basins,” notwithstanding that the approved tentative plan  
21 does not appear to propose curbs on the private street.<sup>10</sup> According to petitioner, remand is  
22 necessary to address the following issues: (1) whether the decision requires curbs; (2) if so,

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<sup>9</sup> It was suggested at oral argument that there may be access spacing or sight line reasons why a connection between Red Oak Drive and Eagle Road would be inconsistent with applicable standards. The hearings officer should address such matters on remand.

<sup>10</sup> At oral argument, intervenors’ attorney first asserted that the tentative plan did propose curbs, but later seemed to withdraw that assertion. As far as we can tell from the approved plan, no curbs are proposed on the private street portion of Red Oak Drive.

1 whether the plan needs to be revised to reflect a 24-foot paved width and a 34-foot right of way to  
2 comply with Table B; (3) if not, how storm drainage will be directed to the catch basins absent  
3 curbs.

4 Intervenor again do not provide any meaningful response to this subassignment of error.  
5 We agree with petitioner that remand is necessary to address the foregoing issues. This  
6 subassignment of error is sustained.

7 **E. BSO 6.020(14)**

8 BSO 6.020(14) requires that sidewalks shall be installed at the property line. Petitioner  
9 cites language from the Wolfe decision in which the hearings officer opines that sidewalks on private  
10 streets must include planting strips just like public streets, and therefore that sidewalks on private  
11 streets cannot be street tight. Petitioner adopts that language as his argument that, in the present  
12 case, BSO 6.020(14) and Table B effectively require planting strips on all streets and effectively  
13 prohibit street-tight sidewalks.

14 The hearings officer in the present case found that the applicant proposes sidewalks installed  
15 at the property line, which is all that BSO 6.020(14) requires. BSO 6.020(14) says nothing about  
16 planting strips, and nothing about street-tight sidewalks. Unlike Table A, governing public streets,  
17 Table B requires no planting strip at all for any private street.<sup>11</sup> We do not understand petitioner's  
18 adopted argument from the Wolfe decision. This subassignment of error is denied.

19 **F. BSO 6.020(16)**

20 BSO 6.020(16) requires in relevant part that "[t]he street is connected to a grid pattern at  
21 both ends" and that "[b]locks shall have dedicated public alley access constructed to City  
22 standards."<sup>12</sup> The hearings officer's finding under BSO 6.020(16) states, in full: "Since the

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<sup>11</sup> Table B indicates "N/A" for all private streets under the column for "Minimum Planter Strip Width."

<sup>12</sup> BSO 6.020(16) provides:

"Performance Standards for Local Residential Streets.

1 applicant is proposing a private street with a width of 20-feet, as a condition of approval, ‘No  
2 Parking’ signs shall be placed on both sides of the road and spaced to City of Bend Standards and  
3 Specifications.” Record 47.

4 Petitioner argues that while the above-quoted finding may be responsive to  
5 BSO 6.020(16)(D) and (E), it does not address the requirements at BSO 6.020(16)(B) and (C)  
6 that “the street is connected to a grid pattern at both ends” and that blocks “shall have dedicated  
7 public alley access.”

8 Intervenor again does not respond to this argument. Although it is not clear to us that  
9 BSO 6.020(16)(B) and (C) apply to a private street ending in a cul-de-sac, or what they would  
10 require if they do apply, absent some finding or response on this point we agree with petitioner that  
11 remand is necessary to adopt findings addressing the applicability of and compliance with  
12 BSO 6.020(16)(B) and (C). This subassignment of error is sustained.

13 The third assignment of error is sustained, in part.

14 **FOURTH ASSIGNMENT OF ERROR**

15 BSO 6.030(2) requires in relevant part that

16 “No block shall be longer than 1,200 feet between the centerline of through cross  
17 streets *except in residential subdivisions where no block shall be longer than*  
18 *600 feet between the centerline of through cross streets* and where street  
19 location is restricted by natural topography, wetlands, or other bodies of water.”  
20 (Emphasis added.)

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“A. Average daily traffic volumes on the local street does not exceed 300 ADT.

“B. The street is connected to a grid street pattern at both ends.

“C. Blocks shall have dedicated public alley access constructed to City standards.

“D. ‘No Parking’ zones are established 55 feet from the centerline of intersecting local streets.

“E. For block lengths exceeding 300 feet, ‘No Parking’ zones shall be established on either sides of the street spaced no greater than 250 feet apart. The ‘No Parking’ zones shall be a minimum of 30 feet in length.”



1           The hearings officer found that “[a]s shown on the tentative plan block, the proposed block  
2 lengths meet this proposal.” Record 47. Petitioner argues that in order to comply with the 600-foot  
3 block length requirement, the city must require a new street somewhere east of the “Future Street”  
4 connecting Red Oak Drive and Yellow Ribbon Drive.

5           We do not understand petitioner’s argument or the hearings officer’s terse finding. For that  
6 matter, we are unclear what BSO 6.030(2) requires. It appears to require in residential  
7 subdivisions that a block be no longer than 600 feet between the centerline of “through cross-  
8 streets.” As far as we can tell there are no “through cross-streets” depicted anywhere on the  
9 approved tentative plan: only T-intersections where Future, A and C streets intersect Red Oak  
10 Drive. It is not clear how one applies BSO 6.030(2) to a residential subdivision with a cul-de-sac  
11 and T-intersections. Given the lack of alternatives, it may be appropriate to determine block length  
12 for purposes of BSO 6.030(2) on some other basis than “through cross-streets.” However, the  
13 hearings officer needs to explain how block length is determined under BSO 6.030(2). Petitioner  
14 appears to be correct that, depending on where the “block” begins and ends, it is possible that at  
15 least the “block” that runs eastward from Future Street toward the end of the cul-de-sac is longer  
16 than 600 feet. Given the lack of assistance from the decision and intervenor on these issues, we  
17 agree with petitioner that remand is necessary to adopt more adequate findings addressing  
18 BSO 6.030(2).

19           The fourth assignment of error is sustained.

20           The city’s decision is remanded.

## CHAPTER 17.10 DEFINITIONS

### 17.10.00 INTENT

These definitions are intended to provide specific meanings for words and terms commonly used in zoning and land use regulations.

### 17.10.10 MEANING OF WORDS GENERALLY

All words and terms used in this Code have their commonly accepted dictionary meaning unless they are specifically defined in this Code or the context in which they are used clearly indicated to the contrary.

### 17.10.20 MEANING OF COMMON WORDS

- A. All words used in the present tense include the future tense.
- B. All words used in the plural include the singular, and all words used in the singular include the plural unless the context clearly indicates to the contrary.
- C. The word “shall” is mandatory and the word “may” is permissive.
- D. The word “building” includes the word “structure.”
- E. The phrase “used for” includes the phrases “arranged for,” “designed for,” “intended for,” “maintained for,” and “occupied for.”
- F. The word “land” and “property” are used interchangeably unless the context clearly indicates to the contrary.
- G. The word “person” may be taken for persons, associations, firms, partnerships or corporations.

### 17.10.30 MEANING OF SPECIFIC WORDS AND TERMS

The listed specific words and terms are defined as follows:

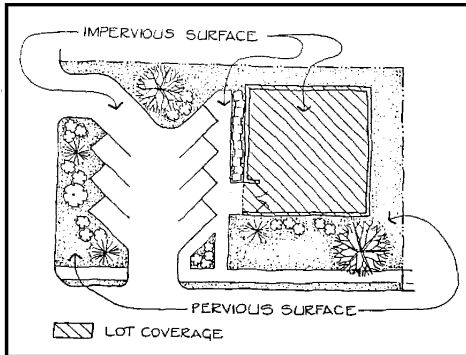
**Abandonment:** To cease or discontinue a use or activity without intent to resume, but excluding temporary or short-term interruptions to a use or activity during periods of remodeling, maintaining or otherwise improving or rearranging a facility, or during normal periods of vacation or seasonal closure. An “intent to resume” can be shown through continuous operation of a portion of the facility, maintenance of sewer, water and other public utilities, or other outside proof of continuance such as bills of lading, delivery records, etc.

**Abandonment, Discontinued Use:** Discontinued use shall mean nonuse and shall not require a determination of the voluntary or involuntary use or intent to resume the use.

**Abutting Lots:** Two or more lots joined by a common boundary line or point. For the purposes of this definition, no boundary line shall be deemed interrupted by a road, street, alley or public

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### Impervious Surface Example

**Irrigation System:** Method of supplying water (which can be manually or mechanically controlled) to a needed area.

**Junkyard:** An area used for the dismantling, storage or handling in any manner of junked vehicles or other machinery, or for the purpose of storage of dismantled material, junk and scrap, and/or where wastes and used or secondhand materials are bought, sold, exchanged, stored, processed, or handled. Materials include, but are not limited to, scrap iron and other metals, paper, rags, rubber tires, and bottles, if such activity is not incidental to the principal use of the same lot.

**Kennel:** Any premises or building in which four or more dogs or cats at least four months of age are kept commercially for board, propagation or sale.

**Kitchen:** Any room used, intended or designed for preparation and storage of food, including any room having a sink and provision for a range or stove.

**Land Area, Net:** That land area remaining after all area covered by impervious surfaces has been excluded (subtracted).

**Land Division:** Land divided to create legally separate parcels in one of the following ways:

- A. **Partition:** A division of land that creates three or fewer lots within a calendar year when such parcel exists as a unit or contiguous units of land under single ownership at the beginning of the year. See also, "Replat, Minor."

**A partition does not include division of land resulting from any of the following:**

1. Establishment or modifications of a "tax lot" by the County Assessor;
2. A lien foreclosure, foreclosure of a recorded contract for the sale of real property or creation of cemetery lots;
3. An adjustment of a property line by relocation of a common boundary where an additional unit of land is not created and where the existing unit of land reduced in size by the adjustment complies with any applicable development district criteria established by this Code;
4. Sale or grant by a person to a public agency or public body for state highway, county road, city street or other right-of-way purposes **provided that such road or**

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right-of-way complies with the applicable Comprehensive Plan policies and ORS 215.213 (2)(q)-(s) and 215.283 (2)(p)-(r). See “Property Line Adjustment.”

**B. Subdivision:** Division of an area or tract of land into four or more lots within a calendar year when such area or tract of land exists as a unit or contiguous units of land under a single ownership at the beginning of such year. See also, “Replat, Major.”

**Land, Intensity of:** Relative measure of development impact as defined by characteristics such as the number of dwelling units per acre, amount of traffic generated, and amount of site coverage.

**Land, Parcel of:** Any quantity of land capable of being described with such definiteness that its location and boundaries may be established. Also, a unit of land created by a partition.

**Landscape Management Corridor:** The required yards abutting Highway 26 within the C-2, I-I and I-2 zoning districts where the Development Code requires native conifer and deciduous landscaping, creating the appearance of a forested corridor; openings or breaks in the landscape corridor are minimized, allowing for transportation access and framed views into development sites.

**Landscaping:** The arrangement of trees, grass, bushes, shrubs, flowers, gardens, fountains, patios, decks, outdoor furniture, and paving materials in a yard space. It does not include the placing or installation of artificial plant materials.

**Legislative Decision:** Involves formulation of policy and as such, it is characteristic of the actions by a city council. *Ex-parte* contact requirements are not applicable to legislative hearings. Personal notice to citizens advising them of proposed changes is not required in most cases, although the Sandy Development Code specifies that in some cases notice shall be mailed to property owners if a decision will change the land-use designation. In general, the burden of being informed rests on the citizen. (See definition for “Limited Land Use Decision” and “Quasi-judicial Decision.”)

**Lien Foreclosure:** A lien foreclosure, foreclosure of a recorded contract for the sale of real property or creation of cemetery lots.

**Limited Land Use Decision:** A land use decision made by staff through an administrative process and that qualifies as a Limited Land Use Decision under ORS 197.015.

**Loading Space:** An off-street space within a building or on the same lot with a building for the temporary parking of commercial vehicles or trucks while loading or unloading merchandise or materials and which space has direct access to a street.

**Lot Area:** The total horizontal area within the lot lines of a lot.

**Lot, Corner:** A lot situated at the intersection of 2 streets, the interior angle of such intersection not exceeding 135 degrees.

## CHAPTER 17.12 - PROCEDURES FOR DECISION MAKING

### 17.12.00 TYPES OF PROCEDURES FOR TAKING PUBLIC ACTION

Three separate procedures are established for processing quasi-judicial development applications (Types I, II, and III) and one procedure (Type IV) is established for processing both legislative public actions which do not involve land use permits or which require consideration of a plan amendment, land use regulation or city policies and quasi-judicial applications.

#### 17.12.10 TYPE I – Administrative Review

Type I decisions are made by the Planning Director or someone he or she designates without public notice or a public hearing. The Type I procedure is used when applying standards and criteria to an application requires no use of discretion. A decision of the Director under the Type I procedure may be appealed by an affected party or referred by the Director in accordance with Chapter 17.28.

**Administrative Decision Requirements.** The City Planning Official or designee's decision shall address all of the approval criteria, including applicable requirements of any road authority. Based on the criteria and the facts contained within the record, the City Planning Official shall approve or deny the requested permit or action. A written record of the decision shall be provided to the applicant and kept on file at City Hall.

#### **Type of Applications:**

- A. Design review for single-family dwellings, duplex dwellings, manufactured homes on individual lots, manufactured homes within MH parks, accessory dwellings and structures.
- B. Design review for exterior building remodel or addition on a commercially or industrially zoned lot, where the proposed remodel or addition meets criteria in Section 17.90.40(A).
- C. Adjustments less than 10% of a quantifiable dimension which does not increase density
- D. Flood Slope and Hillside Development-Uses listed in 17.60.40 A.
- E. Minor Alteration of an Historic Resource
- F. Property Line Adjustments
- G. Tree removal involving less than 50 trees
- H. Type I FSH Review
- I. Minor Partition (no new street created)
- J. Administrative Variance

#### 17.12.20 TYPE II – Noticed Administrative Review

Type II decisions are made by the Planning Director or designee with public notice, and an opportunity for a public hearing if appealed. An appeal of a Type II decision is heard by the Planning Commission according to the provisions of Chapter 17.28. Notification of a Type II decision is sent according to the requirements of Chapter 17.22. If the Director contemplates persons other than the applicant can be expected to question the application's compliance with the Code, the Director may elevate an application to a Type III review.

#### **Types of Applications:**

- A. Design Review, except Type I Design Reviews under 17.12.10(B) and Type III Design Reviews under 17.12.30.
- B. Historic Preservation Provisions Procedures for Alteration of an Historic Resource
- C. Adjustments & Variances of up to 20% of a Quantifiable Dimension which does not increase density
- D. Subdivisions in compliance with all standards of the Development Code
- E. Partitions and Minor Replats
- F. Flood, Slope and Hillside Development and Density Transfer-Uses listed in 17.60.40
- G. Request for Interpretation
- H. Tree Removal Permit (greater than 50 trees)
- I. Minor Conditional Use Permit

**17.12.30 TYPE III**

Type III decisions generally use discretionary approval criteria and are made by the Planning Commission after a public hearing, in accordance with the provisions of Chapter 17.20. Appeal of a Type III decision is heard by the City Council according to the provisions of Chapter 17.28. Notification of a Type III decision is sent according to the requirements in Chapter 17.22. The Planning Commission may attach certain development or use conditions beyond those warranted for compliance with the standards in granting an approval if the Planning Commission determines the conditions are necessary to avoid imposing burdensome public service obligations on the City, to mitigate detrimental effects to others where such mitigation is consistent with an established policy of the City, and to otherwise fulfill the criteria for approval. If the application is approved, the Director will issue any necessary permits when the applicant has complied with the conditions set forth in the Final Order and other requirements of this Code.

**Types of Applications:**

- A. Appeal of a Director's decision
- B. Conditional Use Permit
- C. Design Review for projects on commercially or industrially zoned lots where the applicant has requested Type III Design Review or the Director has determined that the request involves one or more deviations from the design standards in Chapter 17.90.80 or 17.90.90 (C-1 Design Standards and C-2/I-1/I-2 Design Standards) and such deviation is not subject to an Adjustment or Variance process under 17.66.
- D. Flood, Slope, and Hillside Development-Uses not listed in 17.50.60 A & B
- E. Major Amendment to a Specific Area Plan
- F. Special Variance
- G. Subdivisions and Major Replats that are elevated by the Director or not in conformance with the Development Code
- H. Variances greater than 20% of a quantifiable dimension or variances which increase density
- I. Village Concept Plan and Village Master Plan
- J. Zoning map amendment, where the proposal comprises one parcel (or multiple parcels covering a small area) and the proposed zoning conforms to the Comprehensive Plan Map.

**17.12.40 TYPE IV**

Type IV decisions are usually legislative but may be quasi-judicial.

Type IV (Quasi-Judicial) procedures apply to individual properties. This type of application is generally considered initially by the Planning Commission with final decisions made by the City Council.

Type IV (Legislative) procedures apply to legislative matters. Legislative matters involve the creation, revision, or large-scale implementation of public policy (e.g., adoption of land use regulations, zone changes, and comprehensive plan amendments that apply to entire districts, not just one property). Type IV matters are typically considered first by the Planning Commission with final decisions made by the City Council. Occasionally, the Planning Commission will not consider a legislative matter prior to its consideration by the City Council.

Applications processed under a Type IV procedure involve a public hearing pursuant to the requirements of Chapter 17.20. Notification of this public hearing shall be noticed according to the requirements of Chapter 17.22 with appeal of a Type IV decision made to the state Land Use Board of Appeals according to the provisions of Chapter 17.28.

- A. The City Council shall consider the recommendation of the Planning Commission and shall conduct a public hearing pursuant to Chapter 17.20. The Director shall set a date for the hearing. The form of notice and persons to receive notice are as required by the relevant sections of this Code. At the public hearing, the staff shall review the report of the Planning Commission and provide other pertinent information, and interested persons shall be given the opportunity to present new testimony and information relevant to the proposal that was not heard before the Planning Commission and make final arguments why the matter should or should not be approved and, if approved, the nature of the provisions to be contained in approving action.
- B. To the extent that a finding of fact is required, the City Council shall make a finding for each of the applicable criterion and in doing so may sustain or reverse a finding of the Planning Commission. The City Council may delete, add or modify any of the provisions pertaining to the proposal or attach certain development or use conditions beyond those warranted for compliance with standards in granting an approval if the City Council determines the conditions are appropriate to fulfill the criteria for approval.
- C. To the extent that a policy is to be established or revised, the City Council shall make its decision after information from the hearing has been received. The decision shall become effective by passage of an ordinance.

D. Types of Applications

- 1. Appeal of Planning Commission decision
- 2. Comprehensive Plan text or map amendment
- 3. Zoning District Map changes
- 4. Planned Developments
- 5. Village Specific Area Plan (master plan)
- 6. Annexations
- 7. Extension of City Services Outside the City Limits
- 8. Vacating of Public Lands and Plats
- 9. Zoning Map Overlay Districts

E. Timing of Requests. The City accepts legislative requests twice yearly, in March and September. The City Council may initiate its own legislative proposals at any time.

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## **CHAPTER 17.18 - PROCESSING APPLICATIONS**

### **17.18.00 PROCEDURES FOR PROCESSING LAND USE APPLICATIONS**

An application shall be processed under a Type I, II, III or IV procedure. The differences between the procedures are generally associated with the different nature of the decisions as described in Chapter 17.12.

When an application and proposed development is submitted, the Director shall determine the type of procedure the Code specifies for its processing and the potentially affected agencies.

If a development proposal requires an applicant to file a land use application with the city (e.g. a design review application) and if there is a question as to the appropriate procedure to guide review of the application (e.g. a Type II versus a Type III design review process), the question will be resolved in favor of the lower type number.

If a development proposal requires an applicant to file more than one land use application with the city (e.g. a design review application and a variance) and if the development code provides that the applications are to be reviewed under separate types of procedures (e.g. a Type II design review and a Type III variance):

- the Director will generally elevate all of the required applications to the highest number procedure for review (e.g. the Type II design review application would be reviewed by the Planning Commission along with the Type III variance).

In situations where an applicant has attended a pre-application conference and has reviewed the application with the Director prior to submitting the applications, the Director may exercise his/her discretion to review the Type II application(s) at the staff level and only schedule a public hearing for the Type III portion(s) of the development proposal.

### **17.18.10 COORDINATION OF PERMIT PROCEDURE**

The Director shall be responsible for the coordination of the permit application and decision-making procedure and shall issue any necessary permits to an applicant whose application and proposed development is in compliance with the provisions of this Code. Sufficient information shall be submitted to resolve all determinations that require furnishing notice to persons other than the applicant. In the case of a Type II or Type III procedure, an applicant may defer submission of details demonstrating compliance with standards where such detail is not relevant to the approval under those procedures. Before issuing any permits, the Director shall be provided with the detail required to establish full compliance with the requirements of this Code.

### **17.18.20 PRE-APPLICATION CONFERENCE**

A pre-application conference is required for all Type II, III, and IV applications unless the Director determines a conference is not needed. A request for a pre-application conference shall be made on the form provided by the city and will be scheduled following submittal of required materials and payment of fees. The purpose of the conference is to acquaint the applicant with the substantive and procedural requirements of the Code, provide for an exchange of information regarding applicable elements of the Comprehensive Plan and development requirements, arrange such technical and design assistance which will aid the applicant, and to otherwise

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identify policies and regulations that create opportunities or pose significant constraints for the proposed development. The Director will provide the applicant with notes from the conference within 10 days of the conference. These notes may include confirmation of the procedures to be used to process the application, a list of materials to be submitted, and the applicable code sections and criteria that may apply to the application. Any opinion expressed by the Director or City staff during a pre-application conference regarding substantive provisions of the City's code is advisory and is subject to change upon official review of the application.

### **17.18.30 LAND USE APPLICATION MATERIALS**

Unless otherwise specified in this code, an application shall consist of the materials specified in this section, plus any other materials required by this Code.

- A. A completed application form and payment of fees.
- B. List and mailing labels of Affected Property Owners.
- C. An explanation of intent, stating the nature of the proposed development, reasons for the request, pertinent background information, information required by the Development Code and other material that may have a bearing in determining the action to be taken.
- D. Proof that the property affected by the application is in the exclusive ownership of the applicant, that the applicant has the consent of all parties in ownership of the affected property, or the applicant is the contractual owner.
- E. Legal description of the property affected by the application.
- F. Written narrative addressing applicable code chapters and approval criteria.
- G. Vicinity Map showing site in relation to local and collector streets, plus any other significant features in the nearby area.
- F. Site plan of proposed development
- G. Number of Copies to be Submitted:
  - 1. One copy of items A through D listed above;
  - 2. Type I: 2 copies of site plan and other materials required by the Code.
  - 3. Type II: 8 copies of site plan and other materials required by the Code
  - 4. Type III: 15 copies of site plan and other materials required by the Code
  - 5. Type IV 20 copies of site plan and other materials required by the Code

The Director may vary the quantity of materials to be submitted as deemed necessary.

### **17.18.40 APPLICATION ACCEPTANCE AND COMPLETENESS REVIEW**

- A. Acceptance. When an application is received by the City, the Director or designee shall determine whether the following essential items are present. If the following items are not present, the application shall not be accepted by the City and it shall be returned to the applicant;

1. The required form;
  2. The required fee;
  3. The signature of the applicant on the required form and signed written authorization of the property owner of record if the applicant is not the owner.
- B. **Completeness Review.** After an application is accepted, the Director or designee shall review the application for completeness. If the application is incomplete, the Director or designee shall notify the applicant in writing of what information is missing within 30 days of receipt of the application and allow the applicant to submit the missing information.
- C. **Application deemed complete for review.** In accordance with the application submittal requirements, the application shall be deemed complete upon the receipt by the Director or designee of:
- (1) All of the missing information identified by the Director; or
  - (2) Some of the missing information and written notice that no other information will be provided to the City; or
  - (3) Written notice that none of the missing information will be provided to the City.
- D. **Application void.** On the 181<sup>st</sup> day after first being submitted, the application is void if the Director has notified the applicant of missing information and the applicant has not responded as described in subsection C (1) – (3) above.

#### **17.18.50 REFERRAL AND REVIEW OF APPLICATIONS**

Within 10 working days of accepting an application as complete, the Director shall:

- A. Transmit one copy of the application, or appropriate parts of the application, to each referral agency for review and comment, including those responsible for determination of compliance with state and federal requirements.
- B. If a Type II, III or IV procedure is required, provide for notice and hearing as set forth in Chapters 17.20 and 17.22.

#### **17.18.60 STAFF EVALUATION**

The Director shall prepare a report that evaluates whether the proposal complies with the review criteria.

#### **17.18.70 TYPE II DEVELOPMENT DECISION**

- A. Within 60 days of the date of accepting an application, the Director shall grant or deny the request. The decision of the Director shall be based upon the application, the evidence, comments from referral agencies and affected property owners, and approvals required by others. After the decision is made, the Director shall notify the applicant and, if required, others entitled to notice of the disposition of the application. The notice shall indicate the date that the decision will take effect and describe the right of appeal pursuant to Chapter 17.28.

- B. The Director shall approve a development if he finds that applicable approvals by others have been granted and the proposed development otherwise conforms to the requirements of this Code.
- C. The Director shall deny the development if required approvals are not obtained or the application otherwise fails to comply with Code requirements. The notice shall describe the reason for denial.

**17.18.80 TYPE III OR IV DECISION**

The Director shall schedule a public hearing in accordance with procedures listed in Chapter 17.20.

**17.18.90 REAPPLICATION FOLLOWING DENIAL**

Upon final denial of a development proposal or a denial of an annexation request by the City Council or the voters, a new application for the same development or any portion thereof or the same annexation or any portion thereof may not be heard for a period of one year from the date of denial. Upon consideration of a written statement by the applicant showing how the proposal has been sufficiently modified to overcome the findings for denial or that conditions have changed sufficiently to justify reconsideration of the original of a similar proposal, the Director may waive the one-year waiting period.

**17.18.100 LEGISLATIVE ENACTMENTS NOT RESTRICTED**

Nothing in Chapter 17 shall limit the authority of the City Council to make changes in zoning districts or requirements as part of some more extensive revision of the Comprehensive Plan or the implementing ordinances. Nothing in this article shall relieve a use or development from compliance with other applicable laws.

**17.18.110 EXPEDITED LAND DIVISION**

A land division shall be processed pursuant to the expedited land division procedures set forth in ORS Chapter 197 if (a) the land division qualifies as an expedited land division as that term is defined in ORS Chapter 197 and (b) the applicant requests the land division to be processed as an expedited land division.

**17.18.120 120-DAY RULE; TIME COMPUTATION**

Final Decision. Except as allowed for Type IV decisions and applications subject to Section 17.18.110, a land use decision on a “permit” as that term is defined in state law must be finalized, including resolution of any local appeal by the City Council, no later than 120 days from the date the application is deemed complete, unless the applicant requests an extension in writing.

Time Computation. In computing any period of time prescribed or allowed by this Code, the day of the act or event from which the specified period of time begins to run shall not be included. The last day of the period so computed shall be included, unless it is a Saturday, Sunday, or legal holiday, including a holiday falling on Sunday, in which event, the period runs until close of business the next day which is not a Saturday, Sunday, or legal holiday.

## CHAPTER 17.30 - ZONING DISTRICTS

### 17.30.00 ZONING DISTRICT DESIGNATIONS

For the purposes of this title, the city is divided into districts designated as follows:

DISTRICT	SYMBOL
<b>Parks and Open Space</b>	<b>POS</b>
<b>Residential</b>	
Single Family Residential	<b>SFR</b>
Low Density Residential	<b>R-1</b>
Medium Density Residential	<b>R-2</b>
High Density Residential	<b>R-3</b>
<b>Commercial</b>	
Central Business District	<b>C-1</b>
General Commercial	<b>C-2</b>
Village Commercial	<b>C-3</b>
<b>Industrial</b>	
Industrial Park	<b>I-1</b>
Light Industrial	<b>I-2</b>
General Industrial	<b>I-3</b>
<b>Overlay Districts</b>	
Planned Development	<b>PD</b>
Cultural & Historic Resource	<b>CHR</b>
Flood Slope Hazard	<b>FSH</b>
Specific Area Plan Overlay	<b>SAP</b>

### 17.30.10 ZONING MAP

The Zoning Map is incorporated herein and is deemed as much a part of this Code as if fully set forth. If a conflict appears between the Zoning Map and the written portion of this Code, the written portion shall control. The map and each amendment shall remain on file in the Planning Director's Office.

The boundaries of all districts are established as shown on the Zoning Map, which is made a part of this Code. All notations and references and other matters shown shall be and are hereby made part of this Code.

### 17.30.20 RESIDENTIAL DENSITY CALCULATION PROCEDURE

The number of dwelling units permitted on a parcel of land is calculated after the determination of the net site area and the acreage of any restricted development areas (as defined by Chapter 17.60). Limited density transfers are permitted from restricted development areas to unrestricted areas **consistent with** the provisions of the Flood and Slope Hazard Area Overlay District, Chapter 17.60.

Calculation of Net Site Area (NSA): Net site area should be calculated in acres based upon a survey of the property boundaries excluding areas dedicated for public use.

A. Minimum and Maximum Dwelling Units for Sites with No Restricted Areas

The allowable range of housing units on a piece of property is calculated by multiplying the net site area (NSA) in acres by the minimum and maximum number of dwelling units allowed in that zone.

For example: A site (NSA) containing 10 acres in the Single Family Residential Zoning District requires a minimum of 30 units and allows a maximum of 58 units. (NSA x 3 units/acre = 30 units minimum) (NSA x 5.8 units/acre = 58 units maximum)

B. Minimum and Maximum Dwelling Units for Sites with Restricted Areas

1. Unrestricted Site Area: To calculate unrestricted site area (USA): subtract all restricted development areas (RDA) as defined by Section 17.60.20(A) from the net site area (NSA), if applicable.

$$\text{NSA} - \text{RDA} = \text{USA}$$

2. Minimum Required Dwelling Units: The minimum number of dwelling units required for the site is calculated using the following formula:

USA (in acres) x Minimum Density (Units per Acre) of Zoning District = Minimum Number of Dwelling Units Required.

3. Maximum Allowed Dwelling Units: The maximum number of dwelling units allowed on a site is the lesser of the results of these two formulas:

a. NSA (in acres) x Maximum Density of Zoning District (units/acre)

b. USA (in acres) x Maximum Density of Zoning District (units/acre) x 1.5 (maximum allowable density transfer based on Chapter 17.60)

For example: suppose a site in a zone with a maximum density of eight (8) units per acre has 6 acres of unrestricted site area (USA= 6) and two acres of restricted development area (RDA=2), for a total net site area of 8 acres (NSA= 8). Then NSA (8) x 8 units/acre = 64 and USA (6) x 8 units/acre x 1.5 = 72, so the maximum permitted number of dwelling units is 64 (the lesser of the two results).

- C. Lot Sizes: Lot sizes shall comply with any minimum lot size standards of the underlying zoning district.

- D. Rounding: A dwelling unit figure is rounded down to the nearest whole number for all total maximum or minimum figures less than four dwelling units. For dwelling unit figures greater than four dwellings units, a partial figure of one-half or greater is rounded up to the next whole number.

For example: A calculation of 3.7 units is rounded down to 3 units. A calculation of 4.2 units is rounded down to 4 units and a calculation of 4.5 units is rounded up to 5 units.

## CHAPTER 17.34 - SINGLE-FAMILY RESIDENTIAL (SFR)

### 17.34.00 INTENT

The district is intended to implement the Low Density Residential Comprehensive Plan designation by providing for low-density residential development in specific areas of the city. The purpose of this district is to allow **limited development** of property while not precluding more dense future development, as urban services become available. Density shall not be less than 3 or more than 5.8 units per net acre.

### 17.34.10 PERMITTED USES

#### A. Primary Uses Permitted Outright:

1. Single detached dwelling subject to design standards in Chapter 17.90;
2. Single detached manufactured dwelling subject to design standards in Chapter 17.90;

#### B. Accessory Uses Permitted Outright:

1. Accessory dwelling unit subject to the provisions in Chapter 17.74;
2. Accessory structure, detached or attached subject to the provisions in Chapter 17.74;
3. Family day care, as defined in Chapter 17.10 subject to any conditions imposed on the residential dwellings in the zone;
4. Home business subject to the provisions in Chapter 17.74;
5. Livestock and small animals, excluding carnivorous exotic animals: The keeping, but not the propagating, for solely domestic purposes on a lot having a minimum area of one acre. The structures for the housing of such livestock shall be located within the rear yard and at a minimum distance of 100 feet from an adjoining lot in any residential zoning district;
6. Minor utility facility;
7. Other development customarily incidental to the primary use.

### 17.34.20 MINOR CONDITIONAL USES AND CONDITIONAL USES

#### A. Minor Conditional Uses:

1. Accessory structures for agricultural, horticultural or animal husbandry use in excess of the size limits in Chapter 17.74;
2. Single detached or attached zero lot line dwelling;
3. Duplex;
4. Projections or free-standing structures such as chimneys, spires, belfries, domes, monuments, fire and hose towers, observation towers, transmission towers, flagpoles, radio and television towers, masts, aerials, cooling towers and similar structures or facilities not used for human occupancy exceeding 35 feet in height;
5. Other uses similar in nature.

#### B. Conditional Uses:

1. Community services;
2. Funeral and interment services, cemetery, mausoleum or crematorium;
3. Golf course and club house, pitch-and-putt, but not garden or miniature golf or golf driving range;

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Revised by Ordinance 2013-11 effective 12/18/13

4. Hospital or home for the aged, retirement, rest or convalescent home;
5. Lodges, fraternal and civic assembly;
6. Major utility facility;
7. Preschool, orphanage, kindergarten or commercial day care;
8. Residential care facility [ORS 443.000 to 443.825];
9. Schools (public, private, parochial or other educational institution and supporting dormitory facilities, excluding colleges and universities);
10. Other uses similar in nature.

**17.34.30 DEVELOPMENT STANDARDS**

<b>Type</b>	<b>Standard</b>
A. Minimum Lot Area - Single detached dwelling - Other permitted uses	7,500 square ft. No minimum
B. Minimum Average Lot Width - Single detached dwelling	60 ft.
C. Minimum Lot Frontage	20 ft. except as allowed by Section 17.100.160
D. Minimum Average Lot Depth	No minimum
E. Setbacks (Main Building) Front yard Rear yard Side yard (interior) Corner Lot	10 ft. minimum 20 ft. minimum 7.5 ft. minimum 10 ft. minimum on side abutting the street <sup>1</sup>
F. Setbacks (Garage/Carport)	22 ft. minimum for front vehicle access 15 ft. minimum if entrance is perpendicular to street (subject to Section 17.90.220) 5 ft. minimum for alley or rear access
G. Projections into Required Setbacks	See Chapter 17.74
H. Accessory Structures in Required Setbacks	See Chapter 17.74
I. Structure Height	35 ft. maximum
J. Building Site Coverage	No minimum
K. Off-Street Parking	See Chapter 17.98

**17.34.40 MINIMUM REQUIREMENTS**

- A. Must connect to municipal water.
- B. Must connect to municipal sewer if service is currently within 200 feet of the site. Sites more than 200 feet from municipal sewer, **may be approved** to connect to an alternative disposal system provided all of the following are satisfied:
  1. A county septic permit is secured and a copy is provided to the city;
  2. The property owner executes a waiver of remonstrance to a local improvement district and/or signs a deed restriction agreeing to complete improvements, including but not limited, to curbs, sidewalks, sanitary sewer, water, storm sewer **or other improvements which directly benefit the property;**

<sup>1</sup> Must comply with clear vision requirements of Chapter 17.74.  
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3. The minimum size of the property is one acre or is a **pre-existing buildable lot, as determined by the city;**
  4. Site consists of a **buildable parcel(s)** created through dividing property in the city, which is less than five acres in size.
- C. The location of any real improvements to the property must provide for a future street network to be developed.
  - D. Must have frontage or approved access to public streets.

**17.34.50 ADDITIONAL REQUIREMENTS**

- A. Design review as specified in Chapter 17.90 is required for all uses.
- B. Lots with 40 feet or less of street frontage shall be accessed by a rear alley or a shared private driveway.
- C. Lots with alley access may be up to 10 percent smaller than the minimum lot size of the zone.
- D. Zero Lot Line Dwellings: Prior to building permit approval, the applicant shall submit a recorded easement between the subject property and the abutting lot next to the yard having the zero setback. This easement shall be **sufficient to guarantee rights for maintenance purposes** of structures and yard, but in no case shall it be less than 5 ft. in width.



## CHAPTER 17.80 - ADDITIONAL SETBACKS ON COLLECTOR & ARTERIAL STREETS

### 17.80.00 INTENT

The requirement of additional special setbacks for development on arterial or collector is intended to provide better light, air and vision on more heavily traveled streets. The additional setback, on substandard streets, will protect collector and arterial streets and permit the eventual widening of streets.

### 17.80.10 APPLICABILITY

These regulations apply to all collector and arterial streets as identified in the latest adopted Sandy Transportation System Plan (TSP). The Central Business District (C-1) is exempt from Chapter 17.80 regulations.

### 17.80.20 SPECIFIC SETBACKS

Any structure located on streets listed above or identified in the Transportation System Plan as arterials or collectors shall have a minimum setback of 20 feet measured from the property line. This applies to applicable front, rear and side yards.

## CHAPTER 17.82 - SPECIAL SETBACKS ON TRANSIT STREETS

### 17.82.00 INTENT

The intent is to provide for **convenient, direct, and accessible** pedestrian access to and from public sidewalks and transit facilities; provide a **safe, pleasant and enjoyable** pedestrian experience by connecting activities within a structure to the adjacent sidewalk and/or transit street; and, promote the use of pedestrian, bicycle, and transit modes of transportation.

### 17.82.10 APPLICABILITY

This chapter applies to all residential development located adjacent to a transit street. A transit street is defined as any street designated as a collector or arterial, **unless otherwise designated in the Transit System Plan.**

### 17.82.20 BUILDING ORIENTATION

- A. All residential dwellings shall have their primary entrances oriented toward a transit street rather than a parking area, or if not adjacent to a transit street, toward a public right-of-way or private walkway which leads to a transit street.
- B. Dwellings shall have a primary entrance connecting directly between the street and building interior. A **clearly marked, convenient, safe** and lighted pedestrian route shall be provided to the entrance, from the transit street. The pedestrian route shall consist of materials such as concrete, asphalt, stone, brick, permeable pavers, or **other materials as approved by the Director.** The pedestrian path shall be permanently affixed to the ground with gravel subsurface or a **comparable subsurface as approved by the Director.**
- C. Primary dwelling entrances shall be architecturally emphasized and visible from the street and shall include a covered porch at least 5 feet in depth.
- D. If the site has frontage on more than one transit street, the dwelling shall provide one main entrance oriented to a transit street or to a corner where two transit streets intersect.

**CHAPTER 17.84  
IMPROVEMENTS REQUIRED WITH DEVELOPMENT**

**17.84.00 INTENT**

This chapter provides general information regarding improvements required with residential, commercial, and industrial development. It is intended to clarify timing, extent, and standards for improvements required in conjunction with development. In addition to the standards in this chapter, additional standards for specific situations are contained in other chapters.

**17.84.10 EXCEPTIONS**

Single family residential development on existing lots is exempt from this chapter, with the exception of 17.84.30 Pedestrian and Bicyclist Requirements.

**17.84.20 TIMING OF IMPROVEMENTS**

- A. All improvements required by the standards in this chapter shall be installed concurrently with development, as follows:
  - 1. Where a land division is proposed, each proposed lot shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to approval of the final plat.
  - 2. Where a land division is not proposed, the site shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to temporary or final occupancy of structures.
- B. Where specific approval for a phasing plan has been granted for a planned development and/or subdivision, improvements may similarly be phased in accordance with that plan.

**17.84.30 PEDESTRIAN AND BICYCLIST REQUIREMENTS**

- A. Sidewalks shall be required along both sides of all arterial, collector, and local streets, as follows:
  - 1. Sidewalks shall be a minimum of five (5) ft. wide on local streets. The sidewalks shall be separated from curbs by a tree planting area that provides separation between sidewalk and curb, unless modified in accordance with Subsection 3 below.
  - 2. Sidewalks along arterial and collector streets shall be separated from curbs with a planting area, except as necessary to continue an existing curb-tight sidewalk. The planting area shall be landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of six (6) ft. wide.
  - 3. Sidewalk improvements shall be made according to City standards, unless the City determines that the public benefit in the particular case does not warrant imposing a severe adverse impact to a natural or other significant feature such as requiring removal of a mature tree, requiring undue grading, or requiring modification to an existing building. Any exceptions to the standards shall generally be in the following order.
    - a) Narrow landscape strips
    - b) Narrow sidewalk or portion of sidewalk to no less than four (4) feet in width
    - c) Eliminate landscape strips
    - d) Narrow on-street improvements by eliminating on-street parking

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Revised by Ordinance 2020-24 effective 9/21/2020

- e) Eliminate sidewalks
  - 4. The timing of the installation of sidewalks shall be as follows:
    - a) Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements, or with development of the site if street improvements are deferred.
    - b) Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below.
    - c) Where sidewalks on local streets abut common areas, tracts, drainageways, or other publicly owned or semi-publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.
- B. **Safe and convenient** pedestrian and bicyclist facilities that strive to **minimize** travel distance **to the extent practicable** shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks, as follows:
1. For the purposes of this section, “safe and convenient” means pedestrian and bicyclist facilities that: are **reasonably free** from hazards which would interfere with or discourage travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians and bicyclists considering destination and length of trip.
  2. To meet the intent of “B” above, rights-of-way connecting cul-de-sacs or passing through **unusually long** or **oddly shaped** blocks shall be a minimum of 15 ft. wide with eight (8) feet of pavement.
  3. 12 ft. wide pathways shall be provided in areas with **high bicycle volumes** or multi-use by bicyclists, pedestrians, and joggers.
  4. Pathways and sidewalks shall be encouraged in new developments by clustering buildings or constructing **convenient** pedestrian ways. Pedestrian walkways shall be provided in accordance with the following standards:
    - a) The pedestrian circulation system shall be at least five (5) feet in width and shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to **minimize** out of direction pedestrian travel.
    - b) Walkways at least five (5) feet in width shall be provided to connect the pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.
    - c) Walkways shall be **as direct as possible** and avoid **unnecessary meandering**.
    - d) Walkway/driveway crossings shall be **minimized**. Internal parking lot design shall maintain **ease of access** for pedestrians from abutting streets, pedestrian facilities, and transit stops.
    - e) With the exception of walkway/driveway crossings, walkways shall be separated from vehicle parking or vehicle maneuvering areas by grade, different paving material, painted crosshatching or landscaping. They shall be constructed **in accordance with the sidewalk standards adopted by the City**. (This provision does not require a separated walkway system to collect drivers and passengers from cars that have parked on site unless an **unusual parking lot hazard** exists).
    - f) Pedestrian amenities such as covered walk-ways, awnings, visual corridors and benches will be encouraged. For every two benches provided, the minimum parking requirements will be reduced by one, up to a maximum of four benches per site. Benches shall have direct access to the circulation system.

- C. Where a development site is traversed by or adjacent to a future trail linkage **identified within the Transportation System Plan**, improvement of the trail linkage shall occur concurrent with development. Dedication of the trail to the City shall be provided in accordance with 17.84.90(D).
- D. To provide for orderly development of an effective pedestrian network, pedestrian facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).
- E. To ensure **improved access** between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or Director **may require** off-site pedestrian facility improvements concurrent with development.

**17.84.40 TRANSIT AND SCHOOL BUS TRANSIT REQUIREMENTS**

- A. Development sites located along existing or planned transit routes shall, **where appropriate**, incorporate bus pull-outs and/or shelters into the site design. These improvements shall be installed **in accordance with** the guidelines and standards of the transit agency. School bus pull-outs and/or shelters may also be required, **where appropriate**, as a condition of approval for a residential development of greater than 50 dwelling units where a school bus pick-up point is anticipated to serve a **large number** of children.
- B. New developments at or **near** existing or planned transit or school bus transit stops shall design development sites to provide **safe, convenient** access to the transit system, as follows:
  - 1. Commercial and civic use developments shall provide a prominent entrance oriented towards arterial and collector streets, with front setbacks reduced **as much as possible** to provide access for pedestrians, bicycles, and transit.
  - 2. All developments shall provide **safe, convenient** pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of 17.84.30 B.

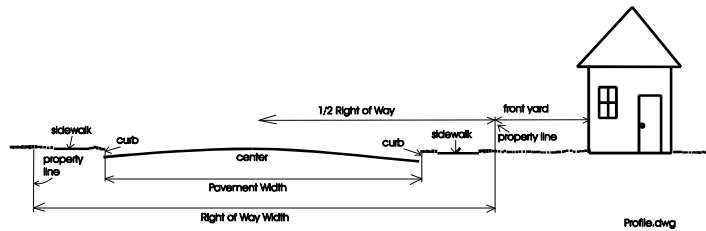
**17.84.50 STREET REQUIREMENTS**

- A. Transportation Impact Study (No Dwellings). For development applications that do not propose any dwelling units, the City may require a transportation impact study that evaluates the impact of the proposed development on the transportation system. Unless the City does not require a transportation impact study, the applicant shall prepare the study in accordance with the following:
  - 1. A proposal establishing the scope of the study shall be submitted for review to the City Traffic Engineer. The scope shall reflect the magnitude of the project in accordance with accepted transportation planning and engineering practices. Large projects shall assess intersections and street segments where the development causes increases of more than 20 vehicles in either the AM or PM peak hours. Once the City Traffic Engineer has approved the scope of the study, the applicant shall submit the results of the study as part of its development application. Failure to submit a required study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering.
  - 2. If the study identifies level-of-service conditions **less than the minimum standard established in** the development code or **the Sandy Transportation System Plan**, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT

standards established in the development code, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.

- B. Transportation Impact Study (Dwellings). For development applications that propose dwelling units, an applicant must submit a transportation impact study unless the application is exempt from this requirement pursuant to subsection (B)(6), below. Failure to submit the study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering. The applicant shall prepare the study in accordance with the following:
1. The study area must include all existing and proposed site accesses and all existing and proposed streets and intersections where the development adds more than 20 vehicles during any peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual. The determination of peak hour vehicle addition shall include the cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years.
  2. The study must analyze existing conditions and projected conditions upon completion of the proposed development.
  3. The study must be performed for the weekday a.m. peak hour (one hour between 7 a.m. and 9 a.m.) and p.m. peak hour (one hour between 4 p.m. and 6 p.m.). Analysis of other time periods may be required for uses that generate their highest traffic volumes at other times of the day or on weekends.
  4. The study must demonstrate that the transportation impacts from the proposed development will comply with the City's level-of-service and average daily traffic standards and the Oregon Department of Transportation's mobility standard.
  5. If the study identifies level-of-service conditions **less than the minimum standard established in** the development code or the **Sandy Transportation System Plan**, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT standards established in the development code or fails to meet the Oregon Department of Transportation's mobility standard, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.
  6. A transportation impact study is not required under this section if:
    - a) The cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years will generate no more than 20 vehicle trips in any weekday a.m. or p.m. peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual; or
    - b) The proposed development completed a transportation impact study at the time of annexation within the past 5 years and that study assessed the impact of the same or more dwelling units than proposed under the new land use action; or
    - c) The application only proposes to convert an existing detached single family dwelling to a duplex.
- C. Transportation Impact Study (Dwellings) – Discretionary Track. As an alternative to the process outlined in Section 17.84.50(B), an applicant may choose to follow the process in Section 17.84.50(A).

- D. Location of new arterial streets shall conform to the Transportation System Plan in accordance with the following:
1. Arterial streets should generally be spaced in one-mile intervals.
  2. Traffic signals should generally not be spaced closer than 1,500 ft. for reasonable traffic progression.
- E. Local streets shall be designed to discourage through traffic. NOTE: for the purposes of this section, “through traffic” means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic and excessive vehicle speeds the following street design characteristics shall be considered, as well as other designs intended to discourage traffic:
1. Straight segments of local streets should be kept to less than a quarter mile in length. As practical, local streets should include traffic calming features, and design features such as curves and “T” intersections while maintaining pedestrian connectivity.
  2. Local streets should typically intersect in “T” configurations rather than 4-way intersections to minimize conflicts and discourage through traffic. Adjacent “T” intersections shall maintain a minimum of 150 ft. between the nearest edges of the two rights-of-way.
  3. Cul-de-sacs shall not exceed 400 ft. in length nor serve more than 20 dwelling units, unless a proposal is successfully processed through the procedures in Chapter 17.66 of the Sandy Development Code.. Cul-de-sacs longer than 400 feet or developments with only one access point may be required to provide an alternative access for emergency vehicle use only, install fire prevention sprinklers, or provide other mitigating measures, determined by the City.
- F. Development sites shall be provided with access from a public street improved to City standards in accordance with the following:
1. Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.
  2. Half-street improvements are considered the minimum required improvement. Three-quarter-street or full-street improvements shall be required where traffic volumes generated by the development are such that a half-street improvement would cause safety and/or capacity problems. Such a determination shall be made by the City Engineer.
  3. To ensure improved access to a development site consistent with policies on orderly urbanization and extension of public facilities the Planning Commission or Director may require off-site improvements concurrent with development. Off-site improvement requirements upon the site developer shall be reasonably related to the anticipated impacts of the development.
  4. Reimbursement agreements for three-quarter-street improvements (i.e., curb face to curb face) may be requested by the developer per Chapter 12 of the SMC.
  5. A half-street improvement includes curb and pavement 2 feet beyond the center line of the right-of-way. A three-quarter-street improvement includes curbs on both sides of the side and full pavement between curb faces.



- G. As necessary to provide for orderly development of adjacent properties, public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property(ies) in accordance with the following:
1. Temporary dead-ends created by this requirement to extend street improvements to the edge of adjacent properties may be installed without a turn-around, subject to the approval of the Fire Marshal.
  2. In order to assure the eventual continuation or completion of the street, reserve strips may be required.
- H. Where required by the Planning Commission or Director, public street improvements may be required through a development site to provide for the **logical extension** of an existing street network or to connect a site with a nearby neighborhood activity center, such as a school or park. Where this creates a land division incidental to the development, a land partition shall be completed concurrent with the development.
- I. Except for extensions of existing streets, no street names shall be used that will duplicate or **be confused with** names of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area and be subject to approval of the Director.
- J. Location, grades, alignment, and widths for all public streets shall be considered in relation to existing and planned streets, topographical conditions, public **convenience and safety**, and proposed land use. **Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network are not adversely affected.** The following standards shall apply:
1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall **conform to planned street extensions identified in the Transportation Plan** and/or provide for continuation of the existing street network in the surrounding area.
  2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.
  3. As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in “T” intersections are unavoidable, they shall leave a minimum of 150 ft. between the nearest edges of the two rights-of-way.
  4. Centerline radii of curves shall not be less than 500 ft. on arterial streets, 300 ft. on collector streets, and 100 ft. on local streets.
  5. Streets shall be designed to intersect at angles as near as practicable to right angles and shall comply with the following:
    - a) The intersection of an arterial or collector street with another arterial or collector street shall have a minimum of 100 ft. of straight (tangent) alignment perpendicular to the intersection.

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- b) The intersection of a local street with another street shall have a minimum of 50 ft. of straight (tangent) alignment perpendicular to the intersection.
  - c) Where right angle intersections are not possible, exceptions can be granted by the City Engineer provided that intersections not at right angles have a minimum corner radius of 20 ft. along the right-of-way lines of the acute angle.
  - d) Intersections with arterial and collector streets shall have a minimum curb corner radius of 20 ft. All other intersections shall have a minimum curb corner radius of 10 ft.
6. Right-of-way and improvement widths shall be **as specified by the Transportation System Plan**. Exceptions to those specifications may be approved by the City Engineer to deal with specific unique physical constraints of the site.
- K. Private streets may be considered within a development site provided all the following conditions are met:
- 1. Extension of a public street through the development site is not needed for continuation of the existing street network or for future service to adjacent properties;
  - 2. The development site remains in one ownership, or adequate mechanisms are established (such as a homeowner’s association invested with the authority to enforce payment) to ensure that a private street installed with a land division will be adequately maintained; and
  - 3. Where a private street is installed in connection with a land division, paving standards consistent with City standards for public streets shall be utilized to protect the interests of future homeowners.

**17.84.60 PUBLIC FACILITY EXTENSIONS**

- A. All development sites shall be provided with public water, sanitary sewer, broadband (fiber), and storm drainage.
- B. Where necessary to serve property as specified in “A” above, required public facility installations shall be constructed concurrent with development.
- C. Off-site public facility extensions necessary to fully serve a development site and adjacent properties shall be constructed concurrent with development.
- D. As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).
- E. All public facility installations required with development shall **conform to the City’s facilities master plans**.
- F. Private on-site sanitary sewer and storm drainage facilities may be considered provided all the following conditions exist:
  - 1. Extension of a public facility through the site is not necessary for the future orderly development of adjacent properties;
  - 2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 17.84.50 F above);

3. The facilities are designed and constructed in accordance with the Uniform Plumbing Code and other applicable codes, and permits and/or authorization to proceed with construction is issued prior to commencement of work.

#### **17.84.70 PUBLIC IMPROVEMENT PROCEDURES**

It is in the best interests of the community to ensure public improvements installed in conjunction with development are constructed in accordance with all applicable City policies, standards, procedures, and ordinances. Therefore, prior to commencement of installation of public water, sanitary sewer, storm drainage, broadband (fiber), street, bicycle, or pedestrian improvements for any development site, developers shall contact the City Engineer to receive information regarding adopted procedures governing plan submittal, plan review and approval, permit requirements, inspection and testing requirements, progress of the work, and provision of easements, dedications, and as-built drawings for installation of public improvements. All work shall proceed in accordance with those adopted procedures, and all applicable City policies, standards, and ordinances.

Whenever any work is being done contrary to the provisions of this Code, the Director may order the work stopped by notice in writing served on the persons engaged in performing the work or causing the work to be performed. The work shall stop until authorized by the Director to proceed with the work or with corrective action to remedy substandard work already completed.

#### **17.84.80 FRANCHISE UTILITY INSTALLATIONS**

These standards are intended to supplement, not replace or supersede, requirements contained within individual franchise agreements the City has with providers of electrical power, telephone, cable television, and natural gas services (hereinafter referred to as “franchise utilities”).

- A. Where a land division is proposed, the developer shall provide franchise utilities to the development site. Each lot created within a subdivision shall have an individual service available or financially guaranteed prior to approval of the final plat.
- B. Where necessary, **in the judgment of the Director**, to provide for orderly development of adjacent properties, franchise utilities shall be extended through the site to the edge of adjacent property(ies), whether or not the development involves a land division.
- C. The developer shall have the option of choosing whether or not to provide natural gas or cable television service to the development site, providing all of the following conditions exist:
  1. Extension of franchise utilities through the site is not necessary for the future orderly development of adjacent property(ies);
  2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 17.84.50 F above); and,
  3. The development is non-residential.

- D. Where a land division is not proposed, the site shall have franchise utilities required by this section provided in accordance with the provisions of 17.84.70 prior to occupancy of structures.
- E. All franchise utility distribution facilities installed to serve new development shall be placed underground except as provided below. The following facilities may be installed above-ground:
  - 1. Poles for street lights and traffic signals, pedestals for police and fire system communications and alarms, pad mounted transformers, pedestals, pedestal mounted terminal boxes and meter cabinets, concealed ducts, substations, or facilities used to carry voltage higher than 35,000 volts;
  - 2. Overhead utility distribution lines may be permitted upon approval of the City Engineer when unusual terrain, soil, or other conditions make underground installation impracticable. Location of such overhead utilities shall follow rear or side lot lines wherever feasible.
- F. The developer shall be responsible for making necessary arrangements with franchise utility providers for provision of plans, timing of installation, and payment for services installed. Plans for franchise utility installations shall be submitted concurrent with plan submittal for public improvements to facilitate review by the City Engineer.
- G. The developer shall be responsible for installation of underground conduit for street lighting along all public streets improved in conjunction with the development in accordance with the following:
  - 1. The developer shall coordinate with the City Engineer to determine the location of future street light poles. The street light plan shall be designed to provide illumination meeting standards set by the City Engineer.
  - 2. The developer shall make arrangements with the serving electric utility for trenching prior to installation of underground conduit for street lighting.

**17.84.90 LAND FOR PUBLIC PURPOSES**

- A. Easements for public sanitary sewer, water, storm drain, pedestrian and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
  - 1. When located between adjacent lots, easements shall be provided on one side of a lot line.
  - 2. The minimum easement width for a single utility is 15 ft. The minimum easement width for two adjacent utilities is 20 ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.
- B. Public utility easements with a minimum width of eight (8) feet shall be provided adjacent to all street rights-of-way for franchise utility installations.
- C. Where a development site is traversed by a drainageway or water course, a drainage way dedication shall be provided to the City.

- D. Where a development is traversed by, or adjacent to, a future trail linkage **identified within the Transportation System Plan**, dedications of **suitable width** to accommodate the trail linkage shall be provided. **This width shall be determined by the City Engineer**, considering the type of trail facility involved.
- E. Where existing rights-of-way and/or easements within or adjacent to development sites are nonexistent or of insufficient width, dedications may be required. The need for and widths of those dedications shall be determined by the City Engineer.
- F. Where easement or dedications are required in conjunction with land divisions, they shall be recorded on the plat. Where a development does not include a land division, easements and/or dedications shall be recorded on standard document forms provided by the City Engineer.
- G. If the City has an interest in acquiring any portion of a proposed subdivision or planned development site for a public purpose, other than for those purposes listed above, or if the City has been advised of such interest by a school district or other public agency, and there is a **reasonable assurance** that steps will be taken to acquire the land, the Planning Commission may require those portions of the land be reserved for public acquisition for a period not to exceed one (1) year.
- H. Environmental assessments for all lands to be dedicated to the public or City may be required to be provided by the developer. An environmental assessment shall include information necessary for the City to evaluate potential liability for environmental hazards, contamination, or required waste cleanups related to the dedicated land. An environmental assessment shall be completed prior to the acceptance of dedicated lands in accordance with the following:
  - 1. The initial environmental assessment shall detail the history of ownership and general use of the land by past owners. Upon review of the information provided by the grantor, as well as any site investigation by the City, the Director will determine if the risks of potential contamination warrant further investigation. When further site investigation is warranted, a Level I Environmental Assessment shall be provided by the grantor.

#### **17.84.100 MAIL DELIVERY FACILITIES**

- A. In establishing placement of mail delivery facilities, locations of sidewalks, bikeways, intersections, existing or future driveways, existing or future utilities, right-of-way and street width, and vehicle, bicycle and pedestrian movements shall be considered. The final location of these facilities shall meet the approval of the City Engineer and the Post Office. Where mail delivery facilities are being installed in conjunction with a land division, placement shall be indicated on the plat and meet the approval of the City Engineer and the Post Office prior to final plat approval.
- B. Where mail delivery facilities are proposed to be installed in areas with an existing or future curb-tight sidewalk, a sidewalk transition shall be provided that maintains the required design width of the sidewalk around the mail delivery facility. If the right-of-way width will not accommodate the sidewalk transition, a sidewalk easement shall be provided adjacent to the right-of-way.

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- C. Mail delivery facilities and the associated sidewalk transition (if necessary) around these facilities shall conform to the City's standard construction specifications. Actual mailbox units shall conform to the Post Office standards for mail delivery facilities.
- D. Installation of mail delivery facilities is the obligation of the developer. These facilities shall be installed concurrently with the public improvements. Where development of a site does not require public improvements, mail delivery facilities shall be installed concurrently with private site improvements.

Mail delivery facilities may not be placed on arterial or collector streets or in sight distance zones or vision clearance areas.

## CHAPTER 17.86 - PARKLAND & OPEN SPACE

### 17.86.00 INTENT

The availability of parkland and open space is a critical element in maintaining and improving the quality of life in Sandy. Land that features trees, grass and vegetation provides not only an aesthetically pleasing landscape but also buffers incompatible uses, and preserves sensitive environmental features and important resources. Parks and open space, together with support facilities, also help to meet the active and passive recreational needs of the population of Sandy. This chapter implements policies of Goal 8 of the Comprehensive Plan and the Parks Master Plan by outlining provisions for parks and open space in the City of Sandy.

### 17.86.10 MINIMUM PARKLAND DEDICATION REQUIREMENTS

Parkland Dedication: New residential subdivisions, planned developments, multi-family or manufactured home park developments shall be required to provide parkland to serve existing and future residents of those developments. Multi-family developments which provide some "congregate" services and/or facilities, such as group transportation, dining halls, emergency monitoring systems, etc., but which have individual dwelling units rather than sleeping quarters only, are considered to be multi-family developments for the purpose of parkland dedication. Licensed adult congregate living facilities, nursing homes, and all other similar facilities which provide their clients with individual beds and sleeping quarters, but in which all other care and services are communal and provided by facility employees, are specifically exempt from parkland dedication and system development fee requirements.

1. The required parkland shall be dedicated as a condition of approval for the following:
  - a. Tentative plat for a subdivision or partition;
  - b. Planned Development conceptual or detailed development plan;
  - c. Design review for a multi-family development or manufactured home park; and
  - d. Replat or amendment of any site plan for multi-family development or manufactured home park where dedication has not previously been made or where the density of the development involved will be increased.
2. Calculation of Required Dedication: The required parkland acreage to be dedicated is based on a calculation of the following formula rounded to the nearest 1/100 (0.00) of an acre:

*Required parkland dedication (acres) = (proposed units) x (persons/unit) x 0.0043 (per person park land dedication factor)*

- a. Population Formula: The following table shall be used to determine the number of persons per unit to be used in calculating required parkland dedication:

Type of Unit	Total Persons Per Unit
Single family residential	3.0
Standard multi-family unit	2.0
Manufactured dwelling park	2.0
Congregate multi-family unit	1.5

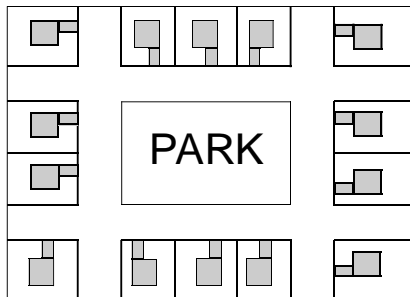
Persons per unit, age distribution, and local conditions change with time. The specific formula for the dedication of land will, therefore, be subject to periodic review and amendment.

- b. Per Person Parkland Dedication Factor: The total parkland dedication requirement shall be 0.0043 of an acre per person based on the adopted standard of 4.3 acres of land per one thousand of ultimate population per the Parks Master Plan<sup>1</sup>. This standard represents the citywide land-to-population ratio for city parks, and may be adjusted periodically through amendments to the Parks Master Plan.

**17.86.20 MINIMUM PARKLAND STANDARDS**

Land required or proposed for parkland dedication shall be contained within a **continuous** unit and must be **suitable** for active use as a neighborhood or mini-park, based on the following criteria:

1. Homes must front on the parkland as shown in the example below:



2. The required dedication shall be contained as a **contiguous** unit and not separated into pieces or divided by roadways.
3. The parkland must be able to **accommodate** play structures, play fields, picnic areas, or other active park use facilities. The average slope of the active use parkland shall not exceed 15%.

<sup>1</sup> Parks Master Plan, Implementation Plan section, Pages 4 and 5 indicate a required park acreage total of 64.5 acres. This number, divided by population (2015) of 15,000 equates to 4.3 acres per 1000 population or 0.0043 per person.

4. Any retaining wall constructed at the perimeter of the park adjacent to a public right-of-way or private street shall not exceed 4 feet in height.
5. Once dedicated, the City will assume maintenance responsibility for the neighborhood or mini parkland.

**17.86.30 DEDICATION PROCEDURES**

Prior to approval of the final plat, the developer shall dedicate the land as previously determined by the City in conjunction with approval of the tentative plat. Dedication of land in conjunction with multi-family development shall be required prior to issuance of permits and commencement of construction.

A. Prior to acceptance of required parkland dedications, the applicant/developer shall complete the following items for all proposed dedication areas:

1. The developer shall clear, fill, and/or grade all land **to the satisfaction of the City**, install sidewalks on the park land adjacent to any street, and seed the park land; and,
2. The developer shall submit a Phase I Environmental Site Assessment completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a **clean environmental record**.

B. Additional Requirements

1. In addition to a formal dedication on the plat to be recorded, the subdivider shall convey the required lands to the city by general warranty deed. The developer of a multi-family development or manufactured home park shall deed the lands required to be dedicated by a general warranty deed. In any of the above situations, the land so dedicated and deeded shall not be subject to any reservations of record, encumbrances of any kind or easements which, **in the opinion of the Director, will interfere with the use of the land for park, open space or recreational purposes**.

The subdivider or developer shall be required to present to the City a title insurance policy on the subject property ensuring the **marketable state** of the title.

2. Where any reservations, encumbrances or easements exist, the City may require payment in lieu of the dedication of lands unless it chooses to accept the land subject to encumbrances.

C. Phased Developments. In a phased development, the required park land for the entire development shall be dedicated prior to approval of the final plat for the first phase. Improvements to the land as required by 17.86.30 (A.1.) shall be made prior to approval of the final plat for the phase that includes the park land.



#### **17.86.40 CASH IN LIEU OF DEDICATION**

At the city's discretion only, the city may accept payment of a fee in lieu of land dedication. The city may require payment in lieu of land when the park land to be dedicated is less than 3 acres. A payment in lieu of land dedication is separate from Park Systems Development Charges, and is not eligible for a credit of Park Systems Development Charges. The amount of the fee in lieu of land dedication (in dollars per acre) shall be set by City Council Resolution, and it shall be based on the typical market value of developed property (finished lots) in Sandy net of related development costs.

1. The following factors shall be used in the choice of whether to accept land or cash in lieu:
  - a. The topography, geology, access to, parcel size, and location of land in the development available for dedication;
  - b. Potential adverse/beneficial effects on environmentally sensitive areas;
  - c. Compatibility with the Parks Master Plan, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program in effect at the time of dedication;
  - d. Availability of previously acquired property; and
  - e. The feasibility of dedication.
2. Cash in lieu of parkland dedication shall be paid prior to approval of the final plat or as specified below:
  - a. 50 percent of the payment shall be paid prior to final plat approval, and
  - b. The remaining 50 percent of the payment pro-rated equally among the lots, plus an administrative surcharge as determined by the City Council through a resolution, will constitute a lien against the property payable at the time of sale.

#### **17.86.50 MINIMUM STANDARDS FOR OPEN SPACE DEDICATION**

The applicant through a subdivision or design review process may propose the designation and protection of open space areas as part of that process. This open space will not, however, be counted toward the parkland dedication requirement of Sections 17.86.10 through 17.86.40.

1. The types of open space that may be provided are as follows:
  - a. Natural Areas: areas of undisturbed vegetation, steep slopes, stream corridors, wetlands, wildlife habitat areas or areas replanted with native vegetation after construction.
  - b. Greenways: linear green belts linking residential areas with other open space areas. These greenways may contain bicycle paths or footpaths. Connecting greenways between residences and recreational areas are encouraged.

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2. A subdivision or design review application proposing designation of open space shall include the following information as part of this application:
  - a. Designate the boundaries of all open space areas; and
  - b. Specify the manner in which the open space shall be perpetuated, maintained, and administered; and
  - c. Provide for public access to trails **included in the Park Master Plan**, including but not limited to the Tickle Creek Path.
3. Dedication of open space may occur concurrently with development of the project. **At the discretion of the city**, for development that will be phased, the open space may be set aside in totality and/or dedicated in conjunction with the first phase of the development or incrementally set aside and dedicated in proportion to the development occurring in each phase.
4. Open space areas shall be **maintained so that the use and enjoyment thereof is not diminished or destroyed**. Open space areas may be owned, preserved, and maintained by any of the following mechanisms or combinations thereof:
  - a. Dedication to the City of Sandy or an appropriate public agency approved by the City, if there is a public agency willing to accept the dedication. Prior to acceptance of proposed open space, the City may require the developer to submit a Phase I Environmental Site Assessment completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a clean environmental record.
  - b. Common ownership by a homeowner's association that assumes full responsibility for its maintenance;
  - c. Dedication of development rights to an appropriate public agency with ownership remaining with the developer or homeowner's association. Maintenance responsibility will remain with the property owner; and/or
  - d. Deed-restricted private ownership preventing development and/or subsequent subdivision and providing for maintenance responsibilities.
5. In the event that any private owner of open space fails to maintain it according to the standards of this Code, the City of Sandy, following reasonable notice, may demand that the deficiency of maintenance be corrected, and may enter the open space for maintenance purposes. All costs thereby incurred by the City shall be charged to those persons having the primary responsibility for maintenance of the open space.

## CHAPTER 17.92 - LANDSCAPING & SCREENING GENERAL STANDARDS - ALL ZONES

### 17.92.00 INTENT

The City of Sandy recognizes the aesthetic and economic value of landscaping and encourages its use to establish a **pleasant community character**, unify developments, and buffer or screen **unsightly features**; to soften and buffer **large scale** structures and parking lots; and to aid in energy conservation by providing shade from the sun and shelter from the wind. The community desires and intends all properties to be landscaped and maintained.

This chapter prescribes standards for landscaping, buffering, and screening. While this chapter provides standards for frequently encountered development situations, detailed planting plans and irrigation system designs, when required, shall be reviewed by the City with this purposes clause as the guiding principle.

### 17.92.10 GENERAL PROVISIONS

- A. Where landscaping is required by this Code, detailed planting plans shall be submitted for review with development applications. No development may commence until the Director or Planning Commission has determined the plans comply with the purposes clause and specific standards in this chapter. All required landscaping and related improvements shall be completed or financially guaranteed prior to the issuance of a Certificate of Occupancy.
- B. **Appropriate** care and maintenance of landscaping on-site and landscaping in the adjacent public right-of-way is the right and responsibility of the property owner, unless City ordinances specify otherwise for general public and safety reasons. If street trees or other plant materials do not survive or are removed, materials shall be replaced in kind within 6 months.
- C. Significant plant and tree specimens should be preserved to **the greatest extent practicable** and integrated into the design of a development. Trees of 25-inches or greater circumference measured at a height of 4-½ ft. above grade are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5-ft. outside the tree's drip line. Trees to be retained shall be protected from damage during construction by a construction fence located 5 ft. outside the dripline.
- D. Planter and boundary areas used for required plantings shall have a minimum diameter of 5-ft. (2-½ ft. radius, inside dimensions). Where the curb or the edge of these areas are used as a tire stop for parking, the planter or boundary plantings shall be a minimum width of 7-½ ft.
- E. In no case shall shrubs, conifer trees, or other screening be permitted within vision clearance areas of street, alley, or driveway intersections, or where the City Engineer otherwise deems such plantings would endanger pedestrians and vehicles.
- F. Landscaped planters and other landscaping features shall be used to **define, soften or screen** the appearance of off-street parking areas and other activity from the public street. Up to 35 percent of the total required landscaped area may be developed into pedestrian amenities,

including, but not limited to sidewalk cafes, seating, water features, and plazas, as approved by the Director or Planning Commission.

- G. Required landscaping/open space shall be designed and arranged to offer the **maximum benefits** to the occupants of the development as well as provide **visual appeal** and **building separation**.
- H. Balconies required for entrances and exits shall not be considered as open space except where such exits and entrances are for the sole use of the unit.
- I. Roofed structures shall not be included as open space except for open unenclosed public patios, balconies, gazebos, or other similar structures or spaces.
- J. Driveways and parking areas shall not be included as open space.
- K. All areas not occupied by paved roadways, walkways, patios, or buildings shall be landscaped.
- L. All landscaping shall be continually maintained, including **necessary watering, weeding, pruning and replacing**.

**17.92.20 MINIMUM IMPROVEMENTS - LANDSCAPING AND SCREENING**

The minimum landscaping area of a site to be retained in landscaping shall be as follows:

ZONING DISTRICT OR USE	PERCENTAGE
R-3	25%
Manufactured Home Park	20%
C - 1 Central Business District	10%
C - 2 General Commercial	20%
C - 3 Village Commercial	10%
I - 1 Industrial Park	20%
I - 2 Light Industrial	15%
I - 3 Heavy Industrial	10%

**17.92.30 REQUIRED TREE PLANTINGS**

Planting of trees is required for all parking lots with 4 or more parking spaces, public street frontages, and along private drives more than 150 feet long. Trees shall be planted outside the street right-of-way except where there is a designated planting strip or City adopted street tree plan.

The City maintains a list of appropriate trees for street tree and parking lot planting situations. Selection of species should be made from the city-approved list. Alternate selections may be approved by the Director following written request. The type of tree used shall determine frequency of trees in planting areas. Trees in parking areas shall be dispersed throughout the lot to provide a canopy for shade and visual relief.

Area/Type of Planting	Canopy	Spacing
Street Tree	Medium	30 ft. on center
Street Tree	Large	50 ft. on center
Parking Lot Tree	Medium	1 per 8 cars
Parking Lot Tree	Large	1 per 12 cars

Trees may not be planted:

- Within 5 ft. of permanent hard surface paving or walkways, unless specific species, special planting techniques and specifications approved by the Director are used.
- Unless approved otherwise by the City Engineer:
  - \* Within 10 ft. of fire hydrants and utility poles
  - \* Within 20 ft. of street light standards
  - \* Within 5 ft. from an existing curb face
  - \* Within 10 ft. of a public sanitary sewer, storm drainage or water line
- Where the Director determines the trees may be a hazard to the public interest or general welfare.
- Trees shall be pruned to provide a minimum clearance of 8 ft. above sidewalks and 12 ft. above street and roadway surfaces.

#### 17.92.40 IRRIGATION

Landscaping shall be irrigated, either with a manual or automatic system, to sustain viable plant life.

#### 17.92.50 TYPES AND SIZES OF PLANT MATERIALS

- A. At least 75% of the required landscaping area shall be planted with a suitable combination of trees, shrubs, or evergreen ground cover except as otherwise authorized by Chapter 17.92.10 F.
- B. Plant Materials. Use of native plant materials or plants acclimatized to the Pacific Northwest is encouraged where possible.
- C. Trees shall be species having an average mature spread of crown greater than 15 feet and having trunks which can be maintained in a clear condition with over 5 feet of clear wood (without branches). Trees having a mature spread of crown less than 15 feet may be substituted by grouping the same so as to create the equivalent of a 15-foot crown spread.
- D. Deciduous trees shall be balled and burlapped, be a minimum of 7 feet in overall height or 1 ½ inches in caliper measured 6 inches above the ground, immediately after planting. Bare root trees will be acceptable to plant during their dormant season.
- E. Coniferous trees shall be a minimum five feet in height above ground at time of planting.
- F. Shrubs shall be a minimum of 1 gallon in size or 2 feet in height when measured immediately after planting.

- G. Hedges, where required to screen and buffer off-street parking from adjoining properties shall be planted with an evergreen species maintained so as to form a continuous, solid visual screen within 2 years after planting.
- H. Vines for screening purposes shall be a minimum of 1 gallon in size or 30 inches in height immediate after planting and may be used in conjunction with fences, screens, or walls to meet physical barrier requirements as specified.
- I. Groundcovers shall be fully rooted and shall be **well branched or leafed**. If used in lieu of turf in whole or in part, ground covers shall be planted in such a manner as to provide complete coverage in one year.
- J. Turf areas shall be planted in species normally grown as permanent lawns in western Oregon. Either sod or seed are acceptable. Acceptable varieties include improved perennial ryegrasses and fescues used within the local landscape industry.
- K. Landscaped areas may include architectural features or artificial ground covers such as sculptures, benches, masonry or stone walls, fences, rock groupings, bark dust, decorative hard paving and gravel areas, interspersed with planted areas. The exposed area developed with such features shall not exceed 25% of the required landscaped area. Artificial plants are prohibited in any required landscape area.

**17.92.60 REVEGETATION IN UNLANDSCAPED OR NATURAL LANDSCAPED AREAS**

- A. Areas where natural vegetation has been removed or damaged through grading or construction activity in areas not affected by the landscaping requirements and that are not to be occupied by structures or other improvements shall be replanted.
- B. Plant material shall be watered at **intervals sufficient to assure survival and growth**.
- C. The use of native plant materials or plants acclimatized to the Pacific Northwest is encouraged to reduce irrigation and maintenance demands.

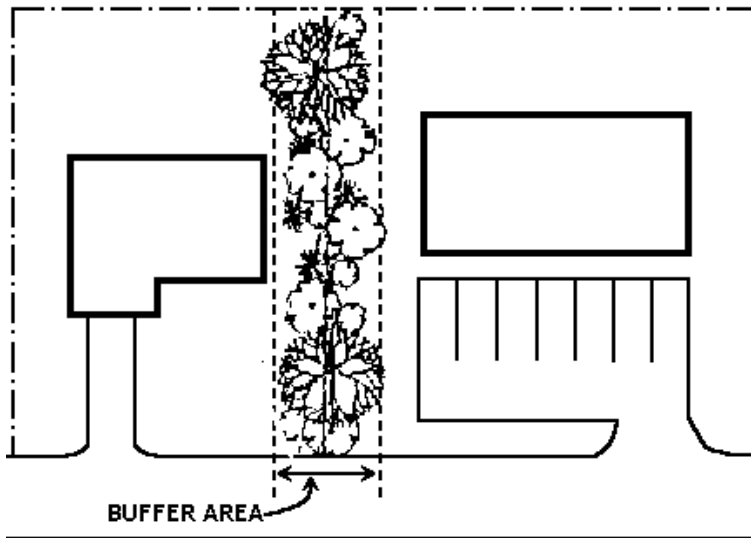
**17.92.70 LANDSCAPING BETWEEN PUBLIC RIGHT-OF-WAY AND PROPERTY LINES**

Except for portions allowed for parking, loading, or traffic maneuvering, a required setback area abutting a public street and open area between the property line and the roadway in the public street shall be landscaped. That portion of the landscaping within the street right-of-way shall not count as part of the lot area percentage to be landscaped.

**17.92.80 BUFFER PLANTING - PARKING, LOADING AND MANUEVERING AREAS**

Buffer plantings are used to reduce building scale, provide transition between contrasting architectural styles, and generally mitigate **incompatible or undesirable views**. They are used to soften rather than block viewing. Where required, a mix of plant materials shall be used to achieve the desired buffering effect.

Buffering is required in conjunction with issuance of construction permits for parking areas containing 4 or more spaces, loading areas, and vehicle maneuvering areas. Boundary plantings shall be used to buffer these uses from adjacent properties and the public right-of-way. On-site plantings shall be used between parking bays, as well as between parking bays and vehicle maneuvering areas. A balance of low-lying ground cover and shrubs, and vertical shrubs and trees shall be used to buffer the view of these facilities. Decorative walls and fences may be used in conjunction with plantings, but may not be used by themselves to comply with buffering requirements. Exception: truck parking lots are exempt from parking bay buffer planting requirements.

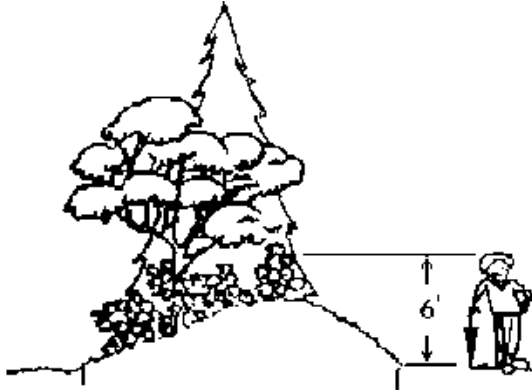


#### 17.92.90 SCREENING (HEDGES, FENCES, WALLS, BERMS)

Screening is used where **unsightly views or visual conflicts** must be obscured or blocked and where privacy and security are desired. Fences and walls used for screening may be constructed of wood, concrete, stone, brick, and wrought iron, or other commonly used fencing/wall materials. Acoustically designed fences and walls are also used where noise pollution requires mitigation.

- A. **Height and Opacity.** Where landscaping is used for required screening, it shall be at least 6 ft. in height and at least 80 percent opaque, as seen from a perpendicular line of sight, within 2 years following establishment of the primary use of the site.
- B. **Chain Link Fencing.** A chain link fence with slats shall qualify for screening only if a landscape buffer is also provided in compliance with Section 17.92.00 above.
- C. **Height Measurement.** The height of hedges, fences, walls, and berm shall be measured from the lowest adjoining finished grade, except where used to comply with screening requirements for parking, loading, storage, and similar areas. In these cases, height shall be measured from the finished grade of such improvements. Screening is not permitted within vision clearance areas.

- D. Berms. Earthen berms up to 6 ft. in height may be used to comply with screening requirements. Slope of berms may not exceed 2:1 and both faces of the slope shall be planted with ground cover, shrubs, and trees.

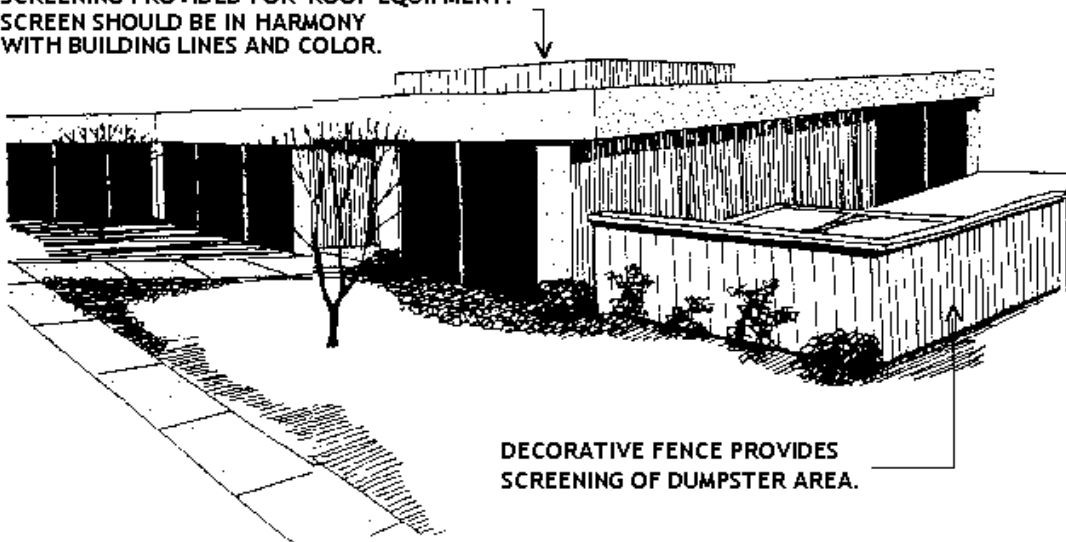


- A. Long expanses of fences and walls shall be designed to prevent visual monotony through use of offsets, changes of materials and textures, or landscaping.

#### **17.92.100 SCREENING OF SERVICE FACILITIES**

Site-obscuring shrubbery or a berm, wall or fence shall be placed along a property line between residential and commercial and industrial zones and around **unsightly areas** such as trash and recycling areas, gas meters, ground level air conditioning units, disc antennas exceeding 36 inches in diameter and equipment storage or an industrial or commercial use with outside storage of equipment or materials.

**SCREENING PROVIDED FOR ROOF EQUIPMENT.  
SCREEN SHOULD BE IN HARMONY  
WITH BUILDING LINES AND COLOR.**



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#### **17.92.110 OUTDOOR STORAGE**

All outdoor storage areas for commercial, industrial, public and semi-public uses are to be entirely screened by a sight obscuring fence, vegetative materials, or other alternative deemed appropriate by the Director. Exceptions to the preceding requirements include: new or used cars, cycles and trucks (but not including car parts or damaged vehicles); new or used boat sales; recreational vehicle sales; new or used large equipment sales or rentals; manufactured home sales; florists and plants nurseries.

#### **17.92.130 PERFORMANCE BOND**

If weather conditions or other circumstances beyond the control of the developer or owner make completion of the landscaping impossible prior to desired occupancy, an extension of up to 6 months may be applied for by posting "security" equal to 120% of the cost of the landscaping, assuring installation within 6 months. "Security" may consist of a performance bond payable to the city, cash, certified check, time certificates of deposit, assignment of a saving account, letter of credit, or other such assurance of access to funds necessary for completion as shall meet the approval of the City Attorney. Upon acceptance of the security, the developer or owner may be allowed occupancy for a period of up to 180 days. If the installation of the landscaping improvement is not completed within 180 days, the City shall have access to the security to complete the installation and/or revoke occupancy. Upon completion of the installation by the city, any portion of the remaining security minus administrative charges of 30% shall be returned to the owner. Costs in excess of the posted security shall be assessed against the property and the City shall thereupon have a valid lien against the property, which will come due, and payable.

#### **17.92.140 GUARANTEE**

All landscape materials and workmanship shall be guaranteed by the installer and/or developer for a period of time not to exceed two years. This guarantee shall insure that all plant materials survive in **good condition** and shall guarantee replacement of dead or dying plant materials.

## CHAPTER 17.98 - PARKING, LOADING, & ACCESS REQUIREMENTS

### 17.98.00 INTENT

The intent of these regulations is to provide **adequate** capacity and **appropriate** location and design of parking and loading areas as well as **adequate** access to such areas. The parking requirements are intended to provide **sufficient** parking in **close proximity** for residents, guests/visitors, customers, and/or employees of various land uses. These regulations apply to both motorized vehicles (hereinafter referred to as vehicles) and bicycles.

### 17.98.10 GENERAL PROVISIONS

- A. Provision and Maintenance. The provision of required off-street parking for vehicles and bicycles and loading facilities for vehicles is a continuous obligation. Building permits or other permits will only be issued after review and approval of site plans showing location of permanent access, parking and loading facilities.
- B. Unspecified Requirements. Vehicle and bicycle parking requirements for uses not specified in this chapter shall be determined by the Director based upon the requirements of similar specified uses.
- C. New Structure or Use. When a structure is constructed or a new use of land is commenced, on-site vehicle and bicycle parking and loading spaces shall be provided in accordance with Section 17.98.20 below or as otherwise modified through a planned development or specific area plan.
- D. Alteration of Existing Structures. When an existing structure is altered to the extent that the existing use is intensified, on-site vehicle and bicycle parking shall be provided in the amount required for such intensification. Alteration of existing structures, increased intensity, and change in use per Sections 17.98.10 (D.), (E.) and (F.) does not apply to commercial uses in the Central Business District (C-1).
- E. Increased Intensity. When **increased intensity** requires no more than four (4) vehicle spaces, no additional parking facilities shall be required. However, the effects of changes, additions, or enlargements shall be cumulative. When the net effect of one or more changes generates a need for more than four spaces, the additional required spaces shall be provided. Additional spaces shall be required for the intensification but not for the original use.
- F. Change in Use. When an existing structure or use of land is changed in use from one use to another use as listed in Section 17.98.20 below and the vehicle and bicycle parking requirements for each use type are the same; no additional parking shall be required. However, where a change in use results in an intensification of use in terms of number of vehicle and bicycle parking spaces required, additional parking space shall be provided in an amount equal to the difference between the number of spaces required for the existing use and number of spaces required for the more intensive use.
- G. Time of Completion. Required parking spaces and loading areas shall be improved and available for use prior to issuance of a temporary certificate of occupancy and/or final building inspection or final certificate of occupancy.

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- H. Inoperative Motor Vehicles. In all residential zoning districts, all motor vehicles incapable of movement under their own power or lacking legal registration shall be completely screened from public view.
- I. Truck Parking. In all residential zoning districts, no overnight parking of trucks or other equipment on wheels or tracks exceeding a 1-ton capacity used in the conduct of a business activity shall be permitted except vehicles and equipment necessary for farming on the premises where such use is conducted.
- J. Mixed Uses. In the case of mixed uses, the total required vehicle and bicycle parking shall be the sum of requirements of individual uses computed separately.
- K. Conflicting Parking Requirements. When a building or use is planned or constructed in such a manner that more than one standard is applicable, the use that requires the greater number of parking spaces shall govern.
- L. Availability of Parking Spaces. Required vehicle and bicycle parking spaces shall be unobstructed, available for parking of vehicles and bicycles of residents, customers, patrons, and employees only, and shall not be used for storage of vehicles or materials or for parking of vehicles and bicycles used in conducting the business or use and shall not be used for sale, repair, or servicing of any vehicle or bicycle.
- M. Residential Parking Analysis Plan. A Residential Parking Analysis Plan shall be required for all new residential planned developments, subdivisions, and partitions to include a site plan depicting all of the following:
1. Location and dimension of required parking spaces as specified in Section 17.98.200.
  2. Location of areas where parking is not permitted as specified in Sections 17.98.200(A)(3) and (5).
  3. Location and design of parking courts (if applicable).
- N. Location of Required Parking.
1. Off-street vehicle parking required for single family dwellings (both attached and detached) and duplexes shall be provided on the development site of the primary structure. Except where permitted by 17.98.40 below, required parking for all other uses in other districts shall be provided on the same site as the use or upon abutting property.
  2. Bicycle parking required for all uses in all districts shall be provided on the development site in accordance with Section 17.98.160 below.
- O. Unassigned Parking in Residential Districts.
1. Multi-family dwelling units with more than 10 required vehicle parking spaces shall provide unassigned parking. The unassigned parking shall consist of at least 15 percent of the total required parking spaces and be located to be available for use by all occupants and guests of the development.
  2. Multi-family dwelling units with more than 10 required bicycle parking spaces may provide shared outdoor bicycle parking. The shared bicycle parking shall consist of at least 15 percent of the total required parking spaces and be located such that they are available for shared use by all occupants and guests of the development.

- P. Fractions. When the sum of the required vehicle and bicycle parking spaces is a fraction of a space (0.5 or more of a space) a full space shall be required.
- Q. Maximum Parking Allowed. Commercial or Industrial zoned properties shall not be permitted to exceed the minimum off-street vehicle parking required by Section 17.98.20 by more than 30 percent.

**17.98.20 OFF-STREET PARKING REQUIREMENTS**

A. **Off Street Parking Requirements.** Off street parking shall conform to the following standards:

1. Commercial uses in the Central Business District (C-1) are exempt from off street parking requirements. Residential uses in the Central Business District (C-1) have to provide off street parking per this section but may get a reduction per Section 17.98.30 (B.).
2. All square footage measurements are gross square feet of total floor area.
3. 24 lineal inches of bench shall be considered 1 seat.
4. Except as otherwise specified, parking for employees shall be provided based on 1 space per 2 employees for the largest shift in addition to required parking specified in Sections 8 – 11 below.
5. Where less than 5 parking spaces are required, then only one bicycle space shall be required except as otherwise modified in Sections 8 – 11 below.
6. In addition to requirements for residential off-street parking, new dwellings shall meet the on-street parking requirements in Section 17.98.200.
7. Uses that rely on square footage for determining parking requirements may reduce the overall square footage of the use by deducting bathrooms, mechanical rooms, and other auxiliary rooms as approved by the Director.

8.

Residential Uses	Number of Parking Spaces	Number of Bicycle Spaces
Single Family Detached/Attached	2 per dwelling unit	Exempt
Duplexes	2 per dwelling unit	Exempt
Manufactured Home Park	2 per dwelling, plus 1 visitor space for each 10 vehicle spaces	Exempt
Multi-Family Dwellings	1.5 per studio unit or 1-bedroom unit 2.0 per 2-bedroom unit or greater	1 per dwelling unit
Congregate Housing, Retirement Homes, Intermediate Care Facilities, Group Care Facilities, and Halfway Houses	1 per each 3 residents, plus 1 per 2 employees	5% or 2 whichever is greater

9.

<b>Community Service, Institutional and Semi-Public Uses</b>	<b>Number of Parking Spaces</b>	<b>Number of Bicycle Spaces</b>
Administrative Services	1 per 400 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Community Recreation Buildings, Library, or Museum	1 per 250 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Church, Chapel, Auditorium, or Fraternal Lodge without eating and drinking facilities	1 per 4 fixed seats or 1 per each 50 sq. ft. of public assembly area where there are no fixed seats, plus 1 per 2 employees	5% or 2 whichever is greater
Hospitals	1 per examine room or bed, and 1 per 4 seats in waiting room or chapel, plus 1 per 2 employees	5% or 2 whichever is greater
Commercial Daycare	2 for the facility, plus 1 per employee on the largest shift	2
School – Preschool/Kindergarten	2 per classroom, plus 1 per 2 employees	2
School – Elementary or Middle School/Junior High	2 per classroom, plus 1 per 2 employees	5% or 2 whichever is greater
School – Senior High, Vocational or College	6 per classroom, plus 1 per employee on the largest shift	5% or 2 whichever is greater

10.

<b>Commercial Uses</b>	<b>Number of Parking Spaces</b>	<b>Number of Bicycle Spaces</b>
Retail Sales, General or Personal Services, Professional Offices, Shopping Centers, Grocery Stores, Convenience Stores	1 per 400 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Retail Sales of Bulky Merchandise (examples: furniture or motor vehicles)	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Eating or Drinking Establishments	1 per 250 sq. ft. of gross floor area or 1 per 4 fixed seats or stools, plus 1 per 2 employees	5% or 2 whichever is greater
Funerals and Interment Services: Crematory and Undertaking <i>Interring and Cemeteries are exempt</i>	1 per 4 fixed seats or 1 space for each 50 sq. ft. of public assembly area where there are no fixed seats, plus 1 per 2 employees	2
Fuel Sales (without store)	1 per employee on the largest shift	2
Medical or Dental Office or Clinic	1 per examine room or bed, and 1 per 4 seats in waiting room, plus 1 per 2 employees	5% or 2 whichever is greater
Participant Sports or Recreation: Indoor or Outdoor; Spectator Sports;	1 per 4 fixed seats or 1 space per 4 participants based on projected	5% or 2 whichever is greater

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Theater or similar use	participant capacity, plus 1 per 2 employees	
Campground or RV Park	1 per designated space, plus 1 visitor space for each 8 designated spaces, plus 1 per 2 employees	Exempt
Hotel or Motel	1 per guest room or suite, plus 1 per 2 employees	2

11.

Industrial Uses	Number of Parking Spaces	Number of Bicycle Spaces
Sales, Storage, Rental, Services and Repairs of: Agricultural and Animals Automotive/Equipment Fleet Storage Light Equipment Non-operating vehicles, boats and recreational vehicles Building Equipment	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Sales, Storage, Rental, and Repairs of: Heavy Equipment, or Farm Equipment	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Storage, Distribution, Warehousing, or Manufacturing establishment; trucking freight terminal	1 per employee on the largest shift	2

### 17.98.30 REDUCTION OF PARKING REQUIREMENTS

#### A. Transit Amenity Reduction.

1. Any existing or proposed use in the C-2, C-3, or I-1 Zoning Districts subject to minimum parking requirements and located within 400 feet of an existing transit route may reduce the number of required parking spaces by up to 10 percent by providing a transit stop and related amenities including a public plaza, pedestrian sitting areas, or additional landscaping provided such landscaping does not exceed 25 percent of the total area dedicated for transit oriented purposes.
2. Required parking spaces may be reduced at a ratio of 1 parking space for each 100 square feet of transit amenity space provided above and beyond the minimum requirements.
3. Uses, which are not eligible for these reductions, include truck stops, building materials and lumber sales, nurseries and similar uses not likely to be visited by pedestrians or transit customers.

#### B. Residential uses in the Central Business District and Village Commercial District Reduction.

Required off-street parking for residential uses in the C-1 and C-3 Zoning District may be reduced by 25 percent.

#### **17.98.40 SHARED USE OF PARKING FACILITIES**

- A. Except for single family dwellings (both attached and detached) and duplexes, required parking facilities may be located on an adjacent parcel of land or separated only by an alley or local street, provided the adjacent parcel is maintained in the same ownership as the use it is required to serve or a shared parking agreement that can only be released by the Director is recorded in the deed records of Clackamas County.
- B. In the event that several parcels occupy a single structure or parcel of land, the total requirements for off-street parking shall be the sum of the requirements for the uses computed separately.
- C. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facility used jointly, to the extent that it can be shown by the owners or operators that the needs of the facilities do not materially overlap (e.g., uses primarily of day time versus night time uses) and provided that such right of joint use is evidenced by a deed, lease, contract or similar written instrument recorded in the deed records of Clackamas County establishing such joint use.

#### **17.98.50 SETBACKS**

- A. Parking areas, which abut a residential zoning district, shall meet the setback of the most restrictive adjoining residential zoning district.
- B. Required parking shall not be located in a required front or side yard setback area abutting a public street except in industrial districts. For single family and duplexes, required off-street parking may be located in a driveway.
- C. Parking areas shall be setback from a lot line adjoining a street the same distance as the required building setbacks. Regardless of other provisions, a minimum setback of 5 feet shall be provided along the property fronting on a public street. The setback area shall be landscaped as provided in this code.

#### **17.98.60 DESIGN, SIZE AND ACCESS**

All off-street parking facilities, vehicular maneuvering areas, driveways, loading facilities, accessways, and private streets shall conform to the standards set forth in this section.

- A. Parking Lot Design. All areas for required parking and maneuvering of vehicles shall have a durable hard surface such as concrete or asphalt.
- B. Size of Space.
  - 1. A standard parking space shall be 9 feet by 18 feet.
  - 2. A compact parking space shall be 8 feet by 16 feet.
  - 3. Accessible parking spaces shall be 9 feet by 18 feet and include an adjacent access aisle meeting ORS 447.233. Access aisles may be shared by adjacent spaces. Accessible parking shall be provided for all uses in compliance with the requirements of the State of Oregon (ORS 447.233) and the Americans with Disabilities Act.
  - 4. Parallel parking spaces shall be a length of 22 feet.

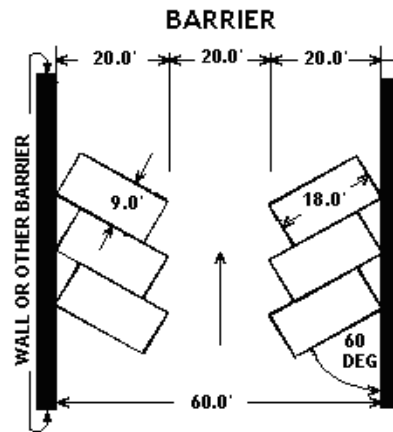
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5. No more than 40 percent of the parking stalls shall be compact spaces.

C. Aisle Width.

Parking Aisle	Single Sided One-Way	Single Sided Two-Way	Double Sided One-Way	Double Sided Two-Way
90 degree	20 feet	22 feet	25 feet	25 feet
60 degree	20 feet	20 feet	20 feet	20 feet
45 degree	20 feet	20 feet	20 feet	20 feet
Parallel	12 feet	12 feet	16 feet	16 feet



**17.98.70 ON-SITE CIRCULATION**

- A. Groups of more than three (3) parking spaces shall be permanently striped. Accessible parking spaces and accompanying access aisles shall be striped regardless of the number of parking spaces.
- B. Backing and Maneuvering. Except for a single family dwelling, duplex, or accessory dwelling unit, groups of more than 3 parking spaces shall be provided with adequate aisles or turnaround areas so that all vehicles enter the right-of-way (except for alleys) in a forward manner. Parking spaces shall not have backing or maneuvering movements for any of the parking spaces occurring across public sidewalks or within any public street, except as approved by the City Engineer. Evaluations of requests for exceptions shall consider constraints due to lot patterns and impacts to the safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

**17.98.80 ACCESS TO ARTERIAL AND COLLECTOR STREETS**

- A. Location and design of all accesses to and/or from arterials and collectors (as designated in the Transportation System Plan) are subject to review and approval by the City Engineer. Where practical, access from a lower functional order street may be required. Accesses to

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arterials or collectors shall be located a minimum of 150 ft. from any other access or street intersection. Exceptions may be granted by the City Engineer. Evaluations of exceptions shall consider posted speed of the street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

- B. No development site shall be allowed more than one access point to any arterial or collector street (as designated in the Transportation System Plan) except as approved by the City Engineer. Evaluations of exceptions shall be based on a traffic impact analysis and parking and circulation plan and consider posted speed of street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.
- C. When developed property is to be expanded or altered in a manner that significantly affects on-site parking or circulation, both existing and proposed accesses shall be reviewed under the standards in A and B above. As a part of an expansion or alteration approval, the City may require relocation and/or reconstruction of existing accesses not meeting those standards.

#### **17.98.90 ACCESS TO UNIMPROVED STREETS**

Access to Unimproved Streets. At the Director's discretion development may occur without access to a City standard street when that development constitutes infill on an existing substandard public street. A condition of development shall be that the property owner signs an irrevocable petition for street improvements and/or a declaration of deed restrictions agreeing to future completion of street improvements. The form shall be provided by the City and recorded with the property through the Clackamas County Recorder's Office. This shall be required with approval of any of the following applications:

- Land partitions
- Conditional uses
- Building permits for new non-residential construction or structural additions to non-residential structures (except accessory development)
- Building permits for new residential units

#### **17.98.100 DRIVEWAYS**

- A. A driveway to an off-street parking area shall be improved from the public right-of-way to the parking area a minimum width of 20 feet for a two-way drive or 12 feet for a one-way drive, but in either case not less than the full width of the standard approach for the first 20 feet of the driveway.
- B. A driveway for a single-family dwelling shall have a minimum width of 10 feet. The driveway approach within the public right-of-way shall not exceed 24 feet in width measured at the bottom of the curb transition. A driveway approach shall be constructed in accordance with applicable city standards and the entire driveway shall be paved with asphalt or concrete. Shared driveway approaches may be required for adjacent lots in cul-de-sacs in order to maximize room for street trees and minimize conflicts with utility facilities (power and telecom pedestals, fire hydrants, streetlights, meter boxes, etc.)

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- C. A driveway for a two-family dwelling shall have a minimum width of 20 feet. The driveway approach in the public right-of-way shall not exceed 24 feet in width as measured in section B above. A driveway approach shall be constructed in accordance with applicable city standards and the entire driveway shall be paved with asphalt or concrete.
- D. Driveways, aisles, turnaround areas and ramps shall have a minimum vertical clearance of twelve feet for their entire length and width, but such clearance may be reduced in parking structures as approved by the Director.
- E. No driveway shall exceed a grade of 15 percent at any point along the driveway length, measured from the right-of-way line to the face of garage or furthest extent of the driveway.
- F. The nearest edge of a driveway approach shall be located a minimum of 15 feet from the point of curvature or tangency of the curb return on any street.
- G. The sum of the width of all driveway approaches within the bulb of a cul-de-sac as measured in section B above shall not exceed fifty percent of the circumference of the cul-de-sac bulb. The cul-de-sac bulb circumference shall be measured at the curb line and shall not include the width of the stem street. The nearest edge of driveway approaches in cul-de-sacs shall not be located within 15 feet of the point of curvature, point of tangency or point of reverse curvature of the curb return on the stem street.

Acronyms on the next page:

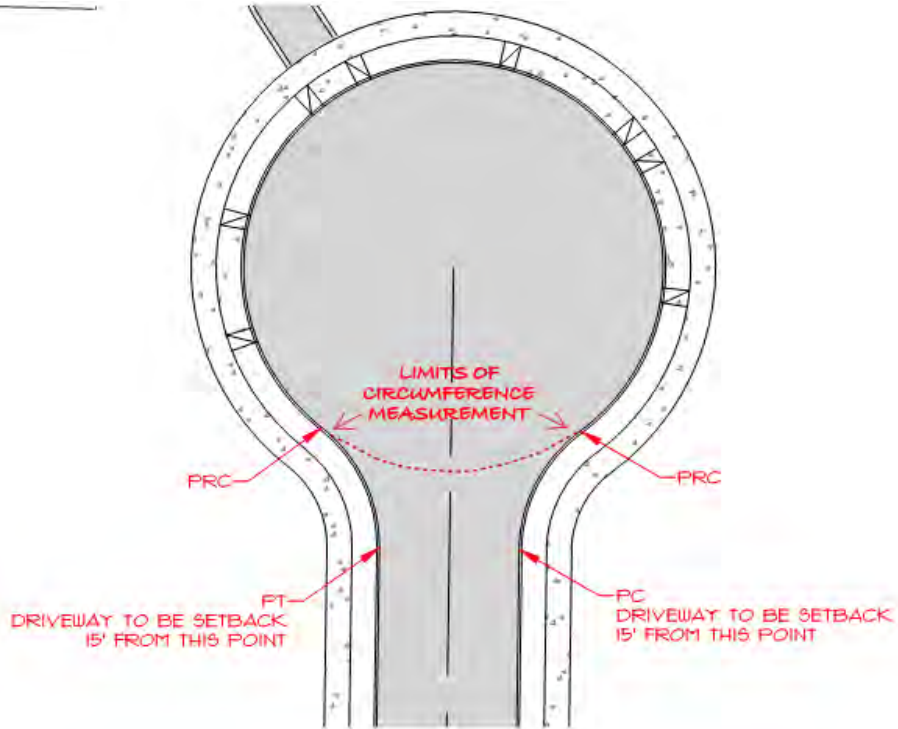
PT = point of tangency

PC = point of curvature

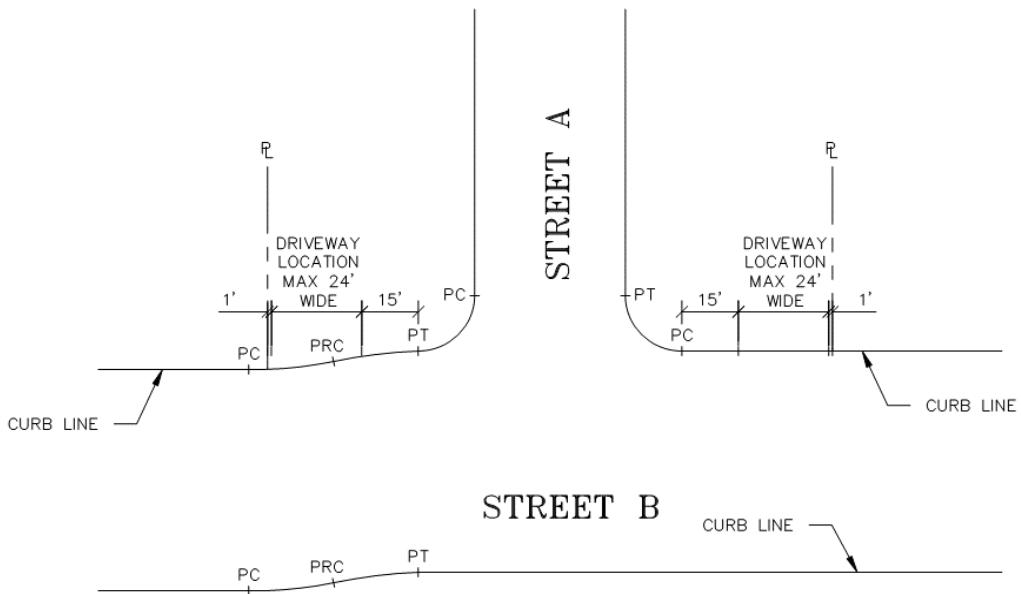
PRC = point of reverse curvature

- H. The location and design of any driveway approach shall provide for unobstructed sight per the vision clearance requirements in section 17.74.30. **Requests for exceptions to these requirements will be evaluated by the City Engineer considering the physical limitations of the lot and safety impacts to vehicular, bicycle, and pedestrian traffic.**
- I. Driveways shall taper to match the driveway approach width to prevent stormwater sheet flow from traversing sidewalks.

**CUL-DE-SAC EXHIBIT**



**DRIVEWAY LOCATION EXHIBIT**



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### **17.98.110 VISION CLEARANCE**

- A. Except within the Central Business District, vision clearance areas shall be provided at intersections of all streets and at intersections of driveways and alleys with streets to promote pedestrian, bicycle, and vehicular safety. The extent of vision clearance to be provided shall be determined from standards in Chapter 17.74 and taking into account functional classification of the streets involved, type of traffic control present at the intersection, and designated speed for the streets.
- B. Traffic control devices, streetlights, and utility installations meeting approval by the City Engineer are permitted within vision clearance areas.

### **17.98.120 LANDSCAPING AND SCREENING**

- A. Screening of all parking areas containing 4 or more spaces and all parking areas in conjunction with an off-street loading facility shall be required in accordance with zoning district requirements and Chapter 17.98. Where not otherwise specified by district requirement, screening along a public right-of-way shall include a minimum 5 feet depth of buffer plantings adjacent to the right-of-way.
- B. When parking in a commercial or industrial district adjoins a residential zoning district, a sight-obscuring screen that is at least 80 percent opaque when viewed horizontally from between 2 and 8 feet above the average ground level shall be required. The screening shall be composed of materials that are an adequate size so as to achieve the required degree of screening within 3 years after installation.
- C. Except for a residential development which has landscaped yards, parking facilities shall include landscaping to cover not less than 10 percent of the area devoted to parking facilities. The landscaping shall be uniformly distributed throughout the parking area and may consist of trees, shrubs, and ground covers.
- D. Parking areas shall be divided into bays of not more than 20 spaces in parking areas with 20 or more spaces. Between, and at the end of each parking bay, there shall be planters that have a minimum width of 5 feet and a minimum length of 17 feet for a single depth bay and 34 feet for a double bay. Each planter shall contain one major structural tree and ground cover. Truck parking and loading areas are exempt from this requirement.
- E. Parking area setbacks shall be landscaped with major trees, shrubs, and ground cover as specified in Chapter 17.92.
- F. Wheel stops, bumper guards, or other methods to protect landscaped areas and pedestrian walkways shall be provided. No vehicle may project over a property line or into a public right-of-way. Parking may project over an internal sidewalk, but a minimum clearance of 5 feet for pedestrian circulation is required.

### **17.98.130 PAVING**

- A. Parking areas, driveways, aisles and turnarounds shall be paved with concrete, asphalt or **comparable surfacing**, constructed to City standards for off-street vehicle areas.
- B. Gravel surfacing shall be permitted only for areas designated for non-motorized trailer or equipment storage, propane or electrically powered vehicles, or storage of tracked vehicles.

### **17.98.140 DRAINAGE**

Parking areas, aisles and turnarounds shall have **adequate provisions** made for the on-site collection of drainage waters to eliminate sheet flow of such waters onto sidewalks, public rights-of-way and abutting private property.

### **17.98.150 LIGHTING**

The Dark Sky Ordinance in Chapter 15 of the municipal code applies to all lighting. Artificial lighting shall be provided in all required off-street parking areas. Lighting shall be directed into the site and shall be arranged to not produce direct glare on adjacent properties. Light elements shall be shielded and shall not be visible from abutting residential properties. Lighting shall be provided in all bicycle parking areas so that all facilities are **thoroughly illuminated** and visible from adjacent sidewalks or vehicle parking lots during all hours of use.

### **17.98.160 BICYCLE PARKING FACILITIES**

Multi-family developments, industrial, commercial and community service uses, transit transfer stations, and park and ride lots shall meet the following standards for bicycle parking facilities. The intent of this section is to provide secure bicycle parking that is visible from a building's primary entrance and convenient to bicyclists.

- A. Location.
  - 1. Bicycle parking shall be located on-site, convenient to primary building entrances, and have direct access to both the public right-of-way and to the main entrance of the primary structure.
  - 2. Bicycle parking areas shall be visible from building interiors where possible.
  - 3. For facilities with multiple buildings or parking lots, bicycle parking shall be located in areas of greatest use and convenience to bicyclists.
  - 4. If the bicycle parking area is located within the vehicle parking area, the bicycle facilities shall be separated from vehicular maneuvering areas by curbing or other barrier to prevent damage to parked bicycles.
  - 5. Curb cuts shall be installed to provide safe, convenient access to bicycle parking areas.
- B. Bicycle Parking Space Dimensions.
  - 1. Each required bicycle parking space shall be at least 2 ½ feet by 6 feet. If bicycle parking is covered, vertical clearance of 7 feet shall be provided.
  - 2. An access aisle of at least 5 feet wide shall be provided and maintained beside or between each row of bicycle parking. Vertical or upright bicycle storage structures are exempted from the parking space length.

- C. Security.
  1. Bicycle parking facilities shall offer security in the form of either a lockable enclosure in which the bicycle can be stored or a stationary object (i.e., a “rack”) upon which the bicycle can be located.
  2. Racks requiring user-supplied locks shall accommodate both cable and U-shaped locks.
  3. Bicycle racks shall be securely anchored to the ground or a structure and shall be designed to hold bicycles securely.
  4. All outdoor bicycle parking facilities shall provide adequate shelter from precipitation where possible.
- D. Signing. Where bicycle facilities are not directly visible from the public right-of-way, primary structure entry, or civic space then directional signs shall be provided to direct bicyclists to the bicycle parking facility.
- E. Exemptions. Temporary uses and other uses identified in Section 17.98.20 as not requiring bicycle parking are exempt from Section 17.98.160.

**17.98.170 CARPOOL AND VANPOOL PARKING**

New industrial, commercial, and community service uses with more than 100 employees shall meet the following minimum requirements for carpool and vanpool parking.

- A. Number and Marking. At least 10 percent of the employee parking spaces shall be marked and signed for use as a carpool/vanpool space. The carpool/vanpool spaces shall be clearly marked “Reserved - Carpool/Vanpool Only”.
- B. Location. Designated carpool/vanpool parking spaces shall be the closest employee parking spaces to the building entrance normally used by employees except for any handicapped spaces provided.

**17.98.180 SCHOOL DESIGN REQUIREMENTS**

A driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading children shall be located on the site of a school having a capacity greater than 50 students.

**17.98.190 OFF-STREET LOADING FACILITIES**

- B. All commercial and industrial uses that anticipate loading and unloading of products/materials shall provide an off-street area for loading/unloading of products/materials.
- C. The required loading berth shall be not less than 10 feet in width by 35 feet in length and shall have an unobstructed height clearance of 14 feet.
- D. Loading areas shall be screened from public view from public streets. The loading areas shall be screened from adjacent properties except in industrial districts and shall require the same screening as parking lots.

- E. Sufficient space for turning and maneuvering of vehicles shall be provided on the site in accordance with the standard specifications established by the City Engineer.

**17.98.200 RESIDENTIAL ON-STREET PARKING REQUIREMENTS**

- A. Residential On-Street Parking Requirements. Residential on-street parking shall conform to the following standards:
1. In addition to required off-street parking, all new residential planned developments, subdivisions and partitions shall provide one (1) on-street parking space within 300 feet of each dwelling except as provided in Section 17.98.200(A)(6) below. The 300 feet shall be measured from the primary entrance of the dwelling.
  2. The location of residential on-street parking shall be reviewed for compliance with this section through submittal of a Residential Parking Analysis Plan as required in Section 17.98.10(M).
  3. Residential on-street parking shall not obstruct required clear vision areas and shall not violate any local or state laws.
  4. Parallel residential on-street parking spaces shall be a minimum of 22 feet in length.
  5. Residential on-street parking shall be measured along the curb from the outside edge of a driveway wing or curb cut. Parking spaces shall be set back a minimum of 15 feet from the point of tangency or curvature at an intersection and may not be located within 10 feet of a fire hydrant.
  6. Portions of residential on-street parking required by this section may be provided in parking courts that are interspersed throughout a development when the following standards are met:
    - a. No more than ten (10) parking spaces shall be provided in a parking court, except parking courts that utilize backing movements into the right-of-way in which case the parking court shall be limited to two (2) parking spaces;
    - b. Parking spaces within a parking court shall be nine (9) feet wide and 18 feet in depth. In no instance shall a vehicle or any appurtenances parked in a parking court protrude into the public right-of-way;
    - c. Notwithstanding Section 17.98.70, vehicles parked in a parking court on **a local street as defined in the Transportation System Plan** are permitted to back onto the public right-of-way from the parking court so long as the parking court is limited to two (2) parking spaces;
    - d. A parking court shall be located within 300 feet of the dwellings requiring parking in accordance with the requirements of Section 17.98.10(M);
    - e. No more than two (2) parking courts shall be provided within a block, with only one (1) parking court provided along a block face;
    - f. A parking court shall be paved in compliance with the standards of this chapter and constructed to the grading and drainage standards in 17.98.140;
    - g. A parking court adjacent to a public right-of-way, shall be privately owned and maintained;

- h. If a parking court is adjacent to a private drive, it shall be privately owned and maintained. For any parking court there shall be a legal recorded document which includes:
  - A legal description of the parking court;
  - Ownership of the parking court;
  - Use rights; and
  - A maintenance agreement and the allocation and/or method of determining liability for maintenance of the parking court;
- i. A parking court shall be used solely for the parking of operable passenger vehicles.



## CHAPTER 17.100 LAND DIVISION

### **17.100.00 INTENT**

The intent of this chapter is to implement the Comprehensive Plan, to provide procedures, regulations, and design standards for land divisions and associated improvements and to provide for orderly and efficient land division patterns supported by a connected system of streets, fiber (broadband), water supply, sanitary sewer and stormwater drainage facilities.

The division of land is the initial step in establishing Sandy's ultimate development pattern. The framework of streets, blocks and individual lots is implemented through the land division process. Density, dimensional standards, setbacks, and building height are established in applicable zoning district regulations.

This chapter presents the review procedures, design standards and improvement requirements for land divisions. Procedures for replats and property line adjustments are also addressed in this chapter.

### **17.100.10 GENERAL PROVISIONS**

- A. No land shall be divided prior to approval of a minor partition, major partition or subdivision in accordance with this Code.
- B. No sale or conveyance of any portion of a lot, other than for a public purpose, shall leave a structure on the remainder of a lot with less than the minimum lot, yard or setback requirements of the zoning district.
- C. Land division is processed by approval of a tentative plan prior to approval of the final land division plat or map. Where a Type II or Type III procedure is required for land division approval, that procedure shall apply to the tentative plan approval. As long as there is compliance with the approved tentative plat and conditions, the Director shall have the authority to approve final plats and maps for land divisions through a Type I procedure.

### **17.100.20 LAND DIVISION CLASSIFICATION - TYPE I, II OR III PROCEDURES**

- A. Type I Land Division (Property Line Adjustment). Property line adjustments shall be a Type I procedure if the resulting parcels comply with standards of the Development Code and this chapter.
- B. Type I Land Division (Minor Partition). A minor partition shall be a Type I procedure if the land division does not create a street and the resulting parcels comply with the standards of the zoning district and this chapter.
- C. Type II Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type II procedure when a street is extended, satisfactory street conditions exist and the resulting parcels/lots comply with the standards of the zoning district and this chapter. Satisfactory street conditions exist when the Director determines one of the following:

1. Existing streets are stubbed to the property boundaries and are linked by the land division.
  2. An existing street or a new proposed street need not continue beyond the land division in order to complete an appropriate street system or to provide access to adjacent property.
  3. The proposed street layout is consistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.
- D. Type II Land Division (Minor Replat). A minor replat of an existing platted subdivision shall be a Type II procedure when the street(s) are existing and no extension or reconstruction/realignment is necessary, when the replat does not increase the allowable density, the resulting parcels comply with the standards of the zoning district and this chapter, and the replat involves no more than six (6) lots.
- E. Type III Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type III procedure if unsatisfactory street conditions exist or the resulting parcels/lots do not comply with the standards of the zoning district and this chapter. The Director shall determine if unsatisfactory street conditions exist based on one of the following criteria:
1. The land division does not link streets that are stubbed to the boundaries of the property.
  2. An existing street or a new proposed street will be extended beyond the boundaries of the land division to complete a street system or provide access to adjacent property.
  3. The proposed street layout is inconsistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.
- F. Type III Land Division (Major Replat). A major replat involves the realignment of property lines involving more than six lots, even if the subdivision does not increase the allowable density. All parcels resulting from the replat must comply with the standards of the zoning district and this chapter. Any replat involving the creation, extension or modification of a street shall be processed as a major replat.

### 17.100.30 PROPERTY LINE ADJUSTMENT

Approval of a property line adjustment is required to move a common boundary between two parcels or lots. A Type I property line adjustment is not considered a development action for purposes of determining whether floodplain, greenway, or right-of-way dedication or improvements are required.

- A. Application Requirements. Property line adjustment applications shall be made on forms provided by the City and shall be accompanied by:
1. Two (2) copies of the property line adjustment map;
  2. The required fee;
  3. Any data or narrative necessary to explain the application.
- B. Map Information. The property line adjustment map and narrative shall include the following:
1. The names, addresses and phone numbers of the owner(s) of the subject parcels and authorized representative;
  2. Scale of the drawing using an engineer's scale;
  3. North arrow and date;

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4. Legal description of the property;
  5. Dimensions and size of the parcels involved in the property line adjustment;
  6. Approximate locations of structures, utilities, rights-of-way and easements;
  7. Points of access, existing and proposed;
  8. Any natural features such as waterways, drainage area, significant vegetation or rock outcroppings;
  9. Approximate topography, particularly noting any area of steep slope.
- C. Approval Criteria. The Director shall approve a request for a property line adjustment if the following criteria are satisfied:
1. No additional parcels are created.
  2. All parcels meet the density requirements and dimensional standards of the base zoning district.
  3. Access, utilities, easements, and proposed future streets will not be adversely affected by the property line adjustment.
- D. Final Approval. Three paper copies of the final map shall be submitted within one year of approval of the property line adjustment. The final map shall include a boundary survey, which complies with ORS Chapters 92 and 209. The approved final map, along with required deeds, must be recorded with Clackamas County.

#### **17.100.40 MINOR AND MAJOR PARTITIONS**

Approval of a partition is required for a land division of 3 or fewer parcels in a calendar year. Partitions, which do not require creation or extension of a street for access, is classified as a Type I minor partition. Partitions, which require creation or extension of a street for access, are classified as Type II, major partitions.

- A. Preapplication Conference. The applicant for a minor or major partition shall participate in a preapplication conference with City staff to discuss procedures for approval, applicable state and local requirements, **objectives and policies of the Sandy Comprehensive Plan**, and the availability of services. A preapplication conference is required.
- B. Application Requirements. Partition applications shall be made on forms provided by the planning department and shall be accompanied by:
1. Eight copies of the tentative plan for the minor or major partition;
  2. The required fee;
  3. Any data or narrative necessary to explain the application;
  4. List of affected property owners.
- C. Tentative Partition Plan. The tentative plan shall be a minimum of 8 1/2 x 11 inches in size and shall include the following information:
1. The date, north point, engineering scale, and legal description;
  2. Name and address of the owner of record and of the person who prepared the partition plan;
  3. Zoning, size and dimensions of the tract to be partitioned;
  4. Size, dimensions and identification of proposed parcels (Parcel 1, Parcel 2, Parcel 3);
  5. Approximate location of any structures on the tract to be partitioned, including setbacks to proposed parcel boundaries;

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6. Location, names and widths of streets, sidewalks and bikeways within the tract to be partitioned and extending 400 feet beyond the tract boundaries;
  7. Location, width and purpose of existing and proposed easements on the tract to be partitioned;
  8. Location and size of sanitary sewer, water and stormwater drainage facilities proposed to serve the property to be partitioned;
  9. Natural features such as waterways, drainage area, significant vegetation or rock outcroppings;
  10. Approximate topography, particularly noting any area of steep slope;
  11. A plan for future parcel redivision, if the proposed parcels are large enough to be redivided under the comprehensive plan or zoning designation.
- D. Approval Criteria. The Director or Planning Commission shall review the tentative plan for a minor or major partition based on the classification procedure (Type I, II or III) and the following approval criteria:
1. The proposed partition is consistent with the density, setback and dimensional standards of the base zoning district.
  2. The proposed partition is consistent with the design standards set forth in this chapter.
  3. Adequate public facilities are available or can be provided to serve the proposed partition.
  4. All proposed improvements meet City standards.
  5. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.
  6. The plan preserves the potential for future redivision of the parcels, if applicable.
- E. Conditions. The Director or Planning Commission may require dedication of land and easements and may specify such conditions or modifications of the tentative partition plan as deemed necessary. In no event, however, shall the Director or Planning Commission require greater dedications or conditions than could be required if the entire tract were subdivided.
- F. Approval of Tentative Partition Plan. When a tentative partition plan has been approved, all copies shall be marked with the date and conditions of approval. One copy shall be returned to the applicant, one copy shall be sent to the county and one copy shall be retained by the City.
- G. Approval Signatures for Final Partition Map. Following review and approval of a final partition map, the Director shall:
1. Review Plat for Accuracy. The Director may require field investigations to verify that the plat survey is accurate. The applicant shall be notified and afforded an opportunity to make corrections if needed.
  2. Sign the plat to certify that the map is approved.
  3. Notify the applicant that the partition map and accompanying documents have been approved and are ready for recording with the Clackamas County Recorder.
  4. Deliver the signed original to the applicant who shall deliver the original and two exact copies to the County Recorder's office. One recorded copy shall be returned to the City of Sandy immediately after recording is completed.
- H. Effective Date for Final Partition Map Approval. The partition shall become final upon recording of the approved partition map together with any required documents with the County Recorder. Work specifically authorized following tentative approval may take place

prior to processing of the final partition map. The documents effectuating a partition shall become null and void if not recorded with the County Recorder within one year following approval.

- I. Improvements. The same improvements shall be installed to serve each parcel of a partition as required of a subdivision. Improvement standards are set forth in Section 17.90. If the Director and City Engineer find a need to vary the improvement standards for a partition, the application shall be processed through a Type III hearing and may exempt specific improvements.
- J. Exceptions to Improvements. Exceptions to improvements may be approved in transition areas or other areas as deemed appropriate by the City. In lieu of excepting an improvement, the Planning Commission may recommend to the City Council that the improvement be installed in the area under special assessment financing or other facility extension policies of the City.

#### **17.100.50 NONRESIDENTIAL PARTITIONS OR SUBDIVISIONS**

This section includes special provisions for partitions or subdivisions of land that is zoned for commercial or industrial use.

- A. Principles and Standards. In addition to the standards established for partitions or subdivisions, the applicant for a nonresidential partition or subdivision shall demonstrate that the street, parcel and block pattern proposed is adapted to uses in the vicinity. The following principles and standards shall be observed:
  - 1. Proposed commercial and industrial parcels shall be suitable in area and dimensions to the types of development anticipated.
  - 2. Street right-of-way and pavement shall be adequate to accommodate the type and volume of traffic anticipated.
  - 3. Special requirements may be imposed by the City with respect to street, curb, gutter and sidewalk design and construction.
  - 4. Special requirements may be imposed by the City with respect to the installation of public utilities, including but not limited to water, sanitary sewer, and stormwater drainage facilities.
  - 5. Efforts shall be made to protect adjacent residential areas from potential nuisance from a proposed commercial or industrial subdivision. Such efforts may include the provision of extra depth in parcels backing up on existing or potential residential development and landscaped buffers.
  - 6. Streets carrying nonresidential traffic, particularly truck traffic, should not normally be extended through adjacent residential areas.
  - 7. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.

#### **17.100.60 SUBDIVISIONS**

Approval of a subdivision is required for a land division of 4 or more parcels in a calendar year. A two-step procedure is required for subdivision approval: (1) tentative plat review and approval; and (2) final plat review and approval.

- A. Preapplication Conference. The applicant for a subdivision shall participate in a preapplication conference with City staff to discuss procedures for approval, applicable state and local requirements, **objectives and policies of the Sandy Comprehensive Plan**, and the availability of services. The preapplication conference provides the opportunity to discuss the conceptual development of the property in advance of formal submission of the tentative plan in order to save the applicant unnecessary delay and cost.
- B. Application Requirements for a Tentative Plat. Subdivision applications shall be made on forms provided by the planning department and shall be accompanied by:
1. 20 copies of the tentative plat;
  2. Required fee and technical service deposit;
  3. 20 copies of all other supplementary material as may be required to indicate the general program and objectives of the subdivision;
  4. Preliminary title search;
  5. List of affected property owners.
- C. Format. The Tentative Plat shall be drawn on a sheet 18 x 24 inches in size and at a scale of one inch equals one hundred feet unless an alternative format is approved by the Director at the preapplication conference. The application shall include one copy of a scaled drawing of the proposed subdivision, on a sheet 8 1/2 x 11, suitable for reproduction.
- D. Data Requirements for Tentative Plat.
1. Scale of drawing, north arrow, and date.
  2. Location of the subdivision by section, township and range, and a legal description sufficient to define the location and boundaries of the proposed tract.
  3. A vicinity map, showing adjacent property boundaries and how proposed streets may be extended to connect to existing streets.
  4. Names, addresses, and telephone numbers of the owner(s) of the property, the engineer or surveyor, and the date of the survey.
  5. Streets: location, names, paved widths, alleys, and right-of-way (existing and proposed) on and within 400 feet of the boundaries of the subdivision tract.
  6. Easements: location, widths, purpose of all easements (existing and proposed) on or serving the tract.
  7. Utilities: location of stormwater drainage, sanitary sewers and water lines (existing and proposed) on and abutting the tract. If utilities are not on or abutting the tract, indicate the direction and distance to the nearest locations.
  8. Ground elevations shown by contour lines at two-foot vertical intervals for ground slopes of less than 10 percent and at ten-foot vertical intervals for ground slopes exceeding 10 percent. Ground elevation shall be related to an established benchmark or other datum approved by the Director.
  9. Natural features such as marshes, rock outcroppings, watercourses on and abutting the property, and location of wooded areas.
  10. Approximate location of areas subject to periodic inundation or storm sewer overflow, location of any floodplain or flood hazard district.
  11. Location, width, and direction of flow of all water courses.
  12. Identification of the top of bank and boundary of mandatory setback for any stream or water course.
  13. Identification of any associated wetland and boundary of mandatory setback.
  14. Identification of any wetland and boundary of mandatory setback.

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15. Location of at least one temporary bench mark within the tract boundaries.
  16. Existing uses of the property, including location and present use of all existing structures to remain on the property after platting.
  17. Lots and Blocks: approximate dimensions of all lots, minimum lot sizes, and proposed lot and block numbers.
  18. Existing zoning and proposed land use.
  19. Designation of land intended to be dedicated or reserved for public use, with the purpose, conditions, or limitations of such reservations clearly indicated.
  20. Proposed development phases, if applicable.
  21. Any other information determined necessary by the Director such as a soil report or other engineering study, traffic analysis, floodplain or wetland delineation, etc.
- E. **Approval Criteria.** The Director or Planning Commission shall review the tentative plat for the subdivision based on the classification procedure (Type II or III) set forth in Chapter 17.12 and the following approval criteria:
1. The proposed subdivision is **consistent with** the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval.
  2. The proposed subdivision is **consistent with** the design standards set forth in this chapter.
  3. The proposed street pattern is **connected** and **consistent with the Comprehensive Plan or official street plan for the City of Sandy.**
  4. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.
  5. **Adequate public facilities** are available or can be provided to serve the proposed subdivision.
  6. All proposed improvements meet **City standards.**
  7. The phasing plan, if requested, can be carried out in a manner that meets the objectives of the above criteria and provides **necessary public improvements** for each phase as it develops.
- F. **Conditions.** The Director or Planning Commission may require dedication of land and easements, and may specify such conditions or modifications of the tentative plat as deemed necessary.
- G. **Improvements.** A detailed list of required improvements for the subdivision shall be set forth in the approval and conditions for the tentative plat.
- H. **Tentative Plat Expiration Date.** The final plat shall be delivered to the Director for approval within two (2) years following approval of the tentative plat, and shall incorporate any modification or condition required by approval of the tentative plat. The Director may, upon written request, grant an extension of the tentative plat approval for up to one (1) additional year. The one year extension by the Director is the maximum extension that may be granted for a subdivision.
- I. **Submission of Final Plat.** The applicant shall survey the subdivision and prepare a final plat in conformance with the tentative plat approval and the requirements of ORS Chapter 92.

- J. Information on Plat. In addition to information required for the tentative plat or otherwise specified by state law, the following information shall be shown on the final plat for the subdivision:
1. Tract boundary lines, right-of-way lines of streets and property lines with dimensions, bearings or deflection angles and radii, arcs, points of curvature and tangent bearings. All bearings and angles shall be shown to the nearest one-second and all dimensions to the nearest 0.01 foot. If circular curves are proposed in the plat, the following data must be shown in table form: curve radius, central angles, arc length, and bearing of long chord. All information shown on the face of the plat shall be mathematically perfect.
  2. Easements denoted by fine dotted lines, clearly identified and, if already of record, their recorded references. If an easement is not definitely located of record, a statement of the easement shall be given. The width of the easement, its length and bearing, and sufficient ties to locate the easement with respect to the subdivision shall be shown. If the easement is being dedicated by the plat, it shall be properly referenced in the owner's certificates of dedication.
  3. Any building setback lines if more restrictive than the City zoning ordinance.
  4. Location and purpose for which sites, other than residential lots, are dedicated or reserved.
  5. Easements and any other areas for public use dedicated without any reservation or restriction.
  6. A copy of any deed restrictions written on the face of the plat or prepared to record with the plat with reference on the face of the plat.
  7. The following certificates that may be combined where appropriate:
    - a) A certificate signed and acknowledged by all parties having any recorded title interest in the land, consenting to the preparation and recording of the plat.
    - b) A certificate signed and acknowledged as above, dedicating all land intended for public use except land that is intended for the exclusive use of the lot owners in the subdivision, their licensees, visitors, tenants and servants.
    - c) A certificate with the seal of and signed by the engineer or the surveyor responsible for the survey and final plat.
    - d) Other certificates now or hereafter required by law.
  8. Supplemental Information with Plat. The following data shall accompany the final plat:
    - a) A preliminary title report issued by a title insurance company in the name of the owner of the land, showing all parties whose consent is necessary and their interest in the tract.
    - b) Sheets and drawings showing the following:
      - 1) Traverse data including the coordinates of the boundary of the subdivision and ties to section corners and donation land claim corners, and showing the error of closure, if any.
      - 2) The computation of distances, angles and courses shown on the plat.
      - 3) Ties to existing monuments, proposed monuments, adjacent subdivisions, street corners and state highway stationing.
    - c) A copy of any deed restrictions applicable to the subdivision.
    - d) A copy of any dedication requiring separate documents.
    - e) A list of all taxes and assessments on the tract which have become a lien on the tract.
    - f) A certificate by the engineer that the subdivider has complied with the improvement requirements.



9. Certification by the City Engineer or by the owner of a privately owned domestic water supply system, that water will be available to the property line of each and every lot depicted in the final plat.
- K. Technical Plat Review. Upon receipt by the City, the plat and supplemental information shall be reviewed by the City Engineer and Director through a Type I procedure. The review shall focus on conformance of the final plat with the approved tentative plat, conditions of approval and provisions of city, county or state law applicable to subdivisions.
1. The City Engineer may make field checks as needed to verify that the final plat is sufficiently correct on the ground, and City representatives may enter the subdivision property for this purpose.
  2. If the City Engineer or Director determines that full conformance has not been made, they shall advise the subdivider of the changes or additions that must be made and shall afford the subdivider an opportunity to make the changes or additions.
  3. All costs associated with the technical plat review and recording shall be the responsibility of the applicant.
- L. Approval of Final Plat. The signatures of the Director and the City Engineer shall indicate approval of the final plat. After the plat has been approved by all city and county officials, a digital copy of the plat and a digital copy of any recorded documents shall be delivered to the Director within 20 working days of recording.
- M. Recording of Final Plat. Approval of the plat by the City shall be conditioned on its prompt recording. The subdivider shall, without delay, submit the plat to the county assessor and the county governing body for signatures as required by ORS 92.100. The plat shall be prepared as provided by ORS 92.080. Approval of the final plat shall be null and void if the plat is not submitted for recording within 30 days after the date the last required approving signature has been obtained.

#### **17.100.70 LAND DIVISION DESIGN STANDARDS**

All land divisions shall be in conformance with the requirements of the applicable base zoning district and this chapter, as well as with other applicable provisions of this Code. Modifications to these requirements may be accomplished through a Planned Development. **The design standards in this section shall be used in conjunction with street design standards included in the City of Sandy Transportation System Plan and standards and construction specifications for public improvements as set forth in adopted Public Facilities Plans** and the Sandy Municipal Code.

#### **17.100.80 CHARACTER OF THE LAND**

Land which the Director or the Planning Commission finds to be **unsuitable** for development due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations or topography, utility easements, or other features which will **reasonably be harmful** to the safety, health, and general welfare of the present or future inhabitants of the partition or subdivision and the surrounding areas, shall not be developed unless **adequate** methods are formulated by the subdivider and approved by the Director or the Planning Commission to solve the problems created by the unsuitable land conditions.

### **17.100.90 ACCESS CONTROL GUIDELINES AND COORDINATION**

- A. Notice and coordination with ODOT required. The city will coordinate and notify ODOT regarding all proposals for new or modified public and private accesses on to Highways 26 and 211.
- B. It is the city policy to, over time, reduce noncompliance with the Oregon Highway Plan Access Management Policy guidelines.
- C. Reduction of compliance with the cited State standards means that all reasonable alternatives to reduce the number of accesses and avoid new non-complying accesses will be explored during the development review. The methods to be explored include, but are not limited to: closure, relocation, and consolidation of access; right-in/right-out driveways; crossover easements; and use of local streets, alleys, and frontage roads.

### **17.100.100 STREETS GENERALLY**

No subdivision or partition shall be approved unless the development has frontage or approved access to an existing public street. In addition, all streets shall be graded and improved in conformance with the City's construction standards, approved by the City Engineer, in accordance with the construction plans.

- A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.
- B. Transportation Impact Studies. An applicant is required to prepare and submit a transportation impact study in accordance with the standards of Chapter 17.84 unless those standards exempt the application from the requirement.:
  - 1.
- C. Topography and Arrangement. All streets shall be properly related to special traffic generators such as industries, business districts, schools, and shopping centers and to the pattern of existing and proposed land uses.
- D. Street Spacing. Street layout shall **generally** use a rectangular grid pattern with modifications as appropriate to adapt to topography or natural conditions.
- E. Future Street Plan. Future street plans are conceptual plans, street extensions and connections on acreage adjacent to land divisions. They assure access for future development and promote a logical, connected pattern of streets. It is in the interest of the city to promote a logical, connected pattern of streets. All applications for land divisions shall provide a future street plan that shows the pattern of existing and proposed future streets within the boundaries of the proposed land divisions, proposed connections to abutting properties, and extension of streets to adjacent parcels within a 400 foot radius of the study area where development may practically occur.

- F. Connections. Except as permitted under Exemptions, all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan. Streets shall terminate at other streets or at parks, schools or other public land within a neighborhood.

Local streets shall align and connect with other roads when crossing collectors and arterials per the criteria in Section 17.84.50K(5)(e).

Proposed streets or street extensions shall be located to provide direct access to existing or planned transit stops, and existing or planned neighborhood activity centers, such as schools, shopping areas and parks.

- G. Exemptions.

1. A future street plan is not required for partitions of residentially zoned land when none of the parcels may be redivided under existing minimum density standards.
2. Standards for street connections do not apply to freeways and other highways with full access control.
3. When street connection standards are inconsistent with an adopted street spacing standard for arterials or collectors, a right turn in/right turn out only design including median control may be approved. Where compliance with the standards would result in unacceptable sight distances, an accessway may be approved in place of a street connection.

#### **17.100.110 STREET STANDARDS AND CLASSIFICATION**

Street standards are illustrated in the figures included at the end of this chapter. Functional definitions of each street type are described in the Transportation System Plan as summarized below.

- A. Major arterials are designed to carry high volumes of through traffic, mixed with some unavoidable local traffic, through or around the city. Major arterials should **generally** be spaced at 1-mile intervals.
- B. Minor arterials are designed to collect and distribute traffic from major and minor arterials to neighborhood collectors and local streets, or directly to traffic destinations. Minor arterials should **generally** be spaced at 1-mile intervals.
- C. Residential minor arterials are a hybrid between minor arterial and collector type streets that allow for moderate to high traffic volumes on streets where over 90% of the fronting lots are residential.
- D. Collector streets are designed to collect and distribute traffic from **higher type** arterial streets to local streets or directly to traffic destinations. Collector streets should **generally** be spaced at 1/2-mile intervals.
- E. Local streets provide direct access to abutting property and connect to collector streets. Local streets shall be spaced no less than 8 and no more than 10 streets per mile, except as the city may otherwise approve through an adjustment or variance pursuant to Chapter 17.66. Local

streets shall not exceed the ADT standards set forth in Chapter 17.10, except that the ADT standard for local streets shall not apply to outright permitted development within the C-1 zone.

- F. Cul-de-sacs and dead end streets are discouraged. If deemed necessary, cul-de-sacs shall be as short as possible and shall not exceed 400 feet in length.
- G. Public access lanes are designed to provide primary access to a limited number of dwellings when the construction of a local street is unnecessary.
- H. Alleys are designed to provide access to multiple dwellings in areas where lot frontages are narrow and driveway spacing requirements cannot be met.

#### **17.100.120 BLOCKS AND ACCESSWAYS**

- A. Blocks. Blocks shall have **sufficient width** to provide for two tiers of lots at **appropriate depths**. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.
- B. Residential Blocks. Blocks fronting local streets shall not exceed 400 feet in length, **unless topographic, natural resource, or other similar physical conditions justify longer blocks**. Blocks may exceed 400 feet if approved as part of a Planned Development, Specific Area Plan, adjustment or variance.
- C. Commercial Blocks. Blocks located in commercial districts shall not exceed 400 feet in length.
- D. Pedestrian and Bicycle Access Way Requirements. In any block in a residential or commercial district over 600 feet in length, a pedestrian and bicycle accessway with a minimum improved surface of 10 feet within a 15-foot right-of-way or tract shall be provided through the middle of the block. To enhance public convenience and mobility, such accessways may be required to connect to cul-de-sacs, or between streets and other public or semipublic lands or through greenway systems.

#### **17.100.130 EASEMENTS**

A minimum eight (8) foot public utility easement shall be required along property lines abutting a right-of-way for all lots within a partition or subdivision. Where a partition or subdivision is traversed by a watercourse, drainage way, channel or stream, the land division shall provide a stormwater easement or drainage right-of-way **conforming substantially** with the lines of such watercourse, **and such further width as determined needed** for water quality and quantity protection.

#### **17.100.140 PUBLIC ALLEYS**

- A. Public alleys shall have a minimum width of 20 feet. Structural section and surfacing shall conform to standards set by the City Engineer.

- B. Existing alleys may remain unimproved until redevelopment occurs. When development occurs, each abutting lot shall be responsible for completion of improvements to that portion of the alley abutting the property.
- C. Parking within the alley right-of-way is prohibited except as provided in Section 17.100.140(D) below.
- D. An alley with a minimum width of 28 feet may permit parallel parking on one side of the alley only.

#### **17.100.150 RESIDENTIAL SHARED PRIVATE DRIVES**

A shared private drive is intended to provide access to a maximum of two (2) dwelling units.

##### **A. Criteria for Approval**

Shared private drives may be approved by the Director when one or more of the following conditions exist:

1. Direct access to a local street is not possible due to physical aspects of the site including size, shape, or natural features.
2. The construction of a local street is determined to be unnecessary.

##### **B. Design**

1. A shared private drive constructed to city standards shall not serve more than two (2) dwelling units.
2. A shared access easement and maintenance agreement shall be established between the two units served by a shared private drive. The language of the easement and maintenance agreement shall be subject to approval by the Director. Such easements shall be recorded in the Deed Records of Clackamas County.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. Shared private drives shall be fully improved with an all weather surface (e.g. concrete, asphalt, permeable pavers) in conformance with city standards. The pavement width shall be 20 feet.
5. Parking shall not be permitted along shared private drives at any time and shall be signed and identified accordingly.

#### **17.100.160 PUBLIC ACCESS LANES**

Public access lanes are designed to provide primary access to a limited number of dwellings where the construction of a local street is not necessary. Public access lanes are intended to serve a maximum of six (6) dwelling units.

##### **A. Criteria for Approval**

Public access lanes may be approved by the Director when certain conditions exist which make the construction of a standard local street unnecessary. Approval of public access lanes shall be based on one or more of the following:

1. Physical conditions such as natural features, unusual lot size, shape, or other unique features prevent the construction of a local street.

2. It is determined that construction of a local street is not necessary to facilitate orderly development of a future street system.
3. It is determined that there are no logical extensions of an existing local street to serve the site.

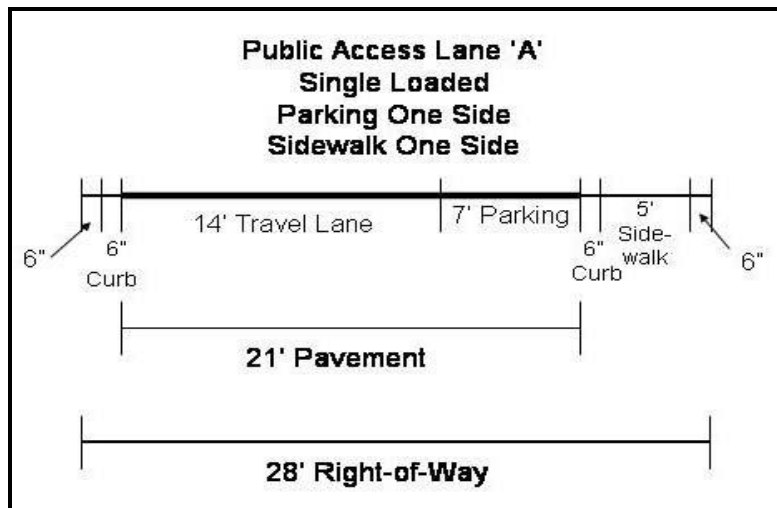
**B. General Provisions**

1. A public access lane may serve a maximum of six (6) dwelling units.
2. Public access lanes are subject to spacing requirements of Section 17.100.120.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. If a public access lane is designed as a dead end, a turnaround shall be provided at the point where the lane terminates. The design of the turnaround shall be subject to approval by the Director and the Fire Department.
5. Parking shall be prohibited in public access lane turnarounds.
6. Street lighting may be required in public access lanes for traffic and pedestrian safety.

**C. Public Access Lane Design**

1. Public Access Lane 'A' (Figure 17.100 - A)
  - a) Public access lane 'A' is designed to be single loaded and provide access to lots located on one side of the lane only.
  - b) Public access lanes shall be constructed to city standards and must meet the required dimensions as specified in this section.
  - c) Curbside sidewalks on the side of the lane which abuts lot frontage are along public access lanes to achieve specified dimensions.
  - d) Planter strips are not required along public access lanes due to the minimal lots served. Lots abutting a public access lane are required to have street trees planted in accordance with Section 17.100.290.
  - e) Parking is permitted on one side of a public access lane 'A' as shown in Figure 17.100 - A. Parking shall be permitted on the side of the lane that abuts lot frontages only. Signage shall be displayed to indicate the parking regulations along the lane and in the turnaround.

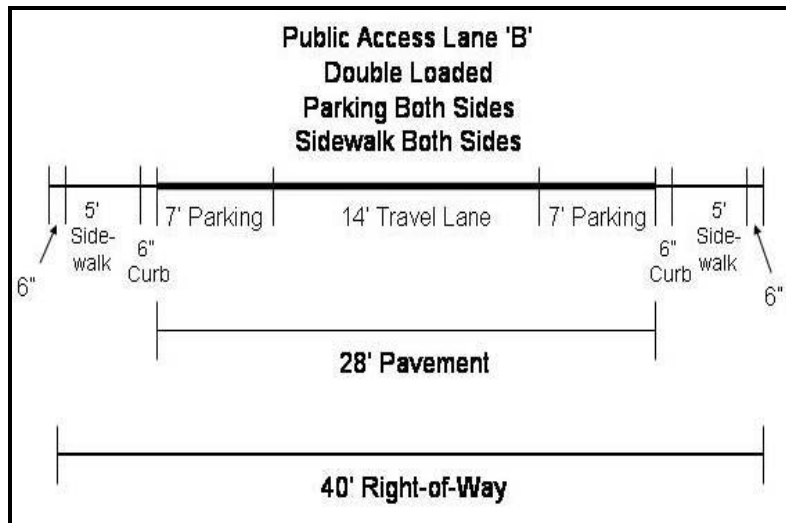
**Figure 17.100 – A: Public Access Lane ‘A’**



2. Public Access Lane Option ‘B’ (Figure 17.100 - B).

- a) Public access lane ‘B’ is designed to be double loaded and provide access to lots located on both sides of the lane.
- b) Public access lanes shall be constructed to city standards and must meet the required dimensions as specified in this section.
- c) Curbside sidewalks are required along both sides of the access lane to achieve specified dimensions.
- d) Planter strips are not required along public access lanes due to the minimal lots served. Lots abutting a public access lane are required to have street trees planted in accordance with Section 17.100.290.
- e) Parking is permitted on both sides of a public access lane ‘B’ as shown in Figure 17.100 - B. Signage shall be displayed to indicate the parking regulations along the lane and in the turnaround.

**Figure 17.100 – B: Public Access Lane ‘B’**



**17.100.170 FLAG LOTS**

Flag lots can be created where it can be shown that no other street access is possible to achieve the requested land division. The flag lot shall have a minimum street frontage of 15 feet for its accessway. The following dimensional requirements shall apply to flag lots:

- A. Setbacks applicable to the underlying zoning district shall apply to the flag lot.
- B. The access strip (pole) may not be counted toward the lot size requirements.
- C. The accessway shall have a minimum paved width of 10 feet.

**17.100.180 INTERSECTIONS**

- A. Intersections. Streets shall be laid out so as to intersect **as nearly as possible** at right angles. A proposed intersection of two new streets at an angle of less than 75 degrees shall not be acceptable. No more than two streets shall intersect at any one point unless specifically approved by the City Engineer. The city engineer may require left turn lanes, signals, special crosswalks, curb extensions and other intersection design elements justified by a traffic study or necessary to comply with the Development Code.
- B. Curve Radius. All local and neighborhood collector streets shall have a minimum curve radius (at intersections of rights-of-way) of 20 feet, unless otherwise approved by the City Engineer. When a local or neighborhood collector enters on to a collector or arterial street, the curve radius shall be a minimum of 30 feet, unless otherwise approved by the City Engineer.



### **17.100.190 STREET AND TRAFFIC CONTROL SIGNS**

The City Engineer shall specify the type and location of traffic control signs, street signs and/or traffic safety devices.

### **17.100.200 STREET SURFACING**

Public streets, including alleys, within the development shall be improved in accordance with the requirements of the City or the Oregon Standard Specifications. All streets shall be paved with asphaltic concrete or Portland cement concrete surfacing. Where required, speed humps shall be constructed in conformance with the City's standards and specifications.

### **17.100.210 STREET LIGHTING**

A complete lighting system (including, but not limited to: conduits, wiring, bases, poles, arms, and fixtures) shall be the financial responsibility of the subdivider on all cul-de-sacs, local streets, and neighborhood collector streets. The subdivider will be responsible for providing the arterial street lighting system in those cases where the subdivider is required to improve or fronts on an arterial street. Standards and specifications for street lighting shall conform to IESNA roadway illumination standards and the City's streetlighting guidelines

### **17.100.220 LOT DESIGN**

- A. The lot arrangement shall be such that there will be **no foreseeable difficulties**, for reason of topography or **other conditions**, in securing building permits to build on all lots in compliance with the Development Code.
- B. The lot dimensions shall comply with the minimum standards of the Development Code. **When lots are more than double the minimum lot size required for the zoning district, the subdivider may be required to arrange such lots to allow further subdivision and the opening of future streets to serve such potential lots.**
- C. The lot or parcel width at the front building line shall meet the requirements of the Development Code and shall abut a public street other than an alley for a width of at least 20 feet. A street frontage of not less than 15 feet is acceptable in the case of a flag lot division resulting from the division of an unusually deep land parcel that is of a size to warrant division into not more than two parcels.
- D. Double frontage lots shall be avoided except where necessary to provide separation of residential developments from arterial streets or to overcome specific disadvantages of topography or orientation.
- E. Lots shall not take access from major arterials, minor arterials or collector streets if access to a local street exists. When driveway access from major or minor arterials may be necessary for several adjoining lots, the Director or the Planning Commission may require that such lots be served by a common access drive in order to limit traffic conflicts on such streets. Where possible, driveways shall be designed and arranged to avoid requiring vehicles to back into traffic on minor or major arterials.

**17.100.230 WATER FACILITIES**

Water lines and fire hydrants serving the subdivision or partition, and connecting the development to City mains, shall be installed to provide adequate water pressure to serve present and future consumer demand. The materials, sizes, and locations of water mains, valves, service laterals, meter boxes and other required appurtenances shall be in accordance with American Water Works Association and the Oregon Standard Specifications standards of the Fire District, the City, and the Oregon Health Authority Drinking Water Services section.

If the City requires the subdivider to install water lines in excess of eight inches, the City may participate in the oversizing costs. Any oversizing agreements shall be approved by the City manager based upon council policy and dependent on budget constraints. If required water mains will directly serve property outside the subdivision, the City may enter into an agreement with the subdivider setting forth methods for reimbursement for the proportionate share of the cost.

**17.100.240 SANITARY SEWERS**

Sanitary sewers shall be installed to serve the subdivision and to connect the subdivision to existing mains. Design of sanitary sewers shall take into account the capacity and grade to allow for desirable extension beyond the subdivision.

If required sewer facilities will directly serve property outside the subdivision, the City may enter into an agreement with the subdivider setting forth methods for reimbursement by nonparticipating landowners for the proportionate share of the cost of construction.

**17.100.250 SURFACE DRAINAGE AND STORM SEWER SYSTEM**

- A. Drainage facilities shall be provided within the subdivision and to connect with off-site drainage ways or storm sewers. Capacity, grade and materials shall be by a design approved by the city engineer. Design of drainage within the subdivision shall take into account the location, capacity and grade necessary to maintain unrestricted flow from areas draining through the subdivision and to allow extension of the system to serve such areas.
- B. In addition to normal drainage design and construction, provisions shall be taken to handle any drainage from preexisting subsurface drain tile. It shall be the design engineer's duty to investigate the location of drain tile and its relation to public improvements and building construction.
- C. The roof and site drainage from each lot shall be discharged to either curb face outlets (if minor quantity), to a public storm drain or to a natural acceptable drainage way if adjacent to the lot.

**17.100.260 UNDERGROUND UTILITIES**

All subdivisions or major partitions shall be required to install underground utilities (including, but not limited to, electrical, fiber, cable, and telephone wiring). The utilities shall be installed pursuant to the requirements of the utility company.

**17.100.270 SIDEWALKS**

Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision.

**17.100.280 BICYCLE ROUTES**

If appropriate to the extension of a system of bicycle routes, existing or planned, the Director or the Planning Commission may require the installation of bicycle lanes within streets. Separate bicycle access ways may be required to reduce walking or cycling distance when no feasible street connection is available.

**17.100.290 STREET TREES**

Where planting strips are provided in the public right-of-way, a master street tree plan shall be submitted and approved by the Director. The street tree plan shall provide street trees approximately every 30' on center for all lots.

**17.100.300 EROSION CONTROL**

Grass seed planting shall take place prior to September 30th on all lots upon which a dwelling has not been started but the ground cover has been disturbed. The seeds shall be of an annual rye grass variety and shall be sown at not less than four pounds to each 1000 square feet of land area.

**17.100.310 REQUIRED IMPROVEMENTS**

The following improvements shall be installed at no expense to the City, consistent with the standards of Chapter 17.84, except as otherwise provided in relation to oversizing.

- A. Lot, street and perimeter monumentation
- B. Mailbox delivery units
- C. Sanitary sewers
- D. Stormwater drainage facilities
- E. Sidewalks
- F. Street lights
- G. Street name signs
- H. Street trees
- I. Streets
- J. Traffic control devices and signs
- K. Underground communication lines, including broadband (fiber), telephone, and cable. Franchise agreements will dictate whether telephone and cable lines are required.
- L. Underground power lines
- M. Water distribution lines and fire hydrants
- N. Fiber (broadband)

**17.100.320 IMPROVEMENT PROCEDURES**

Improvements installed by a land divider either as a requirement of these regulations or at their own option shall conform to the standards of Chapter 17.84 and improvement standards and

specifications adopted by the City. Improvements shall be installed in accordance with the following general procedure:

- A. Improvement work shall not start until plans have been checked for **adequacy** and approved by the City Engineer. To the extent necessary for evaluation of the proposal, improvement plans may be required before approval of the tentative plan of a partition or subdivision.
- B. Improvement work shall not start until after the City is notified. If work is discontinued for any reason it shall not resume until the City is notified.
- C. Improvements shall be constructed under the inspection and to the satisfaction of the City Engineer.
- D. All improvements installed by the subdivider shall be guaranteed for a period of one (1) year following acceptance by the City Engineer. Such guarantee shall be secured by cash deposit in the amount of the value of the improvements as set by the City Engineer. Subdividers may elect to provide a subdivision maintenance bond equal to ten (10) percent of the value of the public improvements for a period of two (2) years following acceptance by the City.
- E. As-constructed plans in both digital and hard copy formats shall be filed with the City Engineer upon completion of the improvements.

#### **17.100.330    OPTIONS FOR IMPROVEMENTS**

Before the signature of the City Engineer is obtained on the final partition or subdivision plat, the applicant shall install the required improvements, agree to install required improvements, or have gained approval to form an improvement district for installation of the improvements required with the tentative plat approval. These procedures are more fully described as follows:

- A. Install Improvements. The applicant may install the required improvements for the subdivision prior to recording the final subdivision plat. If this procedure is to be used, the subdivision plat shall contain all the required certifications except the County Surveyor. The City shall keep the subdivision plat until the improvements have been completed and approved by the City Engineer. Upon City Engineer's approval, the City shall forward the final subdivision plat for certification by the County Surveyor and then to the County Clerk for recording; or
- B. Agree to Install Improvement. The applicant may execute and file with the City an agreement specifying the period within which required improvements shall be completed. The agreement shall state that if the work is not completed within the period specified, the City may complete the work and recover the full cost and expense from the applicant. A performance bond equal to 110 percent of the value of the guaranteed improvements shall be required. Performance bonds shall be issued by a surety registered to do business in Oregon. The value of the guaranteed improvements may include engineering, construction management, legal and other related expenses necessary to complete the work. The agreement may provide for the construction of the improvements in increments and for an extension of time under specified conditions; or

- C. Form Improvement District. The applicant may have all or part of the public improvements constructed under an improvement district procedure. Under this procedure the applicant shall enter into an agreement with the City proposing establishment of the district for improvements to be constructed, setting forth a schedule for installing improvements, and specifying the extent of the plat to be improved. The City reserves the right under the improvement district procedure to limit the extent of improvements in a subdivision during a construction year and may limit the area of the final subdivision plat to the area to be improved. The performance bond described in section B above shall be required under the improvement district procedure. The formation of a Local Improvement District (LID) is entirely within the discretion of the City.

**17.100.340 PERFORMANCE GUARANTEE**

If the applicant chooses to utilize the opportunities provided under "A" or "B" above, the applicant shall provide a performance guarantee equal to 110 percent of the cost of the improvements to assure full and faithful performance thereof, in one of the following forms:

- A. A surety bond executed by a surety company authorized to transact business in the State of Oregon in a form approved by the City Attorney.
- B. In lieu of the surety bond, the applicant may:
1. Deposit with the City cash money to be released only upon authorization of the City Engineer;
  2. Supply certification by a bank or other reputable lending institution that an irrevocable letter of credit in compliance with the International Chamber of Commerce Uniform Customs and Practice for Documentary Credits, UCP 600 or most current revision, has been established to cover the cost of required improvements, to be released only upon authorization of the City Engineer. The amount of the letter of credit shall equal 110% of the value of the improvements to be guaranteed; or
  3. Provide bonds in a form approved by the City Attorney.
- C. Such assurance of full and faithful performance shall be for a sum determined by the City Engineer as sufficient to cover the cost of required improvements, including related engineering and incidental expenses.
- D. If the applicant fails to carry out provisions of the agreement and the City has expenses resulting from such failure, the City shall call on the performance guarantee for reimbursement. If the amount of the performance guarantee exceeds the expense incurred, the remainder shall be released. If the amount of the performance guarantee is less than the expense incurred, the applicant shall be liable to the City for the difference.

## CHAPTER 17.102 - URBAN FORESTRY

### 17.102.00 INTENT

- A. This chapter is intended to conserve and replenish the ecological, aesthetic and economic benefits of urban forests, by regulating tree removal on properties greater than one acre within the Sandy Urban Growth Boundary.
- B. This chapter is intended to facilitate planned urban development **as prescribed by the Sandy Comprehensive Plan**, through the appropriate location of harvest areas, landing and yarding areas, roads and drainage facilities.
- C. This chapter shall be construed in a manner **consistent with** Chapter 17.60 Flood and Slope Hazard Overlay District. In cases of conflict, Chapter 17.60 shall prevail.

### 17.102.10 DEFINITIONS

Technical terms used in this chapter are defined below. See also Chapter 17.10, Definitions.

#### Urban Forestry Related Definitions:

- **Diameter at Breast Height (DBH):** The diameter of a tree inclusive of the bark measured 4½ feet above the ground on the uphill side of a tree.
- **Hazard Tree:** A tree located within required setback areas or a tree required to be retained as defined in 17.102.50 that is cracked, split, leaning, or physically damaged to the degree that it is likely to fall and injure persons or property. Hazard trees include diseased trees, meaning those trees with a disease of a nature that, without reasonable treatment or pruning, is likely to spread to adjacent trees and cause such adjacent trees to become diseased or hazard trees.
- **Protected Setback Areas:** Setback areas regulated by the Flood and Slope Hazard Ordinance (FSH), Chapter 17.60 and 70 feet from top of bank of Tickle Creek and 50 feet from top of bank of other perennial streams outside the city limits, within the urban growth boundary.
- **Tree:** For the purposes of this chapter, tree means any living, standing, woody plant having a trunk 11 inches DBH or greater.
- **Tree Protection Area:** The area reserved around a tree or group of trees in which no grading, access, stockpiling or other construction activity shall occur.
- **Tree Removal:** Tree removal means to cut down a tree, 11 inches DBH or greater, or remove 50 percent or more of the crown, trunk, or root system of a tree; or to damage a tree so as to cause the tree to decline and/or die. Tree removal includes topping but does not include normal trimming or pruning of trees.

### 17.102.20 APPLICABILITY

This chapter applies only to properties within the Sandy Urban Growth Boundary that are greater than one acre including contiguous parcels under the same ownership.

- A. **General:** No person shall cut, harvest, or remove trees 11 inches DBH or greater without first obtaining a permit and demonstrating compliance with this chapter.

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1. As a condition of permit issuance, the applicant shall agree to implement required provisions of this chapter and to allow all inspections to be conducted.
  2. Tree removal is subject to the provisions of Chapter 15.44, Erosion Control, Chapter 17.56, Hillside Development, and Chapter 17.60 Flood and Slope Hazard.
- B. Exceptions: The following tree removals are exempt from the requirements of this chapter.
1. Tree removal as required by the city or public utility for the installation or maintenance or repair of roads, utilities, or other structures.
  2. Tree removal to prevent an imminent threat to public health or safety, or prevent imminent threat to public or private property, or prevent an imminent threat of serious environmental degradation. In these circumstances, a Type I tree removal permit shall be applied for within seven days following the date of tree removal.

### **17.102.30 PROCEDURES AND APPLICATION REQUIREMENTS**

A person who desires to remove trees shall first apply for and receive one of the following tree cutting permits before tree removal occurs:

- A. Type I Permit. The following applications shall be reviewed under a Type I procedure:
1. Tree removal on sites within the city limits under contiguous ownership where 50 or fewer trees are requested to be removed.
  2. Removal of a hazard tree or trees that presents an **immediate danger** of collapse and represents a **clear and present danger** to persons or property.
  3. Removal of up to two trees per year, six inches DBH or greater within the FSH Overlay District as shown on the City Zoning Map and described in Chapter 17.60.
  4. Tree removal on sites outside the city limits and within the urban growth boundary and outside protected setback areas.
  5. Removal of up to two trees per year outside the city limits within the UGB and within protected setback areas.
- B. An application for a Type I Tree Removal permit shall be made upon forms prescribed by the City to contain the following information:
1. Two copies of a scaled site plan to contain the following information:
    - a. Dimensions of the property and parcel boundaries.
    - b. Location and species of trees 11" DBH or greater to be retained.
    - c. Location and type of tree protection measures to be installed.
  2. A brief narrative describing the project.
  3. Estimated starting and ending dates.

Adopted November 18, 2002 Ordinance 2002-10

4. A scaled re-planting plan indicating ground cover type, species of trees to be planted, and general location of re-planting.
  5. An application for removal of a hazard tree within a protected setback area or a tree required to be retained as defined in Chapter 17.102.50 shall also contain a report from a certified arborist or professional forester indicating that the condition or location of the tree presents a hazard or danger to persons or property and that such hazard or danger cannot **reasonably** be alleviated by treatment or pruning.
- C. Type II Permit. The following applications shall be reviewed under a Type II procedure:
1. Tree removal on sites under contiguous ownership where greater than 50 trees are requested to be removed as further described below:
    - a. Within City Limits: outside of FSH Restricted Development Areas as defined in Chapter 17.60.
- D. An application for a Type II Permit shall contain the same information as required for a Type I permit above in addition to the following:
- a. A list of property owners on mailing labels within 200 feet of the subject property.
  - b. A written narrative addressing permit review criteria in 17.102.40.
- E. Type III Permit. The following applications shall be reviewed under a Type III procedure:
1. Request for a variance to tree retention requirements as specified in Section 17.102.50 may be permitted subject to the provisions of 17.102.70.
- F. An application for a Type III Permit shall contain the same information as required for a Type I permit in addition to the following:
- a. A list of property owners on mailing labels within 300 feet of the subject property.
  - b. A written narrative addressing applicable code sections 17.102.50, 17.102.60, and 17.102.70.

#### **17.102.40 PERMIT REVIEW**

An application for a Type II or III tree removal permit shall demonstrate that the provisions of Chapter 17.102.50 are satisfied. The Planning Director may require a report from a certified arborist or professional forester to substantiate the criteria for a permit.

- A. The Director shall be responsible for interpreting the provisions of this chapter. The Director may consult with the Oregon Department of Forestry in interpreting applicable provisions of the Oregon Forest Practices Act (OAR Chapter 629). Copies of all forestry operation permit applications will be sent to the Oregon Department of Forestry and Department of Revenue. The City may request comments from the Oregon Department of Forestry, the Oregon Department of Fish & Wildlife or other affected state agencies.



- B. Expiration of Tree Removal Permits. Tree removal permits shall remain valid for a period of one year from the date of issuance or date of final decision by a hearing body, if applicable. A 30-day extension shall be automatically granted by the Planning Director if requested in writing before the expiration of the permit. Permits that have lapsed are void.

**17.102.50 TREE RETENTION AND PROTECTION REQUIREMENTS**

- A. **Tree Retention:** The landowner is responsible for retention and protection of trees required to be retained as specified below:

1. At least three trees 11 inches DBH or greater are to be retained for every one-acre of contiguous ownership.
2. Retained trees can be located anywhere on the site at the landowner's discretion before the harvest begins. Clusters of trees are encouraged.
3. Trees proposed for retention shall be healthy and likely to grow to maturity, and be located to minimize the potential for blow-down following the harvest.
4. **If possible**, at least two of the required trees per acre must be of conifer species.
5. Trees within the required protected setback areas may be counted towards the tree retention standard if they meet these requirements.

- B. **Tree Protection Area:** Except as otherwise determined by the Planning Director, all tree protection measures set forth in this section shall be instituted prior to any development activities and removed only after completion of all construction activity. Tree protection measures are required for land disturbing activities including but not limited to tree removal, clearing, grading, excavation, or demolition work.

1. Trees identified for retention shall be marked with yellow flagging tape and protected by protective barrier fencing placed no less than 10 horizontal feet from the outside edge of the trunk.
2. Required fencing shall be a minimum of six feet tall supported with metal posts placed no farther than ten feet apart installed flush with the initial undisturbed grade.
3. No construction activity shall occur within the tree protection zone, including, but not limited to dumping or storage of materials such as building supplies, soil, waste items, equipment, or parked vehicles.

- C. **Inspection.** The applicant shall not proceed with any tree removal or construction activity, except erosion control measures, until the City has inspected and approved the installation of tree protection measures. Within 15 days of the date of accepting an application for a Type I permit, the city shall complete an onsite inspection of proposed activities and issue or deny the permit. Within 15 days of is suing a Type II or Type III permit, the city shall complete an onsite inspection of proposed activities.

For ongoing forest operations, the permit holder shall notify the city by phone or in writing 24 hours prior to subsequent tree removal. The city may conduct an onsite re-inspection of permit conditions at this time.

### **17.102.60 TREE REPLANTING REQUIREMENTS**

1. All areas with exposed soils resulting from tree removal shall be replanted with a ground cover of native species within 30 days of harvest during the active growing season, or by June 1st of the following spring.
2. All areas with exposed soils resulting from tree removal occurring between October 1 and March 31 shall also be covered with straw to minimize erosion.
3. Removal of hazard trees as defined shall be replanted with two native trees of quality nursery stock for every tree removed.
4. Tree Removal allowed within the FSH Overlay District shall be replanted with two native trees of quality nursery stock for every tree removed.
5. Tree Removal not associated with a development plan must be replanted following the provisions of OAR Chapter 629, Division 610, Section 020-060

### **17.102.70 VARIANCES**

Under a Type III review process, the Planning Commission may allow newly-planted trees to substitute for retained trees if:

1. The substitution is at a ratio of at least two-to-one (i.e., at least two native quality nursery grown trees will be planted for every protected tree that is removed); and
2. The substitution more nearly meets the intent of this ordinance due to:
  - a. The location of the existing and proposed new trees, or
  - b. The physical condition of the existing trees or their compatibility with the existing soil and climate conditions; or
  - c. An undue hardship is caused by the requirement for retention of existing trees.
  - d. Tree removal is necessary to protect a scenic view corridor.

### **17.102.80 ENFORCEMENT**

The provisions of Chapter 17.06, Enforcement, shall apply to tree removal that is not in conformance with this chapter. Each unauthorized tree removal shall be considered a separate offense for purposes of assigning penalties under Section 17.06.80. Funds generated as a result of enforcement of this ordinance shall be dedicated to the Urban Forestry Fund established under Section 17.102.100 below.

### **17.102.90 APPLICABILITY OF THE OREGON FOREST PRACTICES ACT**

The following provisions of the Oregon Forest Practices Act (OAR Chapter 629) are adopted by reference for consideration by the City in the review of Forest Operations Plans. Although the Director may seek advice from the Department of Forestry, the Director shall be responsible for interpreting the following provisions.

Division 610 - Reforestation Stocking Standards. Where reforestation is required, the provisions of OAR Chapter 629, Division 610, Section 020-060 shall be considered by the Director, in addition to the requirements of Section 17.102.60.

Division 615 - Treatment of Slash. Slash shall not be placed within the protected setback areas. Otherwise, the Director shall consider the provisions of OAR Chapter 629, Division 615 in determining how to dispose of slash.

Adopted November 18, 2002 Ordinance 2002-10

Division 620 - Chemical and Other Petroleum Products Rules. The storage, transferring, cleaning of tanks and mixing of chemicals and petroleum products shall occur outside the protected setback areas. Aerial spraying shall not be permitted within the Urban Growth Boundary. Otherwise, the provisions of Chapter 629, Division 620 shall apply.

Division 625 - Road Construction and Maintenance. Forest roads, bridges and culverts shall not be constructed within the protected setback areas, except where permitted within the FSH overlay area as part of an approved urban development. Otherwise, the Director shall consider the provisions of OAR Chapter 629, Division 625 in the review of road, bridge and culvert construction.

Division 630 - Harvesting. Forest harvesting operations, including but not limited to skidding and yarding practices, construction of landings, construction of drainage systems, treatment of waste materials, storage and removal of slash, yarding and stream crossings, shall not be permitted within protected setback areas. Otherwise, the provisions of Chapter 629, Division 630 shall apply.

#### **17.102.100 URBAN FORESTRY FUND CREATED**

In order to encourage planting of trees, the City will create a fund or account to be used for tree planting in rights-of-way, city parks, riparian areas, and other public property. The source of funds will be donations, grants, and any other funds the City Council may designate.



September 24, 2021

**Erin M. Forbes**  
T: 503-796-2054  
eforbes@schwabe.com

**VIA EMAIL**

Kelly O’Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: Roll Tide Properties Corp. / Deer Meadows Subdivision (File No. 21-014  
SUB/TREE)

Dear Kelly:

This firm represents Roll Tide Properties Corp., the Applicant in the above-referenced file. This Letter sets forth the Applicant’s objections to the Commission Staff Report dated September 17, 2021, which recommends denial of the Applicant’s application for a subdivision. The Applicant’s specific objections are set forth below.

**1. The Application is a needed housing application and the City must treat it as such.**

**A. The City may apply on clear and objective standards, conditions, and procedures to the Application.**

The Applicant has submitted a proposal for a subdivision located at 40808 and 41010 Highway 26 in Sandy, Oregon, in an area zoned for residential use. ORS 197.307(4) provides that local governments may adopt and apply only clear and objective standards, conditions, and procedures regulating the development of housing, including needed housing, and precludes governments from unreasonably increasing the cost of housing or causing unreasonable delay. ORS 227.173(2) provides that “when an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

Land use regulations are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or community.” *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff’d*, 158 Or App 1, 970 P2d 685, *rev den*, 328 Or 594 (1999). And, regardless of whether a given regulation is “designed to balance or mitigate impacts,” it must also be *both* clear *and* objective. *Id.* at 155–56 (“Dictionary definitions of ‘clear’ and ‘objective’ suggest that the kinds of standards frequently found in land use

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regulations lack the certainty of application required to qualify as ‘clear’ or ‘objective.’”). More fundamentally, standards that are susceptible to multiple interpretations are not clear and objective. *Parkview Terrace Development, LLC v. City of Grants Pass*, 70 Or LUBA 37, 52–53 (2014); *see also Walter v. City of Eugene*, 73 Or LUBA 356, 360–64 (2016) (citing a standard’s “multiple possible interpretations” as a basis to find it not clear and objective).

ORS 197.522(2) and ORS 197.522(4) require local governments to approve needed housing applications that are consistent with, or can be made consistent with through reasonable conditions of approval, the comprehensive plan and applicable land use regulations, and to deny applications that are not. Relatedly, ORS 197.522(3),<sup>1</sup> allows an applicant to amend its application or to propose reasonable conditions to make its application consistent with the comprehensive plan and applicable land use regulations. What this means is that, if the Applicant proposes a condition of approval that would satisfy a given approval criterion that the Application does not otherwise meet, the Commission must impose the proposed condition of approval in lieu of denying the Application.

Many of the reasons set forth in the Staff Report that form the basis of Staff’s recommendation of denial do not stand up to Oregon’s needed housing statutes. Many standards in the Sandy Development Code (“SDC”) are not clear and objective on their face or even when interpreted, and as such, cannot be applied to the Application under Oregon’s needed housing rules; examples of these standards are highlighted in **Exhibit 1**, attached. Further, the City does not offer a clear and objective approval process for subdivisions under ORS 197.307(6). And, the Commission cannot deny an application that is consistent with the comprehensive plan and applicable land use applications and/or that can be made consistent by the imposition of reasonable conditions of approval. ORS 197.522(2)-(4). Finally, under ORS 197.522(3), the Commission must allow the Applicant to amend the Application or to propose reasonable conditions that will cause the Application to meet all relevant approval criteria.

**B. Staff cannot require dedication of parkland because the Development Code’s procedures for such requirement are not clear and objective.**

Contrary to Staff’s assertions, the regulatory scheme created for park dedication is not clear and objective, and therefore is not applicable under ORS 197.307(4). SDC 17.86.10 includes a requirement that all residential development dedicate a certain amount of parkland based on the formula in SDC 17.86.10.B. Alternatively, an applicant may pay a fee-in-lieu for required parkland under SDC 17.86.40. While Staff contends that the formula for parkland dedication is clear and objective, that is not all that ORS 197.307(4) requires. It also requires that local governments “[...] apply only clear and objective [...] procedures regulating the development of housing,” and that the “standards, conditions and procedures” “may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.” (Emphasis added.)

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<sup>1</sup> “If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”

The SDC is without any clear and objective guideposts as to whether a developer must provide a fee-in-lieu payment or parkland dedication, and neither decision can be made without the inherent consideration of the other option because SDC Chapter 17.86 provides for both. Thus, the decision maker must exercise discretion in deciding to require one or the other, and it is the required exercise of discretion that makes the parkland dedication requirement inapplicable under ORS 197.307(4). Consequently, Staff is unable to explain how its recommendation that parkland be dedicated next to Deer Pointe Park was based on a clear and objective procedure.

Relatedly, the parkland dedication requirement also violates ORS 197.307(4) because it certainly would have the effect of “discouraging needed housing through unreasonable cost and delay.” This is due to Staff’s and the Sandy Parks and Trails Advisory Board’s (the “Board”) attempt to apply the Parks Master Plan to a limited land use decision to which it is inapplicable as a matter of law.<sup>2</sup> As a practical matter, Staff and the Board’s attempt to extract a park dedication in a specific area causes a number of problems. First, it represents substantial increased costs to the project, which will have the effect of increasing the costs of resulting housing. Second, Staff has not explained how a parkland dedication at the west end of the site could result in a lot arrangement that would satisfy SDC 17.86.20; the solution to that problem would require a complete re-design of the subdivision, further adding to additional costs and delay.

Finally, it is irrelevant that the proposed lots are not arranged as required by SDC 17.86.20 because there is no clear and objective method by which an applicant can predict whether park land dedication or a fee-in-lieu will be required.

2. **The City may not require extension of Dubarko Road through the Subject Property nor require a dedication of parkland.**
  - A. **The Transportation System Plan and Parks Master Plan are not adequately incorporated into the land use regulations, in violation of ORS 197.195.**

The Applicant has submitted an application for a subdivision, which is a limited land use decision as defined by ORS 197.015(12). Under ORS 197.195(1), cities are required to incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. This requirement extends to standards set forth in the transportation system plan (“TSP”), parks master plan, and other elements of a city’s comprehensive plan as well. *See Oster v. City of Silverton*, LUBA No. 2018-103, at pp. 9-10 (Or LUBA May 7, 2019). Whether such a standard has been properly incorporated turns on whether the land use regulations that are said to incorporate such standards “make clear what *specific policies or standards* in the TSP [or other identified plan] apply to a limited land use decision as approval criteria.” *Id.* at p. 12. “ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan [or other identified plan].” *Paterson v. City of Bend*, LUBA

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<sup>2</sup> As explained in more detail below, the Parks Master Plan is not incorporated into the City’s land use regulations and is therefore inapplicable under ORS 197.195.

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No. 2004-155, at p. 6 (Or. LUBA 2005). Rather, “[i]n order to ‘incorporate’ a comprehensive plan [or other plan] standard into a local government’s land use regulations within the meaning of ORS 197.195(1), the local government must *at least* amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan [or other plan] apply to a limited land use decision as approval criteria.” *Id.* at pp. 6-7.

The City of Sandy’s approval criteria governing review of a tentative plat for a subdivision fails to properly incorporate the Sandy Comprehensive Plan or TSP. Specifically, SDC 17.100.60(E)(3) requires a showing that the “proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.” This is not sufficient to meet the incorporation requirements of ORS 197.195(1) because it merely refers generally to the Comprehensive Plan and the City’s official street plan. *See Oster* at p. 12. It does not “make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision.” *Id.*

Staff also recommends denial because the Application does not propose to dedicate parkland adjacent to Deer Point Park, as that park is designated on the 1997 Parks Master Plan. Consequently, according to Staff, the Application violates SDC 17.86.10 and/or .40. Staff’s conclusions are incorrect.

Staff’s recommendation derives from and principally relies on the City’s Parks Master Plan. The Parks Master Plan is not applicable to the Application because, as explained above, the Application is a limited land use decision. Limited land use decisions are not subject to comprehensive plans or their elements unless such provisions are expressly incorporated into a city’s land use regulations. ORS 197.195(1). The Parks Master Plan is not incorporated into the Sandy Development Code, the City’s land use regulations; nor does Staff’s recommendation assert that it is. Therefore, the Parks Master Plan may not be a basis for requiring dedication of parkland adjacent to Deer Point Park.

Indeed, all references to the City’s TSP, Parks Master Plan, street plans, and comprehensive plan found in Chapter 17.84 and Chapter 17.100 of the Sandy Development Code are improperly incorporated because none of them specify which policies and standards actually apply. Thus, these requirements cannot be applied to the Application. *See, e.g., Exhibit 1.*

**B. In order to require an extension of Dubarko Road and dedication of parkland, the City must demonstrate that those requirements have an essential nexus and are roughly proportional to the project’s impacts on those facilities.**

The Staff Report suggests that the Applicant should be required to extend Dubarko Road to Highway 26 and to dedicate certain land as parkland to expand Deer Pointe Park. Such dedications are subject to the Takings Clause of the Fifth Amendment of the U.S. Constitution.

Requiring a landowner to convey its private property rights in exchange for development approval is a takings (unconstitutional condition) unless there is an “essential nexus” between the

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condition and the government interest. *Nollan v. California Coastal Com.*, 483 U.S. 825, 836-37 (1987). Additionally, to withstand a legal challenge, the condition must be “roughly proportional” to the expected impacts caused by the proposed development. *Dolan v. City of Tigard*, 512 U.S. 374, 391-395 (1994). The *Nollan* and *Dolan* takings analysis must be done on a case-by-case basis, and the City carries the burden of demonstrating in the first instance that any exaction has a nexus to and is roughly proportional to the nature and degree of the projected impacts of the project. The City is required to make an “individualized determination” and “some effort to quantify” evidence in the findings to support a conclusion of rough proportionality. *Dolan*, 512 U.S. at 391. The *Nollan/Dolan* analysis applies to requirements to pay money or make public improvements in addition to requirements to dedicate property. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013).

There is no demonstration in the record that the requirements for the Dubarko Road extension and parkland dedication have a nexus to any governmental interest other than the City’s general policies showing the street extension and parkland dedications. However, such policies do not constitute the required nexus; rather, a local government must show that “the proposed project’s impacts, either alone or in combination with other construction, are ones that ‘substantially impede’ the interest identified by the government.” *Hill v. City of Portland*, 293 Or App 283, 290-291 (2018).

Despite *Hill*’s requirement that the required dedications be tied to an actual potential impact from the proposed development, the Staff Report points to no evidence that the proposed development will lead to a capacity problem in the City’s transportation system or parks system.

Staff has made no attempt to identify the essential nexus between the impact of the Project on the City’s park system and the dedication requirement, and no attempt to explain how the requirement is roughly proportional to the project’s impacts. Relying on a broadly-applicable dedication formula is insufficient because such a determination must be individualized. *Dolan*, 512 U.S. at 391. What is more, simply imposing the same level of exaction on all housing projects does not prove there actually is a nexus between that housing as the parks dedication requirement itself. *Hill*, 293 Or. App. at 290-291.

Finally, there is nothing in the record or the Staff Report even approaching a showing that the Dubarko Road extension and parkland dedication are “roughly proportional” to the impacts of the proposed subdivision.

In sum, the sole questions in the constitutional analysis in this case are as follows. First, do the road extension and parkland dedication have an “essential nexus” to the proposed development? Second, if there is a nexus, are the requirements to extend Dubarko Road and to dedicate parkland “roughly proportional” to the impacts of the proposed development? The City has the burden of proof to answer these two questions, but has utterly failed to do so.



**C. SDC 17.100.100.G.2 prohibits the City from require an extension of Dubarko Road through the site.**

SDC 17.100.100 governs street requirements with subdivisions. SDC 17.100.100.G establishes exemptions from otherwise-applicable street requirements. Subsection G.2 provides:

“Standards for street connections do not apply to freeways and other highways with full access control.”

As explained in ODOT’s September 1, 2021 letter (which is listed as Exhibit N to the Staff Report), Highway 26 is access controlled. Therefore, the City unambiguously lacks the authority to require a connection of Dubarko Road to Highway 26.

**D. OAR 660-012-0045 does not apply to the proposed development.**

The Director also cites to OAR 660-012-0045 as a basis for denial. This is improper for at least two reasons. For one, this administrative rule is not an approval criterion and as such cannot be the basis for denial of the Application. Moreover, it establishes obligations for a local government’s plan and land use regulations; it does not apply directly to review of subdivision application. Even if it did, it establishes obligations that the *City* must meet, not the Applicant. As such, it cannot be used as a basis to deny the Application.

**3. Planning Staff’s recommendation for denial is inconsistent with applicable law.**

The Applicant addresses each of the eleven bases for Staff’s recommendation of denial below.

**1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).**

RESPONSE: Staff’s conclusion is incorrect for the following reasons.

- *17.100.60.E.1. “The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval.”*
  - This criterion is not clear and objective as required by ORS 197.307(4) because the phrase “consistent with” is not clear and objective.
  - As Staff concludes in paragraph 24 of the Staff Report, the Application satisfies the density requirements in the applicable zones.
  - Staff’s only basis for finding that setback standards are not met is due to the Applicant’s plan not to extend Dubarko Road. Staff’s position does not make sense; one cannot plausibly argue that a plan does not meet setback requirements adjacent to a new road that is not proposed.

- Chapter 82's requirement that homes "face a transit street" is not applicable because, as noted above, the City's Transportation System Plan and Pedestrian Mater Plans are not incorporated into the City's Land Use Regulations. ORS 197.195.
- Pursuant to ORS 197.522(3), if the transit street orientation requirement in SDC 17.82.20.A did apply, it could be met with the following condition:

*"All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street."*

This condition was apparently proposed in paragraph 34 of the Staff Report. Under ORS 197.522(3), the Commission is required to impose this condition in lieu of denial because it would ensure satisfaction the frontage orientation requirement.

- Staff does not argue that any lots do not meet dimensional standards.
- *17.100.60.E.2. "The proposed subdivision is consistent with the design standards set forth in this chapter."*
  - As an initial matter, 17.100.E.2 cannot apply to the application because the phrase "consistent with" is not clear and objective as required by ORS 197.307(4) and similarly, E.2 does not identify which "design standards" apply.
  - As explained in paragraph 18 of the Staff Report, Staff's basis for concluding that subsection E.2 is not met relies upon the following arguments:
    - That the project does not provide a Dubarko Road connection to Highway 26;
    - That the project does not meet the "Street Connectivity Principle";
    - That the project does not "promote a logical, connected pattern of streets";
    - That the project does not "provide connectivity to other streets within the development and to existing and planned streets outside the development"; and
    - That the applicant did not submit information on block lengths.
  - Staff is incorrect in the above findings for the following reasons:

- As explained above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City's land use regulations. Moreover, SDC 17.100.100.G.2 provides that "standards for street connections do not apply to freeways and other highways with full access control." Highway 26 is access controlled by ODOT.
  - The "Street Connectivity Principle"<sup>3</sup> does not apply because it is not clear and objective as required by ORS 197.307(4).
  - The Application already shows the pattern of existing and proposed streets as required by SDC 17.100.100.E. Regardless, subsection E is not clear and objective because it includes the requirement that the plan "promote a logical, connected pattern," which is not clear and objective as required ORS 197.307(4); nor is the requirement that a plan show new street extensions to adjacent parcels "where development may practically occur." If the Commission concludes that a different future street plan is required, it can require that as a condition of approval pursuant to ORS 197.522(3).
  - The requirement in SDC 17.100.100.F that "all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan" is not applicable because it is not clear and objective, as required by ORS 197.307(4).
  - Block length information is available because the subdivision plan sheets are to scale. Regardless, this is a submittal requirement and does not provide a basis for denial of the Application.
- *17.100.60.E.3. "The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy."*

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<sup>3</sup> The "Street Connectivity Principle" is set forth in SDC 17.100.100.A as follows: "A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened." This is not clear and objective because it does not define the following terms: "safe and convenient," "a logical, recognizable pattern of circulation," "spread traffic," "many streets," and "overburdened." It is also not clear and objective because it does not explain *how* a "pattern of streets" should be "connected."

- As explained above, this criterion is not applicable because the City's Comprehensive Plan and Transportation System Plan have not been incorporated into the City's land use regulations as required by ORS 197.195.
- As explained above, the City has not demonstrated the required essential nexus and rough proportionality required by *Nollan* and *Dolan*.
- The Applicant is not required to extend Dubarko Road under SDC 17.100.100.G.2 because Highway 26 is access controlled by ODOT.
- *17.100.60.E.4. "Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions."*
  - Mike Ard, the Applicant's transportation engineer, will provide an update to the existing transportation impact study (TIS) which demonstrates that the Application satisfies this section.
- *17.100.60.E.5. "Adequate public facilities are available or can be provided to serve the proposed subdivision."*
  - This standard is not applicable under ORS 197.307(4) because the phrase "adequate public facilities" is ambiguous and subjective.
- *17.100.60.E.6. "All proposed improvements meet City standards."*
  - In paragraph 22, Staff identified three reasons why it believed the above criterion is not met. These are (1) the lack of an extension of Dubarko Road to Highway 26, (2) the lack of frontage improvements on Highway 26, and (3) the lack of dedicated parkland. As explained above, these are not legally permissible bases for denial.
  - Regardless, the above criterion is not applicable under ORS 197.307(4) because the criterion does not identify which City standards are applicable, and does not explain what is sufficient to "meet" those standards.

**2) The applicant's statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops" is not sufficient as there were no dimensional specifications submitted by the applicant to support this statement.**

RESPONSE: **Exhibit 2**, attached hereto, provides driveway width information for the Fawn Street and Street A cul-de-sacs. This exhibit demonstrates that the sum of the driveway widths for each cul-de-sac is less than 50%. SDC 17.98.100.F is satisfied.

**3) The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- SDC 17.84.30(B) is not clear and objective and therefore inapplicable under ORS 197.307(4), for the following reasons:
  - The phrase “safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall” is ambiguous, subjective, and requires the use of discretion in its application.
  - The definition of “safe and convenient” in subsection (B)(1) does not make the phrase clear and objective because the definition itself relies on ambiguous and subjective terminology, including “reasonably free from hazards,” “interfere with or discourage travel for short trips,” “a direct route of travel between destination” and “meet the travel needs of pedestrians and bicyclists.” None of these phrases are capable of objective measurement.
- SDC 17.84.30 does not require pedestrian pathways to “streets beyond the cul-de-sacs.” Rather, it subjectively requires pedestrian and bicycle facilities “within and between new subdivisions, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks.” Staff's conclusion is incorrect because “streets,” as a general matter, are not on this list.
- SDC 17.84.30(B)(2) does not expressly require pedestrian connections from cul-de-sacs; it only requires pedestrian connections to be a minimum of 15 feet wide where they are proposed.

**4) The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).**

RESPONSE: This is not a permissible basis for denial because the 150-foot street spacing requirement does not apply to Street C. Subsection E.2 provides as follows:

“Local streets should typically intersect in ‘T’ configurations rather than four-way intersections to minimize conflicts and discourage through traffic. Adjacent ‘T’ intersections shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply here because it applies on its face only to “local streets.” However, Dubarko Street is a major arterial and C Street is designed as a “public access lane” according to the standards in SDC 17.100.160. Therefore, there is no “adjacent ‘T’ intersection” to any local street within the Project.

Subsection J.2 provides as follows:

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“As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in ‘T’ intersections are unavoidable, they shall leave a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply because there is no “staggered street alignment resulting in a ‘T’ intersection. First, there is no street intersection within 150 feet of the proposed termination of Dubarko Road; only a “public access lane.” Second, there are no proposed “staggered” intersections, as demonstrated in **Exhibit 3**.

**5) The minimum 100 feet of tangent alignment required in Section 17.84.50(J)5(a) is not provided at the intersection of Street “B” (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street “B”.**

RESPONSE: This standard is not clear and objective because, by using the word “tangent,” it is not clear whether the standard applies only to curved intersections or to roughly straight intersections (as are proposed in the Application). Therefore, it is inapplicable under ORS 197.307(4).

If the Commission does find that the above standard applies, pursuant to ORS 197.522(3) the Commission should impose the following condition of approval:

*“The intersection of Street B and Dubarko Road shall have a minimum of 100 feet of straight (tangent) alignment perpendicular to the intersection.”*

It is feasible for the Applicant to satisfy this condition as demonstrated on **Exhibit 4**. Under ORS 197.522(3), the Commission is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.950.J.5.a.

**6) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.**

RESPONSE: As explained in detail above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City’s land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT. Finally, as explained above, the City has not met its burden of demonstrating essential nexus or rough proportionality for this requirement, as required by *Nollan* and *Dolan*.

**7) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.**

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RESPONSE: Under *Hill v. City of Portland*, 293 Or App 283, 290 (2018), and *Brown v. City of Medford*, 251 Or App 42, 53 (2012), the City cannot, as a matter of constitutional law, require frontage improvements to a road or highway that is not proposed for access. As the City cannot require such frontage improvements, the above statement is not a permissible reason for denial.

**8) The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- SDC 17.100.230 is not applicable under ORS 197.307(4) because the requirements that it "shall be installed to provide adequate water pressure to serve present and future consumer demand" is not clear and objective.
- The requirements of the Water Master Plan are not incorporated into the City's land use regulations as required by ORS 197.195; therefore, the Water Master Plan does not apply.
- Staff made no attempt to establish the essential nexus between the impacts of the proposed development—which does not include future multifamily dwellings—and the requirement for an 18-inch water main. Staff also makes no attempt to demonstrate how the costs of an 18-inch water main connected into the existing main in Highway 26 is roughly proportional to the impact of the proposed development on the City's water system. Both showings are required for the requirement to pass constitutional muster as required by *Nollan* and *Dolan*.
- The above notwithstanding, pursuant to ORS 197.522(3), the Applicant can satisfy this standard with the following condition of approval:

*"The applicant shall install an 18-inch water line in Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26."*

While this would allow the Applicant to satisfy SDC 17.100.230, the Applicant reserves its right to challenge the constitutionality of the condition under ORS 197.796.

**9) The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site consistent with the Sandy Development Code.**

RESPONSE: This requirement is not a legally permissible basis for denial for the reasons explained under (8), above.

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**10) The proposed 10-foot-wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).**

RESPONSE: Pursuant to ORS 197.522(3), the Applicant can satisfy this requirement by accepting the following condition of approval:

*“Prior to final plat, the Applicant shall grant to the City a 15-foot wide public storm drainage easement between Lots 27 and 28 and at the rear of Lots 9-13.”*

Under ORS 197.522(3), the Commission is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.90(A)(2).

**11) This subdivision proposal does not propose to dedicate 0.96 acres of parkland as required by Chapter 17.86. The additional .96 acres could expand Deer Pointe Park consistent with the Parks and Trails Master Plan that was adopted in 1997.**

RESPONSE: As explained in detail above, the City cannot require dedication of 0.96 acres to add to Deer Pointe Park for the following reasons:

- The City’s Parks and Trail Master Plan is not incorporated into the City’s land use regulations as required by ORS 197.195, and is therefore inapplicable to the Application.
- The process by which the City can require parkland dedication as opposed to a fee-in-lieu is not clear and objective; therefore, the parkland dedication requirement cannot apply under ORS 197.307(4).
- Staff has made no attempt to demonstrate an essential nexus or rough proportionality of the parkland dedication requirement, as required by *Nollan* and *Dolan*.

**4. Conclusion.**

For the above reasons, the City may not require a dedication of parkland adjacent to Deer Pointe Park and may not require an extension of Dubarko Road. The Commission should approve the Application because Staff’s asserted reasons for denial are not permissible under applicable law.

Best regards,



Erin M. Forbes

EMF/jmhi  
Enclosures



Kelly O'Neill, Jr.  
September 24, 2021  
Page 14

cc: Michael C. Robinson (*via email*) (*w/enclosures*)  
Garrett H. Stephenson (*via email*) (*w/enclosures*)  
Emily Meharg (*via email*) (*w/enclosures*)  
David Doughman (*via email*) (*w/enclosures*)  
Dave Vandehey (*via email*) (*w/enclosures*)  
Ray Moore (*via email*) (*w/enclosures*)  
Mike Ard (*via email*) (*w/enclosures*)  
Tracy Brown (*via email*) (*w/enclosures*)  
Tyler Henderson (*via email*) (*w/enclosures*)  
Alex Reverman (*via email*) (*w/enclosures*)  
Carey Sheldon (*via email*) (*w/enclosures*)

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February 8, 2021

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

RE: Roll Tide Properties, LLC / Bull Run

Dear Mr. O'Neill:

As we will discuss on February 10 for Bull Run, attached are sections of the Sandy Development Code that (a) include subjective standards and procedures and provide for subjective conditions; and (b) improperly incorporate or fail to incorporate the Sandy Comprehensive Plan, the Sandy TSP, and other public facilities plans. Also included for your reference are related Oregon statutes and case law discussing same. For ease of review, we have highlighted the subjective criteria and procedures (and related statutes/case law) in gold or yellow; and the incorporation of the various Plans (and related statutes/case law) in aqua.

We are looking forward to our next meeting.

Very truly yours,



Michael C. Robinson

MCR:jmhi  
Enclosures

cc: Mr. Dave Vandehey (via email) (w/enclosures)  
Mr. Alex Reverman (via email) (w/enclosures)  
Mr. Carey Sheldon (via email) (w/enclosures)  
Mr. Mike Ard (via email) (w/enclosures)  
Mr. Ray Moore (via email) (w/enclosures)  
Mr. Tracy Brown (via email) (w/enclosures)  
Christopher D. Crean, Esq. (via email) (w/enclosures)  
Ms. Shelley Denison (via email) (w/enclosures)  
Ms. Erin Forbes (via email) (w/enclosures)

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Exhibit 1, Page 1 of 129

**197.195 Limited land use decision; procedures.** (1) A limited land use decision shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.

(2) A limited land use decision is not subject to the requirements of ORS 197.763.

(3) A limited land use decision is subject to the requirements of paragraphs (a) to (c) of this subsection.

(a) In making a limited land use decision, the local government shall follow the applicable procedures contained within its acknowledged comprehensive plan and land use regulations and other applicable legal requirements.

(b) For limited land use decisions, the local government shall provide written notice to owners of property within 100 feet of the entire contiguous site for which the application is made. The list shall be compiled from the most recent property tax assessment roll. For purposes of review, this requirement shall be deemed met when the local government can provide an affidavit or other certification that such notice was given. Notice shall also be provided to any neighborhood or community organization recognized by the governing body and whose boundaries include the site.

(c) The notice and procedures used by local government shall:

(A) Provide a 14-day period for submission of written comments prior to the decision;

(B) State that issues which may provide the basis for an appeal to the Land Use Board of Appeals shall be raised in writing prior to the expiration of the comment period. Issues shall be raised with sufficient specificity to enable the decision maker to respond to the issue;

(C) List, by commonly used citation, the applicable criteria for the decision;

(D) Set forth the street address or other easily understood geographical reference to the subject property;

(E) State the place, date and time that comments are due;

(F) State that copies of all evidence relied upon by the applicant are available for review, and that copies can be obtained at cost;

(G) Include the name and phone number of a local government contact person;

(H) Provide notice of the decision to the applicant and any person who submits comments under subparagraph (A) of this paragraph. The notice of decision must include an explanation of appeal rights; and

(I) Briefly summarize the local decision making process for the limited land use decision being made.

(4) Approval or denial of a limited land use decision shall be based upon and accompanied by a brief statement that explains the criteria and standards considered relevant to the decision, states the facts relied upon in rendering the decision and explains the justification for the decision based on the criteria, standards and facts set forth.

(5) A local government may provide for a hearing before the local government on appeal of a limited land use decision under this section. The hearing may be limited to the record developed pursuant to the initial hearing under subsection (3) of this section or may allow for the introduction of additional testimony or evidence. A hearing on appeal that allows the introduction of additional testimony or evidence shall comply with the requirements of ORS 197.763. Written notice of the decision rendered on appeal shall be given to all parties who appeared, either orally or in writing, before the hearing. The notice of decision shall include an explanation of the rights of each party to appeal the decision. [1991 c.817 §3; 1995 c.595 §1; 1997 c.844 §1]

**197.303 “Needed housing” defined.** (1) As used in ORS 197.286 to 197.314, “needed housing” means all housing on land zoned for residential use or mixed residential and commercial use that is determined to meet the need shown for housing within an urban growth boundary at price ranges and rent levels that are affordable to households within the county with a variety of incomes, including but not limited to households with low incomes, very low incomes and extremely low incomes, as those terms are defined by the United States Department of Housing and Urban Development under 42 U.S.C. 1437a. “Needed housing” includes the following housing types:

(a) Attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490;

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions; and

(e) Housing for farmworkers.

(2) For the purpose of estimating housing needs, as described in ORS 197.296 (3)(b), a local government shall use the population projections prescribed by ORS 195.033 or 195.036 and shall consider and adopt findings related to changes in each of the following factors since the last review under ORS 197.296 (2)(a)(B) and the projected future changes in these factors over a 20-year planning period:

(a) Household sizes;

(b) Household demographics;

(c) Household incomes;

(d) Vacancy rates; and

(e) Housing costs.

(3) A local government shall make the estimate described in subsection (2) of this section using a shorter time period than since the last review under ORS 197.296 (2)(a)(B) if the local government finds that the shorter time period will provide more accurate and reliable data related to housing need. The shorter time period may not be less than three years.

(4) A local government shall use data from a wider geographic area or use a time period longer than the time period described in subsection (2) of this section if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to

subsection (2) of this section. The local government must clearly describe the geographic area, time frame and source of data used in an estimate performed under this subsection.

(5) Subsection (1)(a) and (d) of this section does not apply to:

(a) A city with a population of less than 2,500.

(b) A county with a population of less than 15,000.

(6) A local government may take an exception under ORS 197.732 to the definition of “needed housing” in subsection (1) of this section in the same manner that an exception may be taken under the goals. [1981 c.884 §6; 1983 c.795 §2; 1989 c.380 §1; 2011 c.354 §2; 2017 c.745 §4; 2019 c.639 §6; 2019 c.640 §10a]

**197.307 Effect of need for certain housing in urban growth areas; approval standards for residential development; placement standards for approval of manufactured dwellings.** (1) The availability of affordable, decent, safe and sanitary housing opportunities for persons of lower, middle and fixed income, including housing for farmworkers, is a matter of statewide concern.

(2) Many persons of lower, middle and fixed income depend on government assisted housing as a source of affordable, decent, safe and sanitary housing.

(3) When a need has been shown for housing within an urban growth boundary at particular price ranges and rent levels, needed housing shall be permitted in one or more zoning districts or in zones described by some comprehensive plans as overlay zones with sufficient buildable land to satisfy that need.

(4) Except as provided in subsection (6) of this section, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing. The standards, conditions and procedures:

(a) May include, but are not limited to, one or more provisions regulating the density or height of a development.

(b) May not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.

(5) The provisions of subsection (4) of this section do not apply to:

(a) An application or permit for residential development in an area identified in a formally adopted central city plan, or a regional center as defined by Metro, in a city with a population of 500,000 or more.

(b) An application or permit for residential development in historic areas designated for protection under a land use planning goal protecting historic areas.

(6) In addition to an approval process for needed housing based on clear and objective standards, conditions and procedures as provided in subsection (4) of this section, a local government may adopt and apply an alternative approval process for applications and permits for residential development based on approval criteria regulating, in whole or in part, appearance or aesthetics that are not clear and objective if:

(a) The applicant retains the option of proceeding under the approval process that meets the requirements of subsection (4) of this section;

(b) The approval criteria for the alternative approval process comply with applicable statewide land use planning goals and rules; and

(c) The approval criteria for the alternative approval process authorize a density at or above the density level authorized in the zone under the approval process provided in subsection (4) of this section.

(7) Subject to subsection (4) of this section, this section does not infringe on a local government's prerogative to:

- (a) Set approval standards under which a particular housing type is permitted outright;
- (b) Impose special conditions upon approval of a specific development proposal; or
- (c) Establish approval procedures.

(8) In accordance with subsection (4) of this section and ORS 197.314, a jurisdiction may adopt any or all of the following placement standards, or any less restrictive standard, for the approval of manufactured homes located outside mobile home parks:

(a) The manufactured home shall be multisectional and enclose a space of not less than 1,000 square feet.

(b) The manufactured home shall be placed on an excavated and back-filled foundation and enclosed at the perimeter such that the manufactured home is located not more than 12 inches above grade.

(c) The manufactured home shall have a pitched roof, except that no standard shall require a slope of greater than a nominal three feet in height for each 12 feet in width.

(d) The manufactured home shall have exterior siding and roofing which in color, material and appearance is similar to the exterior siding and roofing material commonly used on residential dwellings within the community or which is comparable to the predominant materials used on surrounding dwellings as determined by the local permit approval authority.

(e) The manufactured home shall be certified by the manufacturer to have an exterior thermal envelope meeting performance standards which reduce levels equivalent to the performance standards required of single-family dwellings constructed under the Low-Rise Residential Dwelling Code as defined in ORS 455.010.

(f) The manufactured home shall have a garage or carport constructed of like materials. A jurisdiction may require an attached or detached garage in lieu of a carport where such is consistent with the predominant construction of immediately surrounding dwellings.

(g) In addition to the provisions in paragraphs (a) to (f) of this subsection, a city or county may subject a manufactured home and the lot upon which it is sited to any development standard, architectural requirement and minimum size requirement to which a conventional single-family residential dwelling on the same lot would be subject. [1981 c.884 §5; 1983 c.795 §3; 1989 c.380 §2; 1989 c.964 §6; 1993 c.184 §3; 1997 c.733 §2; 1999 c.357 §1; 2001 c.613 §2; 2011 c.354 §3; 2017 c.745 §5; 2019 c.401 §7]



PARKVIEW TERRACE DEVELOPMENT LLC, Petitioner, and JOSEPHINE HOUSING AND COMMUNITY DEVELOPMENT COUNCIL, Intervenor-Petitioner,

v.

CITY OF GRANTS PASS, Respondent, and DAVID R. MANNIX, MELISSA S. CANON

EAVES, CAREY GILBERT, JAMES FREGO, CYNTHIA FREGO, SHAUN HOBACK, RANDY R. LEMMON, TONI J. LEMMON, DAVID J. HOLMAN and JOANNA H. LOFASO, Intervenor-Respondents.

LUBA No. 2014-024

LAND USE BOARD OF APPEALS OF THE STATE OF OREGON

July 23, 2014

FINAL OPINION AND ORDER

Appeal from City of Grants Pass.

Michael C. Robinson, Portland, filed a joint petition for review and argued on behalf of petitioner. With him on the brief were Seth J. King, Perkins Coie LLP, Benjamin E. Freudenberg and Davis, Adams, Freudenberg, Day & Galli.

Benjamin E. Freudenberg, Grants Pass, filed a joint petition for review

Page 2

on behalf of intervenor-petitioner. With him on the brief were Davis, Adams, Freudenberg, Day & Galli, Michael C. Robinson, Seth J. King, and Perkins Coie LLP.

No appearance by City of Grants Pass.

David R. Mannix, Grants Pass, filed the response brief and argued on his own behalf. Melissa S. Canon Eaves, Carey Gilbert, James Frego, Cynthia Frego, Shaun Hoback, Randy R. Lemmon, Toni J.

Lemmon, David J. Holman and Joanna H. Lofaso, Grants Pass, represented themselves.

HOLSTUN, Board Member; RYAN, Board Chair; BASSHAM, Board Member, participated in the decision.

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

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Opinion by Holstun.

NATURE OF THE DECISION

Petitioners appeal a city council decision denying its application for site plan approval and a variance from street and block length standards to permit construction of 50 units of federally assisted housing for low-income individuals.

INTERVENORS-RESPONDENTS

In a June 19, 2014 order, we allowed intervenor-respondent Mannix's response brief. In that order, we determined we would not consider intervenor-respondent Gilbert's response brief because it was not timely filed. No other intervenor-respondent filed a response brief. In this opinion, we therefore refer in the singular to the only intervenor-respondent who timely filed a response brief.

MOTION TO FILE REPLY BRIEF

Petitioner Parkview Terrace Development LLC, the applicant below, and intervenor-petitioner Josephine Housing and Community Development Council, which administers a federally supported housing voucher program and supports the proposal (together petitioners) move for permission to file a reply brief to respond to alleged "new matters" raised in the response brief. The reply brief is allowed.

MOTION TO STRIKE RESPONSE BRIEF



Petitioners move to strike portions of intervenor-respondent's response brief, including three exhibits that are not included in the record filed by the city in this matter, as well as related passages in the response brief that rely upon those exhibits, and additional parts of the response brief that include

Page 4

factual assertions that petitioners contend are not supported by evidence in the record.

With exceptions that do not apply here, LUBA's review is limited to the record filed by the local government. ORS 197.835(2). The three exhibits (exhibits A, C and D) are not included in the record, and we understand intervenor-respondent to offer those exhibits for their evidentiary value. Petitioners' motion to strike the exhibits is granted.

With regard to the portions of the response brief that petitioners contend rely on those exhibits and are not supported by the record, LUBA disregards any allegations of material fact that are not supported by the record. However, a lack of evidentiary support for arguments and factual allegations in a response brief is not a basis for striking those portions of the brief. *Hammock & Associates, Inc. v. Washington County*, 16 Or LUBA 75, 78, *aff'd* 89 Or App 40, 747 P2d 373 (1987).

#### STANDING

In his response brief, intervenor-respondent challenges intervenor-petitioner's standing, arguing that the Josephine Housing and Community Development Council, as an entity, did not "appear through counsel" in the local proceedings in this matter. Intervenor-Respondent's Brief 1. In our May 1, 2014 Order, we concluded that the Council had appeared through its executive director and that intervenor-respondent failed to establish that the Council was required under county procedures to appear through counsel. Intervenor-respondent offers no

reason in his response brief to question those conclusions, and we adhere to them.

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#### FACTS

The subject property is zoned High Density Residential (R-3) and includes approximately 3.02 acres. There are residential townhouses (Maple Park) to the south of the subject property, a warehouse to the north, a mini-storage facility to the east, and a city park to the west. Many of the intervenors-respondents reside in Maple Park.

In 2006, the City of Grants Pass approved the Maple Park planned unit development (Maple Park PUD). The city's Maple Park PUD approval decision authorized an 88-unit residential development in three phases. Simultaneously, the city also approved a major variance to the street section design, maximum cul-de-sac length, and street separation standards. The Maple Park PUD developer constructed 28 townhouse units in developing Phase I but failed to complete the remaining units that were to be constructed as Phases II and III, apparently due to the recent recession. Petitioner is a successor-in-interest to the original developer. Petitioner wishes to construct a 50-unit multi-family housing project (Parkview Terrace) in place of Phases II and III of the Maple Park PUD. The 50 units would be multi-family rental units, all owned by petitioner, rather than town houses that would be separately owned.

In addition to seeking approval for the site plan, petitioner also sought approval for a variance to the city's street block length standards. The city's staff reviewed petitioner's applications and recommended approval, subject to a number of conditions. The Urban Area Planning Commission (UAPC) held a public hearing on the applications and, on December 11, 2013, approved the site plan and variance applications with conditions.

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On December 19, 2013, intervenors-respondents and others appealed the UAPC's decision to the city council. The city council reversed the UAPC's decision and denied petitioner's applications. This appeal followed.

MAPLE PARK PUD PHASES II AND III

Before turning to petitioners' assignments of error, we note that a recurring point of dispute between the parties is the current status of Maple Park PUD Phases II and III. Many of the parties' evidentiary disputes also have to do with Maple Park PUD Phases II and III. The city council's decision is a revision of the UAPC's decision with unchanged text, strikeouts (city council deletions) and bold italic text (city council additions). In the city council's decision, text from the UAPC's decision stating that that Maple Park PUD Phases II and III are "active" is stricken through, indicating that text was deleted from the city council's decision and findings. Record 13. The following finding from the UAPC's decision was not changed by the city council:

"The applicant has notified the Planning Department of its withdrawal of the previous approval(s) for Phases II and III of Maple Park PUD." *Id.*

According to petitioners, the reference to the applicant's withdrawal is a reference to a January 17, 2014 letter from petitioner's executive director to the planning department that makes the following request:

"As the owner of the property identified by Josephine County Assessor's map ID #36-05-20-DC and tax lot #2201, we request irrevocable termination of any and all land development entitlement rights under the tentative PUD approval for Phase II & Phase III of the Maple Park Townhomes \* \* \* and hereby waive any right to forever rely on any entitlement

rights granted by said approval." Record 201.

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We understand the city council to have determined that the city's approval for Phases II and III of Maple Park PUD has been withdrawn or terminated and are no longer active.

In his response brief, intervenor-respondent argues:

"This particular application ignored the existence of the PUD when it submitted its plans. When opponents raised the question, supporters of the application came up with an ad hoc series of increasingly bizarre theories as to why the PUD did not currently exist. The last one was that a successor in interest (3 parties away from the original) could simply unilaterally revoke the PUD, and accordingly, in mid-process (February 2014) submitted a letter to the Planning Department saying in effect, 'I revoke.' The theory that a successor in interest may years later simply unilaterally revoke a PUD upon which many other parties have relied, is of course, logical nonsense. \* \* \*. Intervenor-Respondent's Brief 18.

We understand intervenor-respondent to challenge the above finding that the city's approval of Maple Park PUD Phases II and III has been withdrawn. Intervenor-respondent contends that the city's approval of Maple Park PUD Phases II and III remains effective and provides an independent basis for affirming the city council's decision to deny petitioner's site plan, which is inconsistent with Maple Park PUD Phases II and III.

There are two problems with intervenor-respondent's position regarding Maple Park PUD



Phases II and III. First, the city council adopted the opposite position from intervenor-respondent's regarding the continued existence of the city's prior approval of Maple Park PUD Phases II and III. Intervenor-respondent contends the above-quoted finding—that petitioner withdrew that approval—was prepared by the planning staff and was not adopted by the city council. While the above-quoted finding apparently was prepared by planning staff and adopted initially by the UAPC, the city council adopted the UAPC's

Page 8

decision, including its findings, as its own, except where the city council adopted additions and deletions. Those findings, as amended, were "Approved by the City Council." Record 24. Thus, while the city council may not have been the author of the disputed finding, the city council clearly adopted the finding.

The second problem with intervenor-respondent's position is that LUBA's rules expressly authorize intervenors-respondents to assign error to aspects of a decision on appeal, whether they agree or disagree with the ultimate disposition in the decision.

"Cross Petition: Any respondent or intervenor-respondent who seeks reversal or remand of an aspect of the decision on appeal regardless of the outcome under the petition for review may file a cross petition for review that includes one or more assignments of error. *A respondent or intervenor-respondent who seeks reversal or remand of an aspect of the decision on appeal only if the decision on appeal is reversed or remanded under the petition for review may file a cross petition for review that includes contingent cross-assignments of error, clearly labeled as such.* The cover page shall identify the petition as a cross petition and the party

filing the cross petition. *The cross petition shall be filed within the time required for filing the petition for review and must comply in all respects with the requirements of this rule governing the petition for review, except that a notice of intent to appeal need not have been filed by such party.*" OAR 661-010-0030(7) (emphases added).

Intervenor-respondent asks LUBA to reverse the finding regarding the city's prior approval of Maple Park PUD Phases II and III, so that the continued viability of Maple Park PUD Phases II and III would provide an independent basis for affirming the city council's denial decision in the event LUBA sustains one or more of petitioners' assignment of error. Intervenor-respondent did not file a cross petition for review with a contingent assignment of error

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assigning error to the city council's finding and making the arguments it makes in its response brief.

Citing *BenjFran Development v. Metro Service Dist.*, 17 Or LUBA 1009, 1011-1012 (1988), intervenor-respondent contends it was not required to file a cross petition for review. *BenjFran* was decided in 1988, when LUBA's rules simply authorized cross petitions for review, without specifying the circumstances in which they are to be filed. The reason LUBA adopted OAR 661-010-0030(7) is to require that arguments such as the one intervenor-respondent advances in its response brief be set out earlier in a cross petition for review, to avoid the possibility of delay, since response briefs typically are filed shortly before the date set for oral argument. Because intervenor-respondent did not file a cross petition for review in accordance with OAR 661-010-0030(7), we do not consider intervenor-respondent's arguments that the city's prior approval of Maple Park PUD Phases II and III remains effective or that the possible continued existence of city approval for Phases II and III



provides an independent basis for affirming the city council's decision to deny petitioner's application for site plan approval.

#### FIRST ASSIGNMENT OF ERROR

Under their first assignment of error, petitioners argue the proposal is a proposal for "needed housing," as that term is defined at ORS 197.303.<sup>1</sup> Because the proposal is a proposal for "needed housing," petitioners contend the proposal may only be subject to approval standards that are "clear and objective." Petitioners argue that the city was advised, during the proceedings below, that petitioners took the position that a number of standards that would

Page 10

otherwise apply to the proposal are not "clear and objective standards" and for that reason may not be applied to deny the proposal. Petitioners contend that the city council nevertheless applied a number of standards that are not "clear and objective" to deny the application for site plan approval. Petitioners argue the city council never responded to petitioners' contention that those standards may not be applied to a proposal for "needed housing." Petitioners assign error to the city's failure to respond to this issue in its findings and separately assign error to the city council's decision to apply those standards as bases for denial of the site plan.

#### A. Needed Housing

The Oregon Legislature has recognized a need to make housing available to people earning low, middle, or fixed incomes. ORS 197.307(1).<sup>2</sup> ORS

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197.303 defines "needed housing" as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels \* \* \*." Among other types, the statute identifies "[g]overnment assisted housing" as a type of

"needed housing." ORS 197.303(1)(b). The city's comprehensive plan identifies a need for over 4,100 housing units that are affordable to households with incomes of less than \$37,200. Record 832. The proposal is for government assisted housing that is affordable to persons with incomes of less than \$37,200 and therefore qualifies as "needed housing."

Intervenor-respondent does not really dispute that the proposal qualifies as "needed housing," but argues that the housing that would have been provided if Phases II and III of Maple Park PUD were completed as approved also qualifies as "needed housing." The definition of "needed housing" in ORS 197.303 is so broad that intervenor-respondent is likely correct. However, even if the proposal is a proposal to substitute one type of "needed housing" for another type of "needed housing," that does not mean the proposal is a proposal for something other than "needed housing."

#### B. Petitioners' Findings Challenge

As we explain in more detail below, we agree with petitioners that a number of standards that the city applied in this case to deny the proposal are not "clear and objective standards," as is required by ORS 197.307(4). Before doing so, we agree initially with petitioners that it was error for the city not to

Page 12

respond in its decision to the issue of whether those standards qualify as "clear and objective standards." As we explained in *Rosenzweig v. City of McMinnville*, 64 Or LUBA 402, 410-11 (2011):

"LUBA has consistently held 'that when a relevant issue is adequately raised by testimony or other evidence in the record, that issue must be addressed in the decision maker's findings.' *Blosser v. Yamhill County*, 18 Or LUBA 253, 264 (1989) (citing *Norvell v. Portland*



*Metropolitan LGBC*, 43 Or App 849, 852-53, 604 P2d 896 (1979)); see also *Friends of Umatilla County*, 55 Or LUBA 333, 337 (2007); *Marcott Holdings, Inc. v. City of Tigard*; 30 Or LUBA 101, 107-08 (1995). However, as we pointed out in *Faye Wright Neighborhood Planning Council v. Salem*, 1 Or LUBA 246, 252 (1980), 'not every assertion by a participant in a land use decision warrants a specific finding.' A petitioner at LUBA must (1) identify the issue raised, (2) demonstrate that the issue was *adequately* raised and (3) establish that the issue is relevant in some way (usually by showing that the issue raises a question regarding an applicable approval standard). \* \* \* (Emphasis in original.)

Petitioner identified seven standards that the city ultimately applied to deny the proposal and took the position that they are not "clear and objective" and could not be applied to deny petitioner's request for approval of a proposal for "needed housing." Grants Pass Development Code (GPDC) 19.052(2) (Record 261); GPDC 19.052(4) (Record 271); GPDC 19.052(5) (Record 272); GPDC 19.052(6) (Record 272); GPDC 19.052(8)(a) and (e) (Record 273-74); GPDC 19.052(9) (Record 274-75); GPDC 19.052(11) (Record 275). Petitioners have adequately identified the issue and demonstrated that the issue was adequately raised. Since the city relied on all of those subjective standards to deny the application, the issue is relevant. The city should have responded to that issue in its findings, and it erred by failing to do so.

### C. Clear and Objective Standards

Page 13

ORS 197.307(4) provides that local governments are only authorized to apply "clear and objective standards, conditions and

procedures" in reviewing applications for "needed housing." See n 2.

### 1. Intervenor-Respondent's Arguments

Intervenor-respondent offers a number of reasons why he believes the "clear and objective standards" requirement of ORS 197.307(4) either does not apply or was satisfied in this case.

First, intervenor-respondent contends the requirement for "clear and objective standards" only applies to "[a]esthetic criteria." Intervenor-Respondent's Brief 13. Intervenor-respondent does not identify the basis for that argument, and there is nothing in the text of ORS 197.307(4) that limits the requirement for "clear and objective standards" to aesthetic criteria. Petitioners speculate that intervenor-respondent may be relying on the pre-2011 version of ORS 197.307(3)(b). If so, that version of ORS 197.307(3)(b) was repealed in 2011. Or Laws 2011, ch 354, sec 3. Intervenor-respondent also fails to recognize that the pre-2011 version of ORS 197.307(3) subsections (b) and (c) were a nested exception to the general requirement for "clear and objective standards" for "needed housing" to allow certain large jurisdictions to impose aesthetic regulations on "needed housing." The pre-2011 version of ORS 197.307 also included a general requirement for "clear and objective standards." ORS 197.307(6) (2009).

Intervenor-respondent next argues that the requirement for "clear and objective standards" only applies in cases where the applicant establishes "impermissible bias or prejudice in the application process." Intervenor-Respondent's Brief 14. Again, there is simply no text in ORS 197.307(4) that

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limits the statute to cases where the decision maker exhibits bias or prejudice. See n 2.

Next, citing *Rogue Valley Assoc. of Realtors v. City of Ashland*, 158 Or App 1, 4, 970 P2d 685 (1999), intervenor-respondent contends a





standard only violates ORS 197.307(4) if the applicant demonstrates that the standards are "categorically incapable of being clearly and objectively applied under any circumstances where they may be applicable." The appeal in *Rogue Valley* was a facial challenge to an ordinance that adopted new standards and the requirement imposed by the quoted language in the Court of Appeals' decision was limited to facial challenges. We do not understand petitioners to make a facial challenge here. Even if they do, that part of the Court of Appeals' decision was overruled by the legislature in 1999. ORS 197.831.<sup>3</sup>

Intervenor-respondent next argues that the ORS 197.307(4) "clear and objective standards" requirement does not apply to requests for a variance. Intervenor-respondent is correct. *Linstromberg v. City of Veneta*, 47 Or LUBA 99, 108-09 (2004). But petitioners do not argue the city's standards for granting a variance must be "clear and objective." Rather, petitioners contend the city erroneously concluded under the applicable variance standards that

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petitioner's request for a variance could be denied.<sup>4</sup> Petitioners' "clear and objective standards" challenge is limited to standards the city applied to the proposed site plan.

## 2. The Challenged Site Plan Review Standards

Petitioners contend that seven of the site plan review standards that the city relied on in denying its application for site plan review approval are not "clear and objective standards," and thus may not be applied to the site plan.

### a. GPDC 19.052(2)

GPDC 19.052(2) requires that the proposal comply "with applicable elements of the Comprehensive Plan, including: Traffic Plan, Water Plan, Sewer Plan, Storm Drainage Plan, Bicycle Plan, and Park Plan." Record 19. The

UAPC found that the proposal satisfies GPDC 19.052(2) and adopted findings to support that conclusion. The city council adopted the UAPC's findings. However, the city council struck through the part of the UAPC's findings that concluded "Satisfied with conditions," and added the following sentence at the end of the UAPC's findings:

"The City Council found the request was not in compliance with the Comprehensive Plan for traffic management (Element 11 – Master Transportation Plan)." Record 19. (Bold and italics deleted.)

GPDC 19.052(2) includes no guidance for determining which elements of the city's comprehensive plan are applicable. The only element identified by the city council's decision is Element 11. Element 11 is the city's Master Transportation Plan. The Master Transportation Plan is eight chapters long.

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One of those chapters is chapter 3, which is 13 pages long and sets out numerous goals and objectives. Many of those goals and objectives are not "clear and objective."<sup>5</sup> We assume the city council was not applying the entire eight-chapter Master Transportation Plan, but the city council's findings do not identify what part it was applying. We agree with petitioners that in this case **the city council's application of the Master Transportation Plan, without identifying what part of that plan it was applying, applies a standard that is not "clear and objective," which is prohibited by ORS 197.307(4). The city council erred in doing so.**

### b. GPDC 19.052(4)

GPDC 19.052(4) requires that "[p]otential land use conflicts have been mitigated through specific conditions of development." Record 21. The UAPC decision found the proposal, with conditions, complies with GPDC 19.052(4). The City Council found that the criterion was "Not Satisfied," but did not identify why. Record 21.



We agree with petitioners that a standard that requires mitigation of "potential land use conflicts" is not a "clear and objective" standard. See *Rogue Valley*, 35 Or LUBA 159-60 (a standard requiring an applicant to "mitigate any potential negative impact caused by the development," is not "clear and objective"). GPDC 19.052(4) is not a "clear and objective" standard, and the city council erred in applying it to deny site plan approval.

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c. GPDC 19.052(5)

GPDC 19.052(5) requires that "[a]dequate basic urban services are available, or can be made available by the applicant as part of a proposed development, or are scheduled by the City Capital Improvement Plan." Record 21. The City Council found that this criterion was not satisfied. Record 21.<sup>6</sup>

Petitioners first argue that the meaning of the key terms "adequate" "basic urban services" and "available" is not explained in GPDC 19.052(5), and without some explanation, those terms are not "clear and objective." We agree with petitioners. See *Home Builders Association of Lane County v. City of Eugene*, 41 Or LUBA 370, 410, 414 (2002) (code requirement to provide "adequate" drainage is not "clear and objective;" a standard that requires an applicant to show that "public facilities and services are available to the site" but does not define the key terms "public facilities and services" or "available" is not "clear and objective"). The city council erred in applying GPDC 19.052(5) to deny petitioner's application for site plan approval.

d. GPDC 19.052(6)

GPDC 19.052(6) requires that the "[p]rovision of public facilities and services to the site will not cause service delivery shortages to existing development." Record 21. The City Council found that this criterion was not satisfied. *Id.*

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Petitioners argue that GPDC 19.052(6) provides no guidance regarding the scope of "public facilities and services" or how to go about determining if the proposal will "cause service delivery shortages to existing development" or what qualifies as a "shortage." Therefore, petitioners argue, GPDC 19.052(6) is not "clear and objective." We agree with petitioners. See *Home Builders Association of Lane County v. City of Eugene*, 41 Or LUBA 370, 414 (2002) (a standard that requires an applicant to show that "public facilities and services are available to the site" but does not define the key terms "public facilities and services" or "available" is not "clear and objective"). The city council erred by applying GPDC 19.052(6) to deny petitioner's application for site plan approval.

e. GPDC 19.052(8)(a) and (e)

GPDC 19.052(8) requires that "[t]he characteristics of existing adjacent development have been determined and considered in the development of the site plan. At a minimum, special design consideration shall be given to:

"(a) Areas of land use conflicts, such as more restrictive use adjacent or across street from proposal. Mitigate by orienting business operations away from use, additional setbacks, screening/buffering, landscaping, direct traffic away from use.

\*\*\*\*\*

"(e) Lighting. Exterior lighting shall not impact adjacent development or traveling motorist." Record 22. (Underscoring in original.)





The City Council found that these criteria were not satisfied. Record 22.

Neither the requirement to "mitigate" in GPDC 19.052(8)(a) nor the methods of suggested mitigation are "clear and objective," as ORS 197.307(4) requires. Neither is the GPDC 19.052(8)(e) requirement that "[e]xterior

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lighting shall not impact adjacent development or traveling motorist." See *Rogue Valley*, 35 Or LUBA at 158 ("[n]eeded housing' is not to be subjected to standards, conditions, or procedures that involved subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on \* \* \* adjoining properties or community").

We agree with petitioners that GPDC 19.052(a) and (e) are not "clear and objective standards," as required by ORS 197.307(4). The city council erred in applying GPDC 19.052(a) and (e) to deny petitioner's application for site plan approval.

f. GPDC 19.052(9)

GPDC 19.052(9) requires that "[t]raffic conflicts and hazards are minimized on-site and off-site, as provided in Article 27." Record 23. The City Council found that this criterion was not satisfied. *Id.*

The GPDC 19.052(9) requirement that "[t]raffic conflicts and hazards [be] minimized on-site and off-site" is not, by itself, "clear and objective." See *Home Builders Association*, 41 Or LUBA 399 (a standard that requires that "on-site vehicular and pedestrian circulation shall be designed to minimize vehicular/pedestrian conflicts at driveway crossings within parking lots and at vehicle ingress/egress points," is not "clear and objective").

Petitioners next argue that GPDC's 19.052(9)'s reference to Article 27 is not sufficient to make GPDC 19.052(9) "clear and objective"

because the code does not identify which standards in Article 27 apply. Joint Petition for Review 19. GPDC Article 27 is 32 pages long and includes a variety of requirements. Petitioners point out that although GPDC 27.121(3) requires a traffic impact analysis, and the city council found the applicant's traffic impact analysis was flawed, GPDC 27.121(3) does not mention "traffic conflicts." A

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different section of Article 27, GPDC 27.121(11)(h)(8), does mention "traffic conflicts," but GPDC 27.121(11)(h)(8) only applies to developments that "abut[] or contain[] an existing or proposed arterial street." The subject property does not abut or contain an arterial street. Even if it did apply, GPDC 27.121(11)(h)(8) requires that the development design "minimize the traffic conflicts." That is not a "clear and objective" standard.

We agree with petitioners that GPDC's 19.052(9) is not "clear and objective" as required by ORS 197.307(4), and the City Council erred in applying GPDC's 19.052(9) to deny petitioner's application for site plan approval.

g. GPDC 19.052(11)

GPDC 19.052(11) requires that "[t]here are adequate provisions for maintenance of open space and other common areas." Record 23. The City Council found that this criterion was not satisfied. *Id.*

Petitioners argue that the City engaged in a subjective analysis to determine whether the maintenance of open space and other common areas is "adequate," because neither the text nor context of the code defines "adequate." For the same reasons explained in our discussion of GPDC 19.052(5), we agree with petitioners that a standard that requires an unguided inquiry to whether something is "adequate" is not a "clear and objective" standard.



Accordingly, we agree with petitioners that GPDC 19.052(11) is not a "clear and objective" standard, as it must be under ORS 197.307(4), if it is to be applied to an application for land use approval of "needed housing." The City Council erred in applying GPDC 19.052(11) to deny petitioner's application for site plan approval.

The first assignment of error is sustained.

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## SECOND ASSIGNMENT OF ERROR

Under the second assignment of error, petitioners argue that even if some site plan approval criteria were not barred by ORS 197.307(4) because they are not "clear and objective," the city erred on the merits in its application of all ten site plan approval standards it relied on to deny its application for site plan approval. We have concluded under the first assignment of error that seven of the nine site plan review standards that the city applied to deny petitioner's application for site plan approval are not "clear and objective" and should not have been applied to petitioner's application for "needed housing." We therefore need not and do not consider whether the city also erred on the merits in applying those seven standards.

Petitioners do not argue that two of the site plan review standards are not "clear and objective." We therefore limit our consideration under the second assignment of error to petitioners' challenge to the city council's decision with regard to the variance application and the two site plan review standards that petitioners do not argue the city was precluded from applying under ORS 197.307(4).

### A. The Remaining Site Plan Approval Standards

#### 1. GPDC 19.052(3)

GPDC 19.052(3) requires a site plan applicant to demonstrate the proposal "[c]omplies with all other applicable provisions of this Code, including

off-street parking, landscaping, buffering and screening, signage, environmental standards, and Special Purpose District standards." Record 20. The UAPC identified the off-street parking requirements set out at GPDC 25.042. GPDC 25.042 requires 1, 1.5 or 2 spaces per unit, depending on the number of bedrooms in each unit. The UAPC concluded that the 86 parking

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spaces petitioner proposed are sufficient to comply with GPDC 25.042. The city council adopted that finding, but added the following finding: "[t]he City Council found that the site plan did not provide adequate parking facilities." Record 20. (Boldface and italics deleted.)

Like the UAPC, the city council found that the proposal to provide 86 parking spaces complies with GPDC 25.042. *Id.* The city council did not identify any GPDC or other standard that requires the applicant to demonstrate that the proposed parking facilities are "adequate." Even if there were such a standard, it would not be "clear and objective" and could not be applied consistently with ORS 197.307(4).

The city council erred in finding that the proposal does not comply with GPDC 19.052(3). The city council found that the proposal satisfies the only GPDC parking standard that it identified. The city council did not identify the source of the "adequacy" standard it imposed to deny the application, and even if such a standard existed, ORS 197.307(4) would preclude applying such a standard to an application for approval for "needed housing."

#### 2. GPDC 19.052(12)

GPDC 19.052(12) requires that an applicant for site plan approval demonstrate that "[i]nternal circulation is accommodated for commercial, institutional and office park uses with walkways and bikeways as provided in Article 27." Record 23. The city council deleted the conditions of approval that the UAPC relied on to determine that the proposal satisfies GPDC 19.052(12). The



city council then concluded the standard is "Not Satisfied." Record 23-24.

Petitioners argue the City Council erred in denying its application based on GPDC 19.052(12). Petitioners contend the text of GPDC 19.052(12) makes

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it clear that it does not apply to its proposal for a residential development, because GPDC 19.052(12) only applies to "commercial, institutional and office park uses." We agree with petitioners.

B. The City Council's Denial of the Variance

As noted earlier, petitioner sought a variance from requirements for "[b]lock length for local streets \* \* \* and [t]otal length of a perimeter block for local streets \* \* \*." Record 9. The criteria that must be satisfied to grant the requested variances are set out at GPDC 6.060. The UAPC applied a total of 12 variance criteria, finding that with conditions of approval that were imposed by the UAPC and accepted by petitioner, all 12 variance criteria are satisfied. Record 224-29. Four of those criteria are relevant in this appeal.

Variance criterion 1 requires the applicant to demonstrate the variance is justified by a "unique physical constraint or characteristic of the property to which the variance application is related." Record 14. The UAPC found "[t]he property is constrained by existing development patterns in the area." *Id.* The UAPC set out a number of examples of those existing development patterns. *Id.*

Variance criterion 2 requires an applicant to establish that the unique physical constraint or characteristic identified under criterion 1 was not "self-created." *Id.* If it was self-created, criterion 2 imposes additional requirements. The UAPC found "[t]he existing constrains on the property were not self-created." Record 15.

In relevant part, variance criterion 3 requires the applicant to demonstrate "that a variance is necessary to overcome at least one of three situations:

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"(a) Allow Reasonable Use of an Existing Property. Due to the unique physical constraint or characteristic of an existing lot or parcel, strict application of the provisions of the Development Code would create a hardship by depriving the owner of the rights commonly enjoyed by other properties in the same zoning district subject to the same regulation. *The variance is necessary for preservation of a property right of the owner, substantially the same as is possessed by owners of other property in the same district subject to the same regulation.*

\* \* \* \* \*

"(c) Allow Flexibility for Expansion of Existing Development. The location of existing development on the property poses a unique constraint to expansion in full compliance with the Code. The variance is needed for new construction and site improvements in order to provide for efficient use of the land or avoid demolition of existing development, where the public purpose can be substantially furthered in alternate ways with minimal deviation from standards." Record 15 (emphasis added).

The UAPC found "[t]he variance is necessary to overcome the conditions described under sub



criterion (a) and (b) [of variance criterion 3] \* \* \*." *Id.* For purposes of this appeal, this finding is particularly significant since in finding the variance was necessary under sub criterion (a), the UAPC found the variance was "necessary to preserve a property right."

Finally, criterion 9 imposes the following requirement:

"Mitigate Adverse Impacts. Adverse impacts shall be avoided where possible and mitigated to the extent practical. If a variance is not necessary to preserve a property right, or if the unique constraint in Subsection (1) was self-created, adverse impacts may be grounds for denial." Record 17.

Variance criterion 9 requires mitigation of adverse impacts, but may be grounds for denial in only two circumstances: (1) where the "variance is not

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necessary to preserve a property right" and (2) where the unique physical constraint or characteristic identified under criterion 1 is found to be self-created under criterion 2. The UAPC found criterion 9 was satisfied: "[a]dverse impacts that may occur as a result of approval of the requested variances can be mitigated by the conditions of approval listed below."<sup>2</sup>

In its decision, the city council adopted the UAPC's findings regarding 11 of the 12 variance criteria, including criteria 1, 2, and 3. The only deviation from the UAPC's findings in the city council decision was for criterion 9. The city council struck through the UAPC's criterion 9 finding that "[a]dverse impacts that may occur as a result of approval of the requested variances can be mitigated by the conditions of approval listed below." The city council added the following finding:

"Not Satisfied. The City Council found that the applicant did not provide adequate mitigation to avoid the adverse impacts of the development for traffic entering Fruitdale Drive." Record 17-18.

Under variance criterion 9, the city council could have required additional mitigation if it believed additional mitigation is required to avoid adverse traffic impacts on Fruitdale Drive. But variance criterion 9 authorizes the city council to deny the variance based on adverse impacts in only two circumstances: (1) where the "variance is not necessary to preserve a property right" and (2) where the unique physical constraint or characteristic identified under criterion 1 is found to be self-created under criterion 2. In the city's council's findings addressing criteria 1, 2 and 3, the city council found that

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neither of those circumstances is present here. The city council erred by applying criterion 9 to deny the application.

The second assignment of error is sustained.

#### REMEDY

Petitioners argue LUBA should reverse the city council's decision and order the city to approve its applications for a variance and site plan approval. ORS 197.835(10)(a)(A). ORS 197.835(10)(a) provides, in part:

"The board shall reverse a local government decision and order the local government to grant approval of an application for development denied by the local government if the board finds:

"(A) Based on the evidence in the record, that the local government decision is outside the range of



discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

The question posed under ORS 197.835(10)(a)(A) is whether the city council's decision to deny petitioner's site plan and variance application was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]" The city council gave a total of ten reasons why it denied the applications. Seven of the site plan review criteria the city council relied on to support its denial decision are barred by ORS 197.307(4), because the application for site plan approval is an application for approval of "needed housing" and those standards are not "clear and objective." As to those seven standards, the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Under GPDC 19.052(3), the city council relied on an "adequate" parking standard, but there is no "adequate" parking standard and the proposal

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complies with the only identified parking standard. Accordingly, as to GPDC 19.052(3), the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

GPDC 19.052(12) applies to "commercial, institutional and office park uses." GPDC 19.052(12) does not apply to the "residential" use proposed by petitioner. Therefore, as to GPDC 19.052(12), the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Finally, variance criterion 9 can only be applied to deny a request for variance approval in

two circumstances. The city council found that neither of those circumstances is present here. Therefore as to variance criterion 9, the city council's decision was "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

Because the city council's application of all ten of the reasons it gave for denying petitioner's applications for variance and site plan approval were "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances," the city council's decision is reversed and the city is ordered to approve petitioner's application.

The UAPC imposed a number of conditions of approval in its decision granting site plan and variance approval. Record 216-20. Since petitioner agreed to all of the conditions of approval that were imposed by the UAPC, the city council's decision to approve the application may include all of those conditions of approval. *Stewart v. City of Salem*, 58 Or LUBA 605, 622 (2009).

The city council's decision is reversed.

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Footnotes:

<sup>1</sup> We set out the relevant statutory text later in this opinion.

<sup>2</sup> ORS 197.307 provides, in part:

"(1) The availability of affordable, decent, safe and sanitary housing opportunities for persons of lower, middle and fixed income, including housing for farmworkers, is a matter of statewide concern.

"(2) Many persons of lower, middle and fixed income depend on government assisted housing as a



source of affordable, decent, safe and sanitary housing.

"(3) When a need has been shown for housing within an urban growth boundary at particular price ranges and rent levels, needed housing shall be permitted in one or more zoning districts or in zones described by some comprehensive plans as overlay zones with sufficient buildable land to satisfy that need.

"(4) [A] *local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of needed housing on buildable land described in subsection (3) of this section.* The standards, conditions and procedures may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay." (Emphasis added.)

<sup>3</sup> ORS 197.831 provides:

"In a proceeding before the Land Use Board of Appeals or an appellate court that involves an ordinance required to contain clear and objective approval standards, conditions and procedures for needed housing, the local government imposing the provisions of the ordinance shall demonstrate that the approval standards, conditions and procedures are capable of being imposed only in a clear and objective manner."

<sup>4</sup> We address petitioner's challenge to the city's variance findings later in this opinion.

<sup>5</sup> For example, policy 2.4.1 provides:

*"Policy 2.4.1: Integrate decisions about development and transportation investments to ensure the best fit between development in the urban area and the transportation facilities and services needed to serve it."*

<sup>6</sup> The city council found:

"Based upon the testimony, the City Council found that the application did not provide adequate service area and internal circulation with regards to fire access and trash/refuse removal." (Boldface and italics omitted.)

<sup>7</sup> A large number of conditions of approval were attached to the UAPC decision. Record 216-220.

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GENE R. OSTER, Petitioner,  
v.  
CITY OF SILVERTON, Respondent,  
and  
MARY ROSE BRANDT, Intervenor-  
Respondent.

LUBA No. 2018-103

LAND USE BOARD OF APPEALS OF THE  
STATE OF OREGON

May 7, 2019

FINAL OPINION AND ORDER

Appeal from City of Silverton.

Alan M. Sorem, Salem, filed the petition for review and argued on behalf of petitioner. With him on the brief was Saalfeld Griggs PC.

Spencer Q. Parsons, Portland, filed a response brief and argued on behalf of respondent. With him on the brief was Beery, Eisner & Hammond, LLP.

David E. Coulombe, Corvallis, filed a response brief and argued on behalf of intervenor-respondent. With him on the brief was Fewel, Brewer & Coulombe.

ZAMUDIO, Board Member; RYAN, Board Chair; RUDD, Board Member, participated in the decision.

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You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

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Opinion by Zamudio.

NATURE OF THE DECISION

Petitioner challenges a city council limited land use decision denying a tentative subdivision plan.

REPLY BRIEF

On January 15, 2019, petitioner filed a motion to file a reply brief. On January 29, 2019, the city filed an objection to petitioner's motion to file a reply brief. Petitioner's appeal was filed in 2018 and is subject to OAR 661-010-0039 (2017), which confines reply briefs "solely to new matters raised in the respondent's brief."<sup>1</sup> "Generally, responses warranting a reply brief tend to be arguments that assignments of error should fail regardless of their stated merits, based on facts or authority not involved in those assignments." *Wal-mart Stores, Inc. v. City of Gresham*, 54 Or LUBA 16, 19 (2007). Where arguments in a reply brief respond to arguments raised in the response brief that could not have been

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reasonably anticipated in the petition for review, we will generally allow the reply brief. *Id.* at 20.

In the petition for review, petitioner argued that the city's decision violated the Takings Clause of the Fifth Amendment of the United States Constitution, relying on *Koontz v. St. Johns River Water Mgmt. Dist.*, 570 US 595, 133 S Ct 2586 (2013). Petitioner also argued that ORS 197.522 is immaterial to the city's constitutional obligations. The city responded, arguing that the *Koontz* case is distinguishable, citing ORS 197.522(4). City's Response Brief 17-18.

In his reply brief, petitioner argues that ORS 197.522(4) is inapposite to his arguments and responds to the city's argument that *Koontz* is distinguishable. The two "matters" petitioner seeks to address in his reply brief at not "new matters" within the meaning of OAR 661-010-0039 (2017). In his petition for review, petitioner relied heavily on *Koontz* and argued that ORS 197.522 was immaterial. Petitioner could have anticipated that the city would attempt to distinguish *Koontz* and would rely on ORS





197.522. Petitioner's reply brief seeks to introduce surrebuttal arguments to the city's arguments in the response brief, and to elaborate upon arguments already set out in the petition for review. A reply brief making surrebuttal to argument in the response brief is not allowed. *Willamette Oaks, LLC v. City of Eugene*, 67 Or LUBA 351, 353, *aff'd*, 258 Or App 534, 311 P3d 527 (2013).

The motion to file a reply brief is denied.

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#### FACTS

The subject property is comprised of approximately 9.5 acres and is zoned single-family residential (R-1). The city annexed the subject property in 2016. On May 11, 2018, petitioner submitted an application for tentative plat approval to subdivide the property into 40 lots, at sizes permitted in the zone, and to develop those lots with housing at densities permitted in the R-1 zone under clear and objective standards. See ORS 197.307(4).<sup>2</sup>

The planning commission denied the application because the proposal would not result in improved performance of two off-site intersections to a level of service (LOS) that would satisfy the city, based on a level of service standard contained in the city's transportation system plan document (the LOS D standard). Petitioner's engineer estimated that improvements to comply with the LOS D standard would cost \$2,118,550.

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Petitioner appealed the planning commission decision to the city council. After an on-the-record hearing, the city council issued a decision adopting and affirming the planning commission's denial and adopting as findings the staff report in support of the denial. This appeal followed.

#### SECOND ASSIGNMENT OF ERROR



The city determined that Silverton Municipal Code, Title 18, Development Code and Zoning Map (SDC) incorporated by reference traffic standards in the City of Silverton Transportation System Plan (TSP). The city applied a minimum LOS D standard, derived from the TSP. The city denied the application because petitioner's traffic study showed that the proposed development would send additional peak hour traffic to two intersections at N 1st Street and Hobart Road, and N 1st Street and Jefferson Street, and the proposal did not include transportation system improvements that would bring those intersections to LOS D. No party disputes that the proposed development would slightly exacerbate traffic; however, even without the proposed development, at existing traffic volumes, those two intersections are failing to meet the LOS D standard and operating at LOS F. Record 13.

Under SDC 4.3.130 preliminary plat applicants must "describe the proposed access to and from the site and estimate potential vehicle traffic increases resulting from the project," and the community development director may require a traffic impact study, in accordance with SDC 4.1.900. Neither SDC

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4.3.130 or SDC 4.1.900 define traffic standards or include the LOS D standard that we describe above.

The city concluded that the LOS D standard was incorporated by reference into the SDC by SDC 4.3.140(A)(1) and (B)(7), which provide:

"A. General Review Criteria. The city shall consider the following review criteria and may approve, approve with conditions, or deny a preliminary plat based on the following; the applicant shall bear the burden of proof.

"1. The proposed preliminary plat

Exhibit 1, Page 23 of 129



complies with the applicable development code sections and all other applicable ordinances and regulations. At a minimum, the provisions of this article, and the applicable chapters and sections of Article 2, Land Use (Zoning) Districts, and Article 3, Community Design Standards shall apply.  
\* \* \*

"\* \* \* \* \*

"B. Layout and Design of Streets, Blocks and Lots. All proposed blocks (i.e., one or more lots bound by public streets), lots and parcels conform to the specific requirements below:

"\* \* \* \* \*

"7. All applicable engineering design standards for streets, utilities, surface water management, and easements shall be met."

The city determined that those criteria incorporate SDC 3.4.010(A), which governs public facilities and provides:

"A. Purpose. This chapter provides general development standards and approval criteria for public improvements. The code incorporates by reference the city's public facility

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master plans, including plans for domestic water, sanitary sewer, storm drainage, parks, and transportation. The code also incorporates by reference Silverton's public works design standards. This chapter is intended to provide minimum requirements for public facilities. It is not intended to duplicate or replace the design standards contained in the above documents."

The city found that SDC 3.4.010(A) effectively incorporated the city's TSP, Chapter 2, Goal 4, Policy (f), which provides, in part:

"(f) The City shall implement performance standards for use in evaluating new development proposals.

*"Action: City performance standards shall be used to evaluate developments impacting City or County facilities. The level of service standard shall be LOS D based on the Highway Capacity Manual methodology and a [volume to capacity] v/c ratio of 0.85 for signalized and all-way stop controlled intersections. For unsignalized intersection, the level of service standard shall be LOS D based on the Highway Capacity Manual and*



*a v/c ratio of 0.90.  
ODOT v/c ratio  
standards shall apply  
to ODOT facilities."  
(Italics in original.)<sup>3</sup>*

In the second assignment of error, petitioner argues that city's decision violates ORS 197.195(1), which governs limited land use decisions and provides:

"A limited land use decision shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties

Page 9

shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision."

Petitioner argues that *Paterson v. City of Bend*, 49 Or LUBA 160, *aff'd, in part, rev'd and rem'd on other grounds*, 201 Or App 344, 118 P3d 842 (2005), supports his argument and is dispositive. We agree. In *Paterson*, the petitioner appealed a limited land use decision in which the city approved a tentative subdivision plan. The petitioner contended that the city had incorporated all comprehensive plan standards

applicable to subdivision approvals within the meaning of ORS 197.195(1), by requiring in Bend Subdivision Ordinance (BSO) 3.040(3) that the applicant for a tentative subdivision plan approval demonstrate compliance with the Bend Area General Plan. The petitioner identified several General Plan policies relating to transportation that petitioner argued applied to the proposed subdivision. We rejected that argument and explained:

"[I]n our view ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan. In order to 'incorporate' a comprehensive plan standard into a local government's land use regulations within the meaning of ORS 197.195(1), the local government must at least amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan apply to a limited land use decision as approval criteria. Under that standard, BSO 3.040(3) falls far short of incorporating any comprehensive plan provisions."

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*Id.* at 167.

The city responds that the city adopted the TSP in March 3, 2008, by a comprehensive plan text amendment, Ordinance 08-01.<sup>4</sup> That ordinance adopted the TSP "as a support document to the 2002 Silverton Comprehensive Plan." City's Response Brief, App 2, page 2. It is undisputed that the city adopted the TSP as a support document to the comprehensive plan. The dispute is whether the SDC sections applicable to a limited land use decision application sufficiently incorporated the action items in the TSP as approval criteria. Ordinance 08-01 does not support the city's position that the city has incorporated action items in the TSP as approval criteria. Instead, the findings for

Exhibit 1, Page 25 of 129



Ordinance 08-01 indicate that the city intended further SDC amendments to implement the TSP. The findings attached to Ordinance 08-01 explain that the TSP "goals and policies have been developed to guide the City's twenty-year vision of transportation system needs. Each goal has a number of policies designed to guide the community in the direction of completing each goal. Some policies are provided with details of potential implementing actions." City's Response Brief, App 2, page 5.

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Intervenor argues that the city incorporated the TSP policies into the SDC by Ordinance 08-06, which codified SDC 3.1.100.<sup>5</sup> SDC 3.1.100 provides:

"The purpose of this chapter is to ensure that developments provide safe and efficient access and circulation for pedestrians and vehicles. SDC 3.1.200 provides standards for vehicular access and circulation. SDC 3.1.300 provides standards for pedestrian access and circulation. General street improvement requirements are provided in SDC 3.4.100, *with more specific requirements provided in the city of Silverton transportation system plan and the city's public works design standards.*" (Emphasis added.)

Intervenor argues that the "more specific requirement," *i.e.*, the LOS D standard, is incorporated into the SDC by SDC 3.4.100. The city did not rely on SDC 3.1.100 in the challenged decision and does not cite to it in defense of its decision on appeal. Nevertheless, intervenor's argument and the city's argument rely on the same underlying premise: that the city effectively incorporated the action items of the TSP into the SDC as approval criteria applicable to a limited land use decision by incorporating by reference the entire TSP into sections of the SDC.

The city attempts to distinguish *Paterson* by arguing that, unlike general comprehensive plan policies, "the City's TSP provides specific action items to be implemented under Policies." City's Response Brief 21. The city contends that ORS 197.195(1) does not require the city to codify all approval criteria and

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standards for limited land use decisions. Instead, the city emphasizes, ORS 197.195(1) requires the city to "*incorporate* all comprehensive plan standards applicable to limited land use decisions into their land use regulations." (Emphasis added.) However, the city's arguments are directed at the wrong question. **The question under ORS 197.195(1) and *Paterson* is not whether the LOS D standard is clear in the TSP or "codified" in the SDC; instead, the question is whether the SDC provisions that the city concluded incorporated the LOS D standard make clear what specific policies or standards in the TSP apply to a limited land use decision as approval criteria.**

**We conclude that the sections of the SDC that the city relied upon to deny the application, SDC 4.3.140(A)(1), (B)(7), and SDC 3.4.010(A), fall far short of incorporating the LOS D traffic performance standard in TSP, Chapter 2, Goal 4, Policy (f), under the "incorporation" standard in ORS 197.195(1), as interpreted in *Paterson*. Those provisions do not make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision. For example, SDC 4.3.140(A)(1) and (B)(7) do not refer to the TSP at all. Similarly, SDC 3.4.010(A) generally "incorporates by reference the city's public facility master plans, including plans for domestic water, sanitary sewer, storm drainage, parks, and transportation." Incorporation by reference of the entirety of each of the city's public facilities plans falls far short of satisfying the incorporation standard in ORS 197.195(1). We agree with petitioner that by applying the LOS D standard, the city violated ORS 197.195(1).**



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The second assignment of error is sustained.

FIRST AND THIRD ASSIGNMENTS OF ERROR

In the first assignment of error, first subassignment of error, petitioner argues that the city's decision violated ORS 197.307(4) by applying ambiguous approval standards in a manner that would result in unreasonable cost and unreasonable delay. See n 2. In the first assignment of error, second subassignment of error, petitioner argues that the city's decision violated his constitutional rights. ORS 197.835(9)(a)(E). Under the third assignment of error, petitioner argues that the city's decision misconstrued applicable law and lacks adequate findings with respect to the offsite traffic impacts. ORS 197.835(9)(a)(D), (C).

The city's denial relied solely on its application of the TSP standards. We conclude under the second assignment of error that, because the city did not incorporate the TSP standards into its subdivision regulations, the TSP does not apply to petitioner's application and the city may not use the TSP standard as a basis to deny the subdivision. Because we find that the TSP does not provide applicable approval criteria for a limited land use decision, we need not and do not decide whether the city's application of the TSP standard violates petitioner's constitutional rights or the requirement in ORS 197.307(4) that the city may apply only clear and objective standards in a manner that would not result in unreasonable cost or delay. Accordingly, we do not reach the first and third assignments of error.

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DISPOSITION

Petitioner requests that, if we reverse the city's decision under the first assignment of error, we instruct the city to approve the application subject only to unappealed conditions of approval. Petition for Review 2. We will reverse a

decision and order the local government to grant approval if the decision "is outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances." ORS 197.835(10)(a)(A).<sup>6</sup> Petitioner's request for relief invokes the authority granted to LUBA in ORS 197.835(10)(a)(A), notwithstanding petitioner's failure to specifically cite that statute. See *Stewart v. City of Salem*, 58 Or LUBA 605, 619, *aff'd*, 231 Or App 356, 219 P3d 46 (2009), *rev den*, 348 Or 415 (2010) (applying ORS 197.835(10)(a)(A), even where petitioner failed to cite that subsection).

ORS 197.835(10)(a) "requires reversal, and precludes remand, of a denial decision when LUBA determines on the basis of the record that the local

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government lacks the discretion to deny the development application." *Stewart*, 231 Or App at 375.

In *Parkview Terrace Dev. LLC v. City of Grants Pass*, 70 Or LUBA 37 (2014), we reversed a city council decision denying site plan approval and variance for a needed housing development. The city council gave a total of ten reasons why it denied the applications. Seven of the site plan review criteria the city council relied on to support its denial decision could not be applied to the application under ORS 197.307(4), because the application for site plan approval was an application for approval of "needed housing" and we determined those standards are not "clear and objective." The city council also inappropriately relied on three inapplicable criteria: (1) an "adequate" parking standard that did not exist in the city's code, (2) an internal circulation standard that did not apply to the proposed residential use, and (3) a variance criterion that did not apply under the circumstances surrounding the development. We concluded that all ten of the reasons that the city council gave for denying petitioner's applications were "outside the range of discretion allowed the local government under its comprehensive plan and



implementing ordinances." *Id.* at 57-58. Accordingly, we reversed the city council's decision and ordered the city to approve the petitioner's applications for variance and site plan approval. We instructed that the city council's decision to approve the application may include conditions of approval imposed by the urban area planning commission that the petitioner had agreed to. *Id.* at 58 (citing *Stewart*, 58 Or LUBA at 622).

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In this case, the city council gave only one reason for denial, failure of the development proposal to include improvements to failing intersections to satisfy the LOS D traffic performance standard. We have concluded that the TSP does not provide applicable criteria because the city failed to specifically incorporate TSP traffic standards into its land use regulations with the level of specificity required by ORS 197.195(1). Thus, the only reason that the city council gave for denying petitioner's application is "outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances." Accordingly, we reverse the city council's decision and order the city to approve the petitioner's application.

On appeal, the city has not identified any applicable standards that would require any further review. Petitioner does not dispute that the city may impose conditions of approval that are "roughly proportional to the impact of the development on public facilities." SDC 3.4.010(D).<sup>1</sup> During the city proceedings,

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petitioner offered, as a compromise condition of approval, to construct a westbound left turn lane at the Highway 214/Hobart Road intersection to mitigate the impact of the proposed development on public facilities at an estimated cost of over twice the estimated proportionate share. Record 14. Despite denying the application, the city's decision appears to accept and adopt that condition of approval, subject to terms and

conditions. *Id.* Petitioner does not challenge that condition on appeal.<sup>2</sup> Accordingly, the city council's decision to approve the application may include that condition of approval.<sup>2</sup> *Parkview Terrace*, 70 Or LUBA at 58; *Stewart*, 58 Or LUBA at 622.

The city's decision is reversed, and the city is ordered to approve the application.

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Footnotes:

<sup>1</sup> OAR 661-010-0039 (2017) provided:

"A reply brief may not be filed unless permission is obtained from the Board. A request to file a reply brief shall be filed with the proposed reply brief together with four copies within seven days of the date the respondent's brief is filed. A reply brief shall be confined solely to new matters raised in the respondent's brief, state agency brief, or amicus brief. A reply brief shall not exceed five pages, exclusive of appendices, unless permission for a longer reply brief is given by the Board. A reply brief shall have gray front and back covers."

<sup>2</sup> ORS 197.307(4) provides:

"Except as provided in subsection (6) of this section, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing. The standards, conditions and procedures:

"(a) May include, but are not limited to, one or more provisions regulating the density or height of a development.



"(b) May not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay."

3. In a prior order in this appeal, we granted the city's motion to take official notice of Chapter 2 of the TSP. *Oster v. City of Silverton*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 9).

4. In a prior order in this appeal, we granted the city's motion to take official notice of Ordinance 08-01. *Oster*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 9).

5. In a prior order in this appeal, we granted intervenor's motion to take official notice of Ordinance 08-06. *Oster*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2018-103, Order, Apr 5, 2019) (slip op at 10).

6. ORS 197.835(10)(a), provides, in part:

"The board shall reverse a local government decision and order the local government to grant approval of an application for development denied by the local government if the board finds:

"(A) Based on the evidence in the record, that the local government decision is outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances[.]"

7. SDC 3.4.010(D) provides:

"Conditions of Development Approval. Development shall not occur until all required public facilities are in place or guaranteed, in conformance with the provisions of this code and the city's design standards. Improvements required

as a condition of development approval, when not voluntarily accepted by the applicant, must be roughly proportional to the impact of the development on public facilities. Findings in the development approval must indicate how the required improvements are directly related and roughly proportional to the impact of development."

8. In *Stewart*, we explained that the "application" required to be approved under ORS 197.835(10)(a) "refers to the application as proposed at the time of the local government's denial, including any conditions of approval that the applicant has proposed and the local government has accepted. Such applicant-proposed conditions can be understood to effectively modify or amend the application." *Stewart*, 58 Or LUBA at 622.

9. We do not intend to foreclose the possibility that, at the time that the city grants approval of the application as required by ORS 197.835(10)(a) and this decision, the city and petitioner might agree to include additional or modified conditions of approval.

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BEFORE THE LAND USE BOARD OF APPEALS

OF THE STATE OF OREGON

ROBERT PATERSON  
*Petitioner,*

vs.

CITY OF BEND  
*Respondent,*

and

BRIAN DRAMEN, MARK DRAMEN  
and GORDON DRAMEN  
*Intervenors-Respondent.*

LUBA No. 2004-155

FINAL OPINION  
AND ORDER

Appeal from City of Bend.

William H. Sherlock, Eugene, filed the petition for review and argued on behalf of petitioner. With him on the brief was Hutchinson, Cox Coons, DuPriest, Orr, and Sherlock P.C.

No appearance by the City of Bend.

Elizabeth A. Dickson, Bend, filed the response brief and argued on behalf of intervenors-respondent. With her on the brief was Hurley, Lynch and Re, P.C.

BASSHAM, Board Member; HOLSTUN, Board Chair; DAVIES, Board Member, participated in the decision.

REMANDED 04/05/2005

You are entitled to judicial review of this Order. Judicial review is governed by the provisions of ORS 197.850.

1 Opinion by Bassham.

2 **NATURE OF THE DECISION**

3 Petitioner appeals city approval of a tentative subdivision plan authorizing a private road  
4 terminating in a cul-de-sac.

5 **FACTS**

6 The subject property is a narrow, rectangular 5-acre parcel zoned RS, Urban Standard  
7 Density Residential. The subject parcel is 165 feet wide from north to south, and 1,100 feet deep  
8 east to west. The property includes an existing single family dwelling at its east end, adjacent to  
9 Eagle Road. To the north the property abuts land owned by petitioner that has recently been  
10 approved for development as a residential subdivision. Petitioner's subdivision includes Yellow  
11 Ribbon Drive, an east-west street that connects to Eagle Road. A short street, known only as  
12 "Future Street," is stubbed from Yellow Ribbon Drive to the subject property's northern property  
13 line, in the approximate middle of the subject property. The west end of the subject property  
14 adjoins a developed subdivision, where Red Oak Drive is stubbed to the property line. Red Oak  
15 Drive is a city-standard 60-foot wide right of way, with parking, curbs, planting strips and  
16 sidewalks. To the south the property abuts a large parcel for which a subdivision application (the  
17 Connors Park subdivision) has been approved.<sup>1</sup>

18 Intervenor-responder (intervenor) seek to develop the subject property with 31  
19 residential lots in three phases. Intervenor initially proposed that Red Oak Drive extend the length  
20 of the subject property, curve north around the existing dwelling, and connect to Eagle Road.  
21 However, to address neighbors' concerns about through traffic, and to reduce impacts on the  
22 existing single family dwelling, intervenor modified the tentative plan to propose that Red Oak  
23 Drive end in a cul-de-sac just west of the existing dwelling, rather than extend all the way to Eagle  
24 Road. Additional access to the subdivision would be provided by connecting northward to Yellow

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<sup>1</sup> We understand that the Connors Park subdivision approval was withdrawn sometime after the decision in the present case.



1 Ribbon Drive via Future Street, and through two proposed connecting streets (“A” and “C”) to the  
2 Conners Park subdivision to the south. To maximize the number of lots on the narrow subject  
3 property, intervenors also proposed that after entering the property at the west end, Red Oak Drive  
4 would become a private street, with a reduced paved width and sidewalks flush with the road  
5 surface.

6 A city hearings officer approved the tentative plan on July 14, 2004. Petitioner, concerned  
7 that the design of Red Oak Drive directed traffic through his subdivision, appealed the hearings  
8 officer’s decision to the city council. The city council declined to hear petitioner’s appeal. This  
9 appeal followed.

10 **FIRST ASSIGNMENT OF ERROR**

11 Petitioner argues that the hearings officer erred in (1) approving the subdivision without  
12 ensuring street access for the first phase and without an adequate facility development plan, under  
13 Bend Subdivision Ordinance (BSO) 3.040, and (2) finding that the applicant need not demonstrate  
14 compliance with the Bend Area General Plan (General Plan), contrary to BSO 3.040(2).<sup>2</sup>

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<sup>2</sup> BSO 3.040 provides, in relevant part:

“**PHASED TENTATIVE PLAN.** An overall development plan shall be submitted for all developments affecting land under the same ownership for which phased development is contemplated. The Review Authority shall review a master development plan at the same time the tentative plan for the first phase of a phased subdivision is reviewed. The phased tentative plan shall include \* \* \* the following elements:

- “1. Overall development plan, including phase or unit sequence, and the schedule for initiation of improvements and projected completion date.
- “2. Show compliance with the Bend Area General Plan and implementing land use ordinances and policies.
- “3. Overall facility development plan, including transportation and utility facilities plans, that specify the traffic pattern plan for motor vehicles, bicycles, and pedestrians, water system plans, sewer system plans and utility plans.”

1           **A.     BSO 3.040(1) and (3)**

2           BSO 3.040(1) and (3) require that the development plan include a “schedule for initiation of  
3 improvements,” and “transportation and utility facilities plans.” See n 2. The application proposed  
4 development in three phases, with facilities development and final plan approval issuing for each  
5 phase before commencing with the next phase. The first phase is at the east end of the property,  
6 and includes the existing dwelling, cul-de-sac and surrounding lots. Noting that access to the phase  
7 1 area currently does not exist, the hearings officer stated:

8           “It is unclear from the information provided where street access during phase 1 is  
9 located. It will be a requirement of approval that the applicant demonstrate that  
10 there will be street access for each phase of development in accordance with City  
11 Standards prior to final plat approval. Based on the information provided by the  
12 applicant and this condition of approval the hearings officer finds the proposal  
13 satisfies [BSO 3.040(1)].” Record 30.

14           Petitioner argues that the hearings officer substituted a condition of approval for a finding of  
15 compliance with BSO 3.040(1). However, the hearings officer clearly found compliance with  
16 BSO 3.040(1), based on the submitted development plan and the condition of approval. Generally,  
17 where there is conflicting evidence regarding whether compliance with an approval criterion is  
18 feasible, the local government may determine that compliance is feasible and impose conditions of  
19 approval as necessary to ensure compliance. *Rhyne v. Multnomah County*, 23 Or LUBA 442,  
20 447-48 (1992). Although the application did not propose a specific plan for providing access to  
21 phase 1, the hearings officer obviously believed that providing such access was feasible, and  
22 imposed a condition requiring intervenors to specify how access would be provided. Petitioner  
23 does not argue that there is any reason to believe that providing access to phase 1 from Red Oak  
24 Drive or from one or more of the three connecting streets to the north and south is infeasible, prior  
25 to development of phases 2 and 3. Under these circumstances, we see no error in finding that the  
26 development plan complies with BSO 3.040(1), as conditioned.

27           With respect to BSO 3.040(3), petitioner argues that the hearings officer failed to find that  
28 the “overall facility plan” includes a transportation plan that specifies the “traffic pattern plan for

1 motor vehicles, bicycles, and pedestrians,” with respect to phase 1 development. *See* n 2. Instead,  
2 petitioner argues, the hearings officer’s finding regarding BSO 3.040(3) discusses only utility  
3 facilities and does not mention a transportation plan, other than a reference to a traffic study:

4 “The applicant has submitted an overall facility plan showing all existing and  
5 proposed utility extensions for the proposal. This data is shown on the face of the  
6 tentative plat and will be supplemented by engineered drawings for utility  
7 construction. A traffic study is included in the supporting materials for the tentative  
8 plan application.” Record 31.

9 It is not clear what BSO 3.043(3) requires in terms of a “transportation plan.” The above-  
10 quoted finding appears to view the tentative plan itself as being the “overall facility plan,” at least  
11 with respect to utilities. The finding does not expressly reference transportation facilities, but the  
12 same approach seems equally applicable. As with utilities, the approved tentative plan depicts the  
13 proposed street network and pedestrian pathways, with road and sidewalk cross-sections and  
14 details. The finding refers to the transportation impact analysis at Record 601 to 664, which  
15 includes a detailed analysis of the proposed and existing street network. It seems reasonably clear  
16 that the hearings officer believed that the tentative plan itself, as supplemented by engineered utility  
17 drawings and the transportation impact analysis, constituted the “transportation and utility facilities  
18 plans” required by BSO 3.043(3). While the finding could have stated that more clearly, petitioner  
19 identifies no error in that approach, and we see none. This subassignment of error is denied.

20 **B. BSO 3.040(3)**

21 BSO 3.040(3) requires that the tentative plan shall “[s]how compliance with the Bend Area  
22 General Plan and implementing land use ordinances and policies.” Intervenors argued, and the  
23 hearings officer agreed, that compliance with the General Plan is demonstrated by compliance with  
24 its implementing land use regulations, and that intervenors were not required to demonstrate that the  
25 plan complied with General Plan policies or provisions:

26 “The applicant states that it will comply with the General Plan and the implementing  
27 land use ordinances and policies by meeting the requirements of the regulations  
28 governing the tentative plan review process. While multiple decisions of the City  
29 have found that certain plan policies under specific circumstances constitute

1 mandatory criteria, the applicant is not required to demonstrate compliance with the  
2 provisions of the comprehensive plan inasmuch as the plan does not establish these  
3 mandatory approval criteria for land divisions. This is supported by two facts: (1)  
4 ORS 197.195(1) provides that comprehensive plan provisions do not apply to the  
5 review of limited land use decisions, such as subdivisions, unless the provisions are  
6 adopted as part of the City’s zoning or subdivision ordinances. A review of  
7 discrete Plan policies is therefore not appropriate; (2) the [General] Plan states that  
8 “[t]he policies in the General Plan are statements of public policy, and are used to  
9 evaluate any proposed changes to the General Plan. \* \* \*” Record 30-31.

10 ORS 197.195(1) provides in relevant part that in order to apply comprehensive plan  
11 policies directly to a limited land use decision as approval criteria, the local government must  
12 “incorporate all comprehensive plan standards applicable to limited land use decisions into their land  
13 use regulations” within two years of September 29, 1991.<sup>3</sup> A limited land use decision includes a  
14 decision that approves or denies a subdivision application within an urban growth boundary.  
15 ORS 197.015(12).

16 Petitioner contends that the city has “incorporated” all comprehensive plan standards  
17 applicable to subdivision approvals within the meaning of ORS 197.195(1), by requiring at  
18 BSO 3.040(3) that the applicant for a tentative subdivision plan approval demonstrate “compliance  
19 with the Bend Area General Plan.” Petitioner then identifies several comprehensive plan policies  
20 relating to transportation that petitioner believes are applicable to the proposed subdivision.

21 However, in our view ORS 197.195(1) contemplates more than a broad injunction to  
22 comply with unspecified portions of the comprehensive plan. In order to “incorporate” a

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<sup>3</sup> ORS 197.195(1) provides:

“A ‘limited land use decision’ shall be consistent with applicable provisions of city or county comprehensive plans and land use regulations. Such a decision may include conditions authorized by law. Within two years of September 29, 1991, cities and counties shall incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. A decision to incorporate all, some, or none of the applicable comprehensive plan standards into land use regulations shall be undertaken as a post-acknowledgment amendment under ORS 197.610 to 197.625. If a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.”

1 comprehensive plan standard into a local government’s land use regulations within the meaning of  
2 ORS 197.195(1), the local government must at least amend its land use regulations to make clear  
3 what specific policies or other provisions of the comprehensive plan apply to a limited land use  
4 decision as approval criteria. Under that standard, BSO 3.040(3) falls far short of incorporating  
5 any comprehensive plan provisions. The hearings officer did not err in concluding that the applicant  
6 was not required to demonstrate compliance with the comprehensive plan policies cited by  
7 petitioner. Because we sustain the hearings officer’s conclusion under ORS 197.195(1), we need  
8 not address petitioner’s challenges to the hearings officer’s alternative conclusion under the  
9 comprehensive plan.

10 The first assignment of error is denied.

11 **SECOND ASSIGNMENT OF ERROR**

12 BSO 3.060(1)(A) and (C) require in relevant part that the proposed land division contribute  
13 to the “orderly development” of the area.<sup>4</sup> Petitioner contends that the hearings officer erred in  
14 concluding that the proposed private street, ending in a cul-de-sac, contributes to “orderly  
15 development.” According to petitioner, the hearings officer’s determination on this point is

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<sup>4</sup> There are actually two separate “orderly development” standards, at BSO 3.060(1)(A) and (C). We follow petitioner in discussing them together as a single standard. BSO 3.060(1) provides, in relevant part:

“No application for subdivision or partition shall be approved unless the following requirements are met:

“A. The land division contributes to orderly development and land use patterns in the area, and provides for the preservation of natural features and resources and other natural resources to the maximum degree practicable as determined by the City of Bend.

\*\*\* \*\* \*

“C. The land division contributes to the orderly development of the Bend area transportation network of roads, bikeways, and pedestrian facilities, and does not conflict with existing public access easements within or adjacent to the land division.”

1 inconsistent with another hearings officer's decision regarding a similar proposal for a private street  
2 in a different development application, known as the "Wolfe" decision.

3 The hearings officer rejected that argument, finding:

4        "\* \* \* The applicant proposes to extend Red Oak Drive as a private street through  
5 the subdivision culminating in a cul-de-sac at the [east] end of the property. Staff  
6 questioned whether this design constitutes orderly development within the meaning  
7 of [BSO 3.060(1)(A)]. It did because of a City hearings officer's decision in file  
8 numbers PZ 03-651 and 03-652 (the 'Wolfe Application'). There the hearings  
9 officer found that the proposed connection between public streets and private  
10 streets would not be orderly for the reason that the private street was found by the  
11 hearings officer to be an 'integral link in the city's street grid system' and for the  
12 reason that the private street would also largely serve persons accessing land and  
13 subdivisions outside of the subdivision proposed in that application. It is noted that  
14 the same hearings officer has considered different facts (the Coulter subdivision) and  
15 allowed the use of a private street system, provided that certain factors or  
16 conditions were met, such as demonstrating a permanent maintenance source, lot  
17 configuration, etc. \* \* \* Other decisions of the City have also allowed private  
18 street connections under certain circumstances. \* \* \* In point of fact there are  
19 many private streets with public overlays that connect to publicly owned streets  
20 within the City. I agree with the applicant in that here the private street would not  
21 be an integral link to the City grid system given the number of existing and proposed  
22 connections to Eagle Road from other areas. Further, the private street will have  
23 public overlay, be permanently maintained by a homeowner's association and  
24 would terminate before Eagle Road, thus serving mostly subdivision residents, at  
25 least from the connection with the 'Future Road' [to Yellow Ribbon Drive] to the  
26 north. The code provides for private streets in certain cases and sets standards for  
27 their construction. *See* table 'B,' Land Division Ordinance. \* \* \* I find that under  
28 the present circumstances, including the shape of the lot at issue, the density goal of  
29 the zone and the connections to the surrounding developments, the proposed  
30 private street would constitute orderly development. The traffic engineer does not  
31 object, but has commented that construction should be in accordance with Table B.  
32 These standards require a street that is 24 feet in width and bordered by sidewalks.  
33 The applicant intends to comply with such standards. Compliance with Table 'B'  
34 shall be a condition of approval and this will promote safety, continuity and  
35 compatibility with street connections and the established density of surrounding  
36 development." Record 33-34.

37 Petitioner quotes long passages from the Wolfe decision, and argues that for the same  
38 reasons expressed by the hearings officer in the Wolfe decision the hearings officer in the present

1 case should also conclude that the proposed private street and cul-de-sac do not constitute “orderly  
2 development.”

3 Even if the reasoning in the Wolfe decision is not persuasive, petitioner contends, the facts in  
4 the present case demonstrate that the proposed private street and cul-de-sac are not “orderly  
5 development.” With respect to the cul-de-sac, petitioner argues that it forces traffic to and from the  
6 subdivision to access Eagle Road through adjoining subdivisions. With respect to the private street,  
7 petitioner argues that it is unsafe to have public streets with 60-foot wide rights of way, parking,  
8 curbs, planting strips and sidewalks transition abruptly to a private street with 20-foot paved width,  
9 no parking, curbs or dividers and with sidewalks flush with the road pavement. Further, petitioner  
10 questions the ability of the homeowner’s association to enforce the no parking prohibition on the  
11 private street, or adequately maintain the private street.

12 Given the imprecision of the “orderly development” standard, the city has significant latitude  
13 in determining whether development complies with that standard.<sup>5</sup> As the hearings officer noted,  
14 there are significant factual distinctions between the circumstances in the Wolfe decision and the  
15 present case. In any case, petitioner does not explain why the present hearings officer is required to  
16 apply the same understanding of “orderly development” that was applied in the Wolfe case.

17 With respect to the cul-de-sac, it is often the case that traffic from a cul-de-sac will travel  
18 across local streets to reach collector or arterial streets. Petitioner does not explain why the

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<sup>5</sup> Elsewhere in the decision, the hearings officer notes in addressing the “orderly development” standard in BSO 3.060(1)(C):

“In other City land use decisions, and based upon the purpose statements contained in the land use ordinances, the term ‘orderly’ as applied to the above criteria has been found to mean a system or order that is a logical extension of the transportation system, that does not overtax the system, provides for maintenance thereof, that recognizes the limitations that the shape of the parcel and the topography have on the development, does not have internal conflicts with the very development being proposed, meets code layout and design requirements and does not foreclose future development.” Record 36.

Petitioner does not challenge that view of the “orderly development” standard, or explain why the hearings officer’s application of the standard under that view is erroneous.

1 “orderly development” standard requires the city to connect Red Oak Drive directly to Eagle Road,  
2 or prohibits the city from directing some traffic onto Yellow Ribbon Drive or other adjoining streets.

3 With respect to the safety of transitioning between a public street and a private street, the  
4 code allows private streets to be built to different standards than public streets, and the two must  
5 meet somewhere. The fact that private streets may be built to lesser standards, and need not  
6 include such amenities as curbs, planting strips, and parking lanes does not mean that such streets  
7 do not comply with the orderly development standard. Similarly, that private streets are maintained  
8 by homeowners’ associations rather than the city does not indicate disorderly development.  
9 Petitioner has not demonstrated that the hearings officer erred in concluding that the proposed  
10 private street complies with the orderly development standard.

11 Finally, petitioner argues that at several points in the decision the hearings officer indicated  
12 that he understood the proposed private street to have a paved width of 24 or perhaps 28 feet with  
13 curbs, whereas the approved tentative plan clearly provides for a private street with paved width of  
14 20 feet and no curbs. *See* above-quoted finding (“These standards require a street that is 24 feet in  
15 width and bordered by sidewalks. The applicant intends to comply with such standards”); Record  
16 44 (“The private street will be bounded by curbed sidewalks directing water to catch basins”); and  
17 Record 58 (condition of approval stating that “‘No Parking’ signs on 28-foot wide streets are  
18 required”). Petitioner speculates that the hearings officer’s confusion on these points may have  
19 erroneously led him to conclude that the private street complies with the orderly development  
20 standard, and that remand is necessary to allow the hearings officer to apply the standard under a  
21 correct appreciation of the facts.

22 It is not clear to us why the hearings officer referred to the private street as being 24 feet in  
23 width and bounded by curbs, in the above-quoted findings. The approved tentative plan, the  
24 application materials, the staff report, and everything cited to us in the record indicate that the  
25 private street was and always had been proposed as 20 feet in width, with no curbs, a design that is  
26 apparently allowed under Table B. Elsewhere in the hearings officer’s decision he indicates that he



1 understood that the private street will have a paved width of 20 feet. Record 47 (“Since the  
2 applicant is proposing a private street with a width of 20 feet, as a condition of approval, ‘No  
3 Parking’ signs shall be placed on both sides of the road \* \* \*”). Almost certainly the reference to  
4 the width of the street as 24 feet at Record 34 was simply a typographic error. Likewise, the  
5 reference to a requirement for “No Parking” signs for 28-foot wide streets is almost certainly a  
6 misstatement, since the hearings officer elsewhere indicates his understanding that “No Parking”  
7 signs are required for a 20-foot wide street. Record 47.

8           The reference to curbs at Record 44 may also be a misstatement, although that is less clear.  
9 That reference to curbs is part of the findings under BSO 6.020(7), which we discuss below, not  
10 part of the findings addressing the orderly development standard at BSO 3.040(1) or (3). As  
11 discussed below, we remand the hearings officer’s finding under BSO 6.020(7) for clarification with  
12 respect to curbs. For present purposes, however, it seems unlikely that the hearings officer relied  
13 upon the presence or absence of curbs in finding compliance with BSO 3.040(1) or (3). The  
14 findings addressing the orderly development do not mention curbs. Petitioner has not established  
15 that any misstatement with respect to curbs provides an independent basis for reversal or remand  
16 with respect to the orderly development standard.

17           The second assignment of error is denied.

18           **THIRD ASSIGNMENT OF ERROR**

19           Petitioner contends that the hearings officer misconstrued street and sidewalk design  
20 requirements of BSO 6.020 and failed to make adequate findings supported by substantial evidence  
21 in concluding that the proposed cul-de-sac and private street comply with those requirements.

22           **A.     BSO 6.020(1)**

23           As relevant here, BSO 6.020(1) requires that “[f]acilities providing safe and convenient  
24 motor vehicle, pedestrian and bicycle access shall be provided within new subdivisions.” Petitioner  
25 repeats his arguments under the BSO 3.060(1) “orderly development” standard, but does not

1 explain why those arguments establish a basis for reversal or remand under BSO 6.020(1). This  
2 subassignment of error is denied.

3 **B. BSO 6.020(2)**

4 BSO 6.020(2) requires in relevant part that “[a]ll streets shall be improved to City  
5 standards with curbs, paving, drainage facilities and medians if required.”<sup>6</sup> Petitioner argues that the  
6 hearings officer’s finding under BSO 6.020(2) does not explain why that standard does not require  
7 curbs on the proposed private street.

8 The hearings officer finds that the private street will be constructed under standards for  
9 private streets set out in Table B. There is no dispute that Table B does not require curbs for a 20-  
10 foot wide private street. Petitioner’s quotation of BSO 6.020(2) in the petition for review omits the  
11 last two words, “if required.” That phrase is somewhat ambiguous, as it could modify only the  
12 preceding word “medians” or the entire list of design features including curbs. Petitioner apparently  
13 reads BSO 6.020(2) to require curbs on all streets, even if the applicable standards for certain  
14 streets do not require curbs. Petitioner’s interpretation brings the last sentence of BSO 6.020(2)  
15 and Table B into conflict. Although the hearings officer’s findings under BSO 6.020(2) do not  
16 address this issue, it seems to us that the better reading of the last sentence of BSO 6.020(2) is one  
17 that does not bring it into conflict with Table B. In other words, “[a]ll streets” must have curbs and  
18 other listed design features only “if required.” If other, more specific standards explicitly do not

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<sup>6</sup> BSO 6.020(2) provides, in full:

“New Streets. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, topographical conditions, public convenience and safety, and the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried considering the terrain. The subdivision shall provide for the continuation of the principal streets existing in the adjoining subdivision or of their proper projection. Where, in the opinion of the Hearings Body, topographic conditions make such continuation or conformity impractical, exception may be made. In cases where the City may adopt a plan or plat of a neighborhood or area of which the subdivision is a part, the subdivision shall conform to such adopted neighborhood or area plan. All streets shall be improved to City standards with curbs, paving, drainage facilities and medians if required.”

1 require curbs for a particular type of street, neither does BSO 6.020(2). With that understanding,  
2 we see no reversible error in the hearings officer's findings under BSO 6.020(2). This  
3 subassignment of error is denied.

4 **C. BSO 6.020(3)**

5 BSO 6.020(3) permits a cul-de-sac only when certain circumstances are present, including  
6 where "existing development on adjacent property prevents a street connection."<sup>7</sup> The hearings  
7 officer approved the cul-de-sac because "the applicant's property contains a large established  
8 family home and any such connection [of Red Oak Drive to Eagle Road] would require its  
9 removal." Record 43.<sup>8</sup>

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<sup>7</sup> BSO 6.020(3) provides:

"Street Layout and Cul-de-sacs. The street layout shall be generally in a rectangular grid pattern to provide or continue a network of inter-connecting streets. The subdivision streets shall be oriented on an east/west axis to the greatest extent possible to ensure solar access for lots within the subdivision. The grid pattern may be modified to adapt to topography and natural conditions. Cul-de-sacs and dead end streets shall only be permitted when the following conditions are met:

"A. One or more of the following conditions prevent a required street connection:

- natural slopes of 18% or more where it is not practical to construct streets with grades of 12%; or
- presence of a wetland or water body which cannot be crossed; or existing development on adjacent property prevents a street connection; and

"B. A street pattern which either meets standards for connections and spacing or requires less deviation from standards is not possible; \* \* \*"

<sup>8</sup> The decision states, in relevant part:

"The applicant has modified the subdivision proposal to include a cul-de-sac instead of another road connection to Eagle Road. The hearings officer finds that this connection is unnecessary given the number of already approved or planned connections. As described above the applicant's property contains a large established family home and any such connection would require its removal. The cul-de-sac includes a pedestrian access corridor at its terminus. While private streets are reviewed on case by case bases, the existing home, shape of the lot, requirements to create compatible infill and reduce neighborhood cut-through, makes the private road extension of Red Oak Drive appropriate in this case. The 'Future Street' and 'C' Street connections are proposed as a way to address block length and continue the street grid to adjoining properties where appropriate." Record 43.

1           Petitioner points out that BSO 6.020(3)(A) allows a cul-de-sac based on “existing  
2 development” only where the development is on “adjacent property.” The existing dwelling at the  
3 east end of the subject property is part of the property, petitioner argues, not on “adjacent  
4 property.” Even if the dwelling were on adjacent property, petitioner contends, there is no finding  
5 or explanation that a street pattern that either meets the standards for connections or requires less  
6 deviation from those standards is not possible, under BSO 6.020(3)(B). Petitioner notes, as do the  
7 findings, that the original tentative plan proposed that Red Oak Drive connect to Eagle Road, by  
8 going north of the existing dwelling. That proposed street pattern was changed, apparently at the  
9 request of neighbors to the west of the subject property, who did not want Red Oak Drive to  
10 become a through-street to Eagle Road. Petitioner argues that a street pattern without a cul-de-sac  
11 and without removing the existing dwelling is obviously possible. Even if moving or removing the  
12 existing dwelling were necessary to connect Red Oak Drive to Eagle Road, petitioner contends,  
13 there is no reason why the city could not require that the dwelling be moved or removed.

14           Intervenors do not respond to this argument. The hearings officer’s finding that “any  
15 connection” of Red Oak Drive to Eagle Road would require removing the existing dwelling is not  
16 supported by the record, as evidenced by the originally submitted tentative plan, which proposed  
17 just such a connection without removing the house. Further, petitioner is correct that under  
18 BSO 6.020(3)(A) “existing development” is only a basis for allowing a cul-de-sac where that  
19 development is on “adjacent property.” One could presumably avoid that restriction in the present  
20 case, by simply partitioning the parcel including the dwelling from the rest of the subject property,  
21 and then seeking subdivision plan approval for that remainder parcel. However, even if we assume  
22 that the restriction can be avoided in that manner, petitioner is correct that BSO 6.020(3)(A) and

1 (B) are conjunctive, and the decision does not explain why a cul-de-sac is warranted under  
2 BSO 6.020(3)(B).<sup>9</sup> This subassignment of error is sustained.

3 **D. BSO 6.020(7)**

4 BSO 6.020(7) requires that “street right-of-way and roadway surfacing widths shall be in  
5 conformance with the standards and specifications” set forth in Table A for public streets and Table  
6 B for private streets. As noted, Table B allows a private street with 20 feet of paved width if no  
7 curbs are proposed, but requires 24 feet of paved width if curbs are proposed. The hearings  
8 officer’s finding under BSO 6.020(7) states, in full:

9 “According to the latest revised tentative plan all existing and proposed streets will  
10 meet the City of Bend standards for both public and private streets. The private  
11 street will be bounded by curbed sidewalks directing water to catch basins. This  
12 criterion is met.” Record 44.

13 Petitioner argued below that without curbs there is nothing that will direct storm drainage to  
14 catch basins, and that water will simply flow over the flush sidewalks onto the adjoining lots, given  
15 the slope depicted on the street cross-sections. *See* Record 182 (letter from engineer opining that  
16 curbs are necessary to direct water to catch basins); Record 195. Petitioner also argued that  
17 adding curbs would require an additional four feet of right-of-way, in order to comply with the  
18 standards in Table B, which may affect lot configuration and minimum lot sizes. Petitioner notes the  
19 additional complication that the hearings officer found that the private street “will be bounded by  
20 curbed sidewalks directing water to catch basins,” notwithstanding that the approved tentative plan  
21 does not appear to propose curbs on the private street.<sup>10</sup> According to petitioner, remand is  
22 necessary to address the following issues: (1) whether the decision requires curbs; (2) if so,

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<sup>9</sup> It was suggested at oral argument that there may be access spacing or sight line reasons why a connection between Red Oak Drive and Eagle Road would be inconsistent with applicable standards. The hearings officer should address such matters on remand.

<sup>10</sup> At oral argument, intervenors’ attorney first asserted that the tentative plan did propose curbs, but later seemed to withdraw that assertion. As far as we can tell from the approved plan, no curbs are proposed on the private street portion of Red Oak Drive.

1 whether the plan needs to be revised to reflect a 24-foot paved width and a 34-foot right of way to  
2 comply with Table B; (3) if not, how storm drainage will be directed to the catch basins absent  
3 curbs.

4 Intervenor again do not provide any meaningful response to this subassignment of error.  
5 We agree with petitioner that remand is necessary to address the foregoing issues. This  
6 subassignment of error is sustained.

7 **E. BSO 6.020(14)**

8 BSO 6.020(14) requires that sidewalks shall be installed at the property line. Petitioner  
9 cites language from the Wolfe decision in which the hearings officer opines that sidewalks on private  
10 streets must include planting strips just like public streets, and therefore that sidewalks on private  
11 streets cannot be street tight. Petitioner adopts that language as his argument that, in the present  
12 case, BSO 6.020(14) and Table B effectively require planting strips on all streets and effectively  
13 prohibit street-tight sidewalks.

14 The hearings officer in the present case found that the applicant proposes sidewalks installed  
15 at the property line, which is all that BSO 6.020(14) requires. BSO 6.020(14) says nothing about  
16 planting strips, and nothing about street-tight sidewalks. Unlike Table A, governing public streets,  
17 Table B requires no planting strip at all for any private street.<sup>11</sup> We do not understand petitioner's  
18 adopted argument from the Wolfe decision. This subassignment of error is denied.

19 **F. BSO 6.020(16)**

20 BSO 6.020(16) requires in relevant part that “[t]he street is connected to a grid pattern at  
21 both ends” and that “[b]locks shall have dedicated public alley access constructed to City  
22 standards.”<sup>12</sup> The hearings officer's finding under BSO 6.020(16) states, in full: “Since the

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<sup>11</sup> Table B indicates “N/A” for all private streets under the column for “Minimum Planter Strip Width.”

<sup>12</sup> BSO 6.020(16) provides:

“Performance Standards for Local Residential Streets.

1 applicant is proposing a private street with a width of 20-feet, as a condition of approval, ‘No  
2 Parking’ signs shall be placed on both sides of the road and spaced to City of Bend Standards and  
3 Specifications.” Record 47.

4 Petitioner argues that while the above-quoted finding may be responsive to  
5 BSO 6.020(16)(D) and (E), it does not address the requirements at BSO 6.020(16)(B) and (C)  
6 that “the street is connected to a grid pattern at both ends” and that blocks “shall have dedicated  
7 public alley access.”

8 Intervenor again does not respond to this argument. Although it is not clear to us that  
9 BSO 6.020(16)(B) and (C) apply to a private street ending in a cul-de-sac, or what they would  
10 require if they do apply, absent some finding or response on this point we agree with petitioner that  
11 remand is necessary to adopt findings addressing the applicability of and compliance with  
12 BSO 6.020(16)(B) and (C). This subassignment of error is sustained.

13 The third assignment of error is sustained, in part.

14 **FOURTH ASSIGNMENT OF ERROR**

15 BSO 6.030(2) requires in relevant part that

16 “No block shall be longer than 1,200 feet between the centerline of through cross  
17 streets *except in residential subdivisions where no block shall be longer than*  
18 *600 feet between the centerline of through cross streets* and where street  
19 location is restricted by natural topography, wetlands, or other bodies of water.”  
20 (Emphasis added.)

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“A. Average daily traffic volumes on the local street does not exceed 300 ADT.

“B. The street is connected to a grid street pattern at both ends.

“C. Blocks shall have dedicated public alley access constructed to City standards.

“D. ‘No Parking’ zones are established 55 feet from the centerline of intersecting local streets.

“E. For block lengths exceeding 300 feet, ‘No Parking’ zones shall be established on either sides of the street spaced no greater than 250 feet apart. The ‘No Parking’ zones shall be a minimum of 30 feet in length.”

1           The hearings officer found that “[a]s shown on the tentative plan block, the proposed block  
2 lengths meet this proposal.” Record 47. Petitioner argues that in order to comply with the 600-foot  
3 block length requirement, the city must require a new street somewhere east of the “Future Street”  
4 connecting Red Oak Drive and Yellow Ribbon Drive.

5           We do not understand petitioner’s argument or the hearings officer’s terse finding. For that  
6 matter, we are unclear what BSO 6.030(2) requires. It appears to require in residential  
7 subdivisions that a block be no longer than 600 feet between the centerline of “through cross-  
8 streets.” As far as we can tell there are no “through cross-streets” depicted anywhere on the  
9 approved tentative plan: only T-intersections where Future, A and C streets intersect Red Oak  
10 Drive. It is not clear how one applies BSO 6.030(2) to a residential subdivision with a cul-de-sac  
11 and T-intersections. Given the lack of alternatives, it may be appropriate to determine block length  
12 for purposes of BSO 6.030(2) on some other basis than “through cross-streets.” However, the  
13 hearings officer needs to explain how block length is determined under BSO 6.030(2). Petitioner  
14 appears to be correct that, depending on where the “block” begins and ends, it is possible that at  
15 least the “block” that runs eastward from Future Street toward the end of the cul-de-sac is longer  
16 than 600 feet. Given the lack of assistance from the decision and intervenor on these issues, we  
17 agree with petitioner that remand is necessary to adopt more adequate findings addressing  
18 BSO 6.030(2).

19           The fourth assignment of error is sustained.

20           The city’s decision is remanded.



## CHAPTER 17.10 DEFINITIONS

### 17.10.00 INTENT

These definitions are intended to provide specific meanings for words and terms commonly used in zoning and land use regulations.

### 17.10.10 MEANING OF WORDS GENERALLY

All words and terms used in this Code have their commonly accepted dictionary meaning unless they are specifically defined in this Code or the context in which they are used clearly indicated to the contrary.

### 17.10.20 MEANING OF COMMON WORDS

- A. All words used in the present tense include the future tense.
- B. All words used in the plural include the singular, and all words used in the singular include the plural unless the context clearly indicates to the contrary.
- C. The word “shall” is mandatory and the word “may” is permissive.
- D. The word “building” includes the word “structure.”
- E. The phrase “used for” includes the phrases “arranged for,” “designed for,” “intended for,” “maintained for,” and “occupied for.”
- F. The word “land” and “property” are used interchangeably unless the context clearly indicates to the contrary.
- G. The word “person” may be taken for persons, associations, firms, partnerships or corporations.

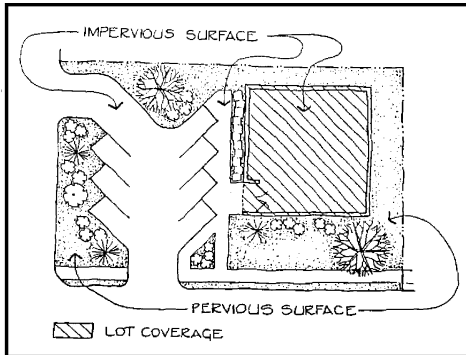
### 17.10.30 MEANING OF SPECIFIC WORDS AND TERMS

The listed specific words and terms are defined as follows:

**Abandonment:** To cease or discontinue a use or activity without intent to resume, but excluding temporary or short-term interruptions to a use or activity during periods of remodeling, maintaining or otherwise improving or rearranging a facility, or during normal periods of vacation or seasonal closure. An “intent to resume” can be shown through continuous operation of a portion of the facility, maintenance of sewer, water and other public utilities, or other outside proof of continuance such as bills of lading, delivery records, etc.

**Abandonment, Discontinued Use:** Discontinued use shall mean nonuse and shall not require a determination of the voluntary or involuntary use or intent to resume the use.

**Abutting Lots:** Two or more lots joined by a common boundary line or point. For the purposes of this definition, no boundary line shall be deemed interrupted by a road, street, alley or public



### Impervious Surface Example

**Irrigation System:** Method of supplying water (which can be manually or mechanically controlled) to a needed area.

**Junkyard:** An area used for the dismantling, storage or handling in any manner of junked vehicles or other machinery, or for the purpose of storage of dismantled material, junk and scrap, and/or where wastes and used or secondhand materials are bought, sold, exchanged, stored, processed, or handled. Materials include, but are not limited to, scrap iron and other metals, paper, rags, rubber tires, and bottles, if such activity is not incidental to the principal use of the same lot.

**kennel:** Any premises or building in which four or more dogs or cats at least four months of age are kept commercially for board, propagation or sale.

**Kitchen:** Any room used, intended or designed for preparation and storage of food, including any room having a sink and provision for a range or stove.

**Land Area, Net:** That land area remaining after all area covered by impervious surfaces has been excluded (subtracted).

**Land Division:** Land divided to create legally separate parcels in one of the following ways:

- A. **Partition:** A division of land that creates three or fewer lots within a calendar year when such parcel exists as a unit or contiguous units of land under single ownership at the beginning of the year. See also, "Replat, Minor."

**A partition does not include division of land resulting from any of the following:**

1. Establishment or modifications of a "tax lot" by the County Assessor;
2. A lien foreclosure, foreclosure of a recorded contract for the sale of real property or creation of cemetery lots;
3. An adjustment of a property line by relocation of a common boundary where an additional unit of land is not created and where the existing unit of land reduced in size by the adjustment complies with any applicable development district criteria established by this Code;
4. Sale or grant by a person to a public agency or public body for state highway, county road, city street or other right-of-way purposes **provided that such road or**

right-of-way complies with the applicable Comprehensive Plan policies and ORS 215.213 (2)(q)-(s) and 215.283 (2)(p)-(r). See “Property Line Adjustment.”

**B. Subdivision:** Division of an area or tract of land into four or more lots within a calendar year when such area or tract of land exists as a unit or contiguous units of land under a single ownership at the beginning of such year. See also, “Replat, Major.”

**Land, Intensity of:** Relative measure of development impact as defined by characteristics such as the number of dwelling units per acre, amount of traffic generated, and amount of site coverage.

**Land, Parcel of:** Any quantity of land capable of being described with such definiteness that its location and boundaries may be established. Also, a unit of land created by a partition.

**Landscape Management Corridor:** The required yards abutting Highway 26 within the C-2, I-I and I-2 zoning districts where the Development Code requires native conifer and deciduous landscaping, creating the appearance of a forested corridor; openings or breaks in the landscape corridor are minimized, allowing for transportation access and framed views into development sites.

**Landscaping:** The arrangement of trees, grass, bushes, shrubs, flowers, gardens, fountains, patios, decks, outdoor furniture, and paving materials in a yard space. It does not include the placing or installation of artificial plant materials.

**Legislative Decision:** Involves formulation of policy and as such, it is characteristic of the actions by a city council. *Ex-parte* contact requirements are not applicable to legislative hearings. Personal notice to citizens advising them of proposed changes is not required in most cases, although the Sandy Development Code specifies that in some cases notice shall be mailed to property owners if a decision will change the land-use designation. In general, the burden of being informed rests on the citizen. (See definition for “Limited Land Use Decision” and “Quasi-judicial Decision.”)

**Lien Foreclosure:** A lien foreclosure, foreclosure of a recorded contract for the sale of real property or creation of cemetery lots.

**Limited Land Use Decision:** A land use decision made by staff through an administrative process and that qualifies as a Limited Land Use Decision under ORS 197.015.

**Loading Space:** An off-street space within a building or on the same lot with a building for the temporary parking of commercial vehicles or trucks while loading or unloading merchandise or materials and which space has direct access to a street.

**Lot Area:** The total horizontal area within the lot lines of a lot.

**Lot, Corner:** A lot situated at the intersection of 2 streets, the interior angle of such intersection not exceeding 135 degrees.

## CHAPTER 17.12 - PROCEDURES FOR DECISION MAKING

### 17.12.00 TYPES OF PROCEDURES FOR TAKING PUBLIC ACTION

Three separate procedures are established for processing quasi-judicial development applications (Types I, II, and III) and one procedure (Type IV) is established for processing both legislative public actions which do not involve land use permits or which require consideration of a plan amendment, land use regulation or city policies and quasi-judicial applications.

#### 17.12.10 TYPE I – Administrative Review

Type I decisions are made by the Planning Director or someone he or she designates without public notice or a public hearing. The Type I procedure is used when applying standards and criteria to an application requires no use of discretion. A decision of the Director under the Type I procedure may be appealed by an affected party or referred by the Director in accordance with Chapter 17.28.

**Administrative Decision Requirements.** The City Planning Official or designee's decision shall address all of the approval criteria, including applicable requirements of any road authority. Based on the criteria and the facts contained within the record, the City Planning Official shall approve or deny the requested permit or action. A written record of the decision shall be provided to the applicant and kept on file at City Hall.

#### **Type of Applications:**

- A. Design review for single-family dwellings, duplex dwellings, manufactured homes on individual lots, manufactured homes within MH parks, accessory dwellings and structures.
- B. Design review for exterior building remodel or addition on a commercially or industrially zoned lot, where the proposed remodel or addition meets criteria in Section 17.90.40(A).
- C. Adjustments less than 10% of a quantifiable dimension which does not increase density
- D. Flood Slope and Hillside Development-Uses listed in 17.60.40 A.
- E. Minor Alteration of an Historic Resource
- F. Property Line Adjustments
- G. Tree removal involving less than 50 trees
- H. Type I FSH Review
- I. Minor Partition (no new street created)
- J. Administrative Variance

#### 17.12.20 TYPE II – Noticed Administrative Review

Type II decisions are made by the Planning Director or designee with public notice, and an opportunity for a public hearing if appealed. An appeal of a Type II decision is heard by the Planning Commission according to the provisions of Chapter 17.28. Notification of a Type II decision is sent according to the requirements of Chapter 17.22. If the Director contemplates persons other than the applicant can be expected to question the application's compliance with the Code, the Director may elevate an application to a Type III review.

#### **Types of Applications:**

- A. Design Review, except Type I Design Reviews under 17.12.10(B) and Type III Design Reviews under 17.12.30.
- B. Historic Preservation Provisions Procedures for Alteration of an Historic Resource
- C. Adjustments & Variances of up to 20% of a Quantifiable Dimension which does not increase density
- D. Subdivisions in compliance with all standards of the Development Code
- E. Partitions and Minor Replats
- F. Flood, Slope and Hillside Development and Density Transfer-Uses listed in 17.60.40
- G. Request for Interpretation
- H. Tree Removal Permit (greater than 50 trees)
- I. Minor Conditional Use Permit

**17.12.30 TYPE III**

Type III decisions generally use discretionary approval criteria and are made by the Planning Commission after a public hearing, in accordance with the provisions of Chapter 17.20. Appeal of a Type III decision is heard by the City Council according to the provisions of Chapter 17.28. Notification of a Type III decision is sent according to the requirements in Chapter 17.22. The Planning Commission may attach certain development or use conditions beyond those warranted for compliance with the standards in granting an approval if the Planning Commission determines the conditions are necessary to avoid imposing burdensome public service obligations on the City, to mitigate detrimental effects to others where such mitigation is consistent with an established policy of the City, and to otherwise fulfill the criteria for approval. If the application is approved, the Director will issue any necessary permits when the applicant has complied with the conditions set forth in the Final Order and other requirements of this Code.

**Types of Applications:**

- A. Appeal of a Director's decision
- B. Conditional Use Permit
- C. Design Review for projects on commercially or industrially zoned lots where the applicant has requested Type III Design Review or the Director has determined that the request involves one or more deviations from the design standards in Chapter 17.90.80 or 17.90.90 (C-1 Design Standards and C-2/I-1/I-2 Design Standards) and such deviation is not subject to an Adjustment or Variance process under 17.66.
- D. Flood, Slope, and Hillside Development-Uses not listed in 17.50.60 A & B
- E. Major Amendment to a Specific Area Plan
- F. Special Variance
- G. Subdivisions and Major Replats that are elevated by the Director or not in conformance with the Development Code
- H. Variances greater than 20% of a quantifiable dimension or variances which increase density
- I. Village Concept Plan and Village Master Plan
- J. Zoning map amendment, where the proposal comprises one parcel (or multiple parcels covering a small area) and the proposed zoning conforms to the Comprehensive Plan Map.

**17.12.40 TYPE IV**

Type IV decisions are usually legislative but may be quasi-judicial.

Type IV (Quasi-Judicial) procedures apply to individual properties. This type of application is generally considered initially by the Planning Commission with final decisions made by the City Council.

Type IV (Legislative) procedures apply to legislative matters. Legislative matters involve the creation, revision, or large-scale implementation of public policy (e.g., adoption of land use regulations, zone changes, and comprehensive plan amendments that apply to entire districts, not just one property). Type IV matters are typically considered first by the Planning Commission with final decisions made by the City Council. Occasionally, the Planning Commission will not consider a legislative matter prior to its consideration by the City Council.

Applications processed under a Type IV procedure involve a public hearing pursuant to the requirements of Chapter 17.20. Notification of this public hearing shall be noticed according to the requirements of Chapter 17.22 with appeal of a Type IV decision made to the state Land Use Board of Appeals according to the provisions of Chapter 17.28.

- A. The City Council shall consider the recommendation of the Planning Commission and shall conduct a public hearing pursuant to Chapter 17.20. The Director shall set a date for the hearing. The form of notice and persons to receive notice are as required by the relevant sections of this Code. At the public hearing, the staff shall review the report of the Planning Commission and provide other pertinent information, and interested persons shall be given the opportunity to present new testimony and information relevant to the proposal that was not heard before the Planning Commission and make final arguments why the matter should or should not be approved and, if approved, the nature of the provisions to be contained in approving action.
- B. To the extent that a finding of fact is required, the City Council shall make a finding for each of the applicable criterion and in doing so may sustain or reverse a finding of the Planning Commission. The City Council may delete, add or modify any of the provisions pertaining to the proposal or attach certain development or use conditions beyond those warranted for compliance with standards in granting an approval if the City Council determines the conditions are appropriate to fulfill the criteria for approval.
- C. To the extent that a policy is to be established or revised, the City Council shall make its decision after information from the hearing has been received. The decision shall become effective by passage of an ordinance.

D. Types of Applications

1. Appeal of Planning Commission decision
2. Comprehensive Plan text or map amendment
3. Zoning District Map changes
4. Planned Developments
5. Village Specific Area Plan (master plan)
6. Annexations
7. Extension of City Services Outside the City Limits
8. Vacating of Public Lands and Plats
9. Zoning Map Overlay Districts

E. Timing of Requests. The City accepts legislative requests twice yearly, in March and September. The City Council may initiate its own legislative proposals at any time.

## **CHAPTER 17.18 - PROCESSING APPLICATIONS**

### **17.18.00 PROCEDURES FOR PROCESSING LAND USE APPLICATIONS**

An application shall be processed under a Type I, II, III or IV procedure. The differences between the procedures are generally associated with the different nature of the decisions as described in Chapter 17.12.

When an application and proposed development is submitted, the Director shall determine the type of procedure the Code specifies for its processing and the potentially affected agencies.

If a development proposal requires an applicant to file a land use application with the city (e.g. a design review application) and if there is a question as to the appropriate procedure to guide review of the application (e.g. a Type II versus a Type III design review process), the question will be resolved in favor of the lower type number.

If a development proposal requires an applicant to file more than one land use application with the city (e.g. a design review application and a variance) and if the development code provides that the applications are to be reviewed under separate types of procedures (e.g. a Type II design review and a Type III variance):

- the Director will generally elevate all of the required applications to the highest number procedure for review (e.g. the Type II design review application would be reviewed by the Planning Commission along with the Type III variance).

In situations where an applicant has attended a pre-application conference and has reviewed the application with the Director prior to submitting the applications, the Director may exercise his/her discretion to review the Type II application(s) at the staff level and only schedule a public hearing for the Type III portion(s) of the development proposal.

### **17.18.10 COORDINATION OF PERMIT PROCEDURE**

The Director shall be responsible for the coordination of the permit application and decision-making procedure and shall issue any necessary permits to an applicant whose application and proposed development is in compliance with the provisions of this Code. Sufficient information shall be submitted to resolve all determinations that require furnishing notice to persons other than the applicant. In the case of a Type II or Type III procedure, an applicant may defer submission of details demonstrating compliance with standards where such detail is not relevant to the approval under those procedures. Before issuing any permits, the Director shall be provided with the detail required to establish full compliance with the requirements of this Code.

### **17.18.20 PRE-APPLICATION CONFERENCE**

A pre-application conference is required for all Type II, III, and IV applications unless the Director determines a conference is not needed. A request for a pre-application conference shall be made on the form provided by the city and will be scheduled following submittal of required materials and payment of fees. The purpose of the conference is to acquaint the applicant with the substantive and procedural requirements of the Code, provide for an exchange of information regarding applicable elements of the Comprehensive Plan and development requirements, arrange such technical and design assistance which will aid the applicant, and to otherwise

identify policies and regulations that create opportunities or pose significant constraints for the proposed development. The Director will provide the applicant with notes from the conference within 10 days of the conference. These notes may include confirmation of the procedures to be used to process the application, a list of materials to be submitted, and the applicable code sections and criteria that may apply to the application. Any opinion expressed by the Director or City staff during a pre-application conference regarding substantive provisions of the City's code is advisory and is subject to change upon official review of the application.

### **17.18.30 LAND USE APPLICATION MATERIALS**

Unless otherwise specified in this code, an application shall consist of the materials specified in this section, plus any other materials required by this Code.

- A. A completed application form and payment of fees.
- B. List and mailing labels of Affected Property Owners.
- C. An explanation of intent, stating the nature of the proposed development, reasons for the request, pertinent background information, information required by the Development Code and other material that may have a bearing in determining the action to be taken.
- D. Proof that the property affected by the application is in the exclusive ownership of the applicant, that the applicant has the consent of all parties in ownership of the affected property, or the applicant is the contractual owner.
- E. Legal description of the property affected by the application.
- F. Written narrative addressing applicable code chapters and approval criteria.
- G. Vicinity Map showing site in relation to local and collector streets, plus any other significant features in the nearby area.
- F. Site plan of proposed development
- G. Number of Copies to be Submitted:
  - 1. One copy of items A through D listed above;
  - 2. Type I: 2 copies of site plan and other materials required by the Code.
  - 3. Type II: 8 copies of site plan and other materials required by the Code
  - 4. Type III: 15 copies of site plan and other materials required by the Code
  - 5. Type IV 20 copies of site plan and other materials required by the Code

The Director may vary the quantity of materials to be submitted as deemed necessary.

### **17.18.40 APPLICATION ACCEPTANCE AND COMPLETENESS REVIEW**

- A. Acceptance. When an application is received by the City, the Director or designee shall determine whether the following essential items are present. If the following items are not present, the application shall not be accepted by the City and it shall be returned to the applicant;



1. The required form;
  2. The required fee;
  3. The signature of the applicant on the required form and signed written authorization of the property owner of record if the applicant is not the owner.
- B. Completeness Review. After an application is accepted, the Director or designee shall review the application for completeness. If the application is incomplete, the Director or designee shall notify the applicant in writing of what information is missing within 30 days of receipt of the application and allow the applicant to submit the missing information.
- C. Application deemed complete for review. In accordance with the application submittal requirements, the application shall be deemed complete upon the receipt by the Director or designee of:
- (1) All of the missing information identified by the Director; or
  - (2) Some of the missing information and written notice that no other information will be provided to the City; or
  - (3) Written notice that none of the missing information will be provided to the City.
- D. Application void. On the 181<sup>st</sup> day after first being submitted, the application is void if the Director has notified the applicant of missing information and the applicant has not responded as described in subsection C (1) – (3) above.

#### **17.18.50 REFERRAL AND REVIEW OF APPLICATIONS**

Within 10 working days of accepting an application as complete, the Director shall:

- A. Transmit one copy of the application, or appropriate parts of the application, to each referral agency for review and comment, including those responsible for determination of compliance with state and federal requirements.
- B. If a Type II, III or IV procedure is required, provide for notice and hearing as set forth in Chapters 17.20 and 17.22.

#### **17.18.60 STAFF EVALUATION**

The Director shall prepare a report that evaluates whether the proposal complies with the review criteria.

#### **17.18.70 TYPE II DEVELOPMENT DECISION**

- A. Within 60 days of the date of accepting an application, the Director shall grant or deny the request. The decision of the Director shall be based upon the application, the evidence, comments from referral agencies and affected property owners, and approvals required by others. After the decision is made, the Director shall notify the applicant and, if required, others entitled to notice of the disposition of the application. The notice shall indicate the date that the decision will take effect and describe the right of appeal pursuant to Chapter 17.28.

- B. The Director shall approve a development if he finds that applicable approvals by others have been granted and the proposed development otherwise conforms to the requirements of this Code.
- C. The Director shall deny the development if required approvals are not obtained or the application otherwise fails to comply with Code requirements. The notice shall describe the reason for denial.

**17.18.80 TYPE III OR IV DECISION**

The Director shall schedule a public hearing in accordance with procedures listed in Chapter 17.20.

**17.18.90 REAPPLICATION FOLLOWING DENIAL**

Upon final denial of a development proposal or a denial of an annexation request by the City Council or the voters, a new application for the same development or any portion thereof or the same annexation or any portion thereof may not be heard for a period of one year from the date of denial. Upon consideration of a written statement by the applicant showing how the proposal has been sufficiently modified to overcome the findings for denial or that conditions have changed sufficiently to justify reconsideration of the original of a similar proposal, the Director may waive the one-year waiting period.

**17.18.100 LEGISLATIVE ENACTMENTS NOT RESTRICTED**

Nothing in Chapter 17 shall limit the authority of the City Council to make changes in zoning districts or requirements as part of some more extensive revision of the Comprehensive Plan or the implementing ordinances. Nothing in this article shall relieve a use or development from compliance with other applicable laws.

**17.18.110 EXPEDITED LAND DIVISION**

A land division shall be processed pursuant to the expedited land division procedures set forth in ORS Chapter 197 if (a) the land division qualifies as an expedited land division as that term is defined in ORS Chapter 197 and (b) the applicant requests the land division to be processed as an expedited land division.

**17.18.120 120-DAY RULE; TIME COMPUTATION**

Final Decision. Except as allowed for Type IV decisions and applications subject to Section 17.18.110, a land use decision on a “permit” as that term is defined in state law must be finalized, including resolution of any local appeal by the City Council, no later than 120 days from the date the application is deemed complete, unless the applicant requests an extension in writing.

Time Computation. In computing any period of time prescribed or allowed by this Code, the day of the act or event from which the specified period of time begins to run shall not be included. The last day of the period so computed shall be included, unless it is a Saturday, Sunday, or legal holiday, including a holiday falling on Sunday, in which event, the period runs until close of business the next day which is not a Saturday, Sunday, or legal holiday.

## CHAPTER 17.30 - ZONING DISTRICTS

### 17.30.00 ZONING DISTRICT DESIGNATIONS

For the purposes of this title, the city is divided into districts designated as follows:

DISTRICT	SYMBOL
<b>Parks and Open Space</b>	<b>POS</b>
<b>Residential</b>	
Single Family Residential	<b>SFR</b>
Low Density Residential	<b>R-1</b>
Medium Density Residential	<b>R-2</b>
High Density Residential	<b>R-3</b>
<b>Commercial</b>	
Central Business District	<b>C-1</b>
General Commercial	<b>C-2</b>
Village Commercial	<b>C-3</b>
<b>Industrial</b>	
Industrial Park	<b>I-1</b>
Light Industrial	<b>I-2</b>
General Industrial	<b>I-3</b>
<b>Overlay Districts</b>	
Planned Development	<b>PD</b>
Cultural & Historic Resource	<b>CHR</b>
Flood Slope Hazard	<b>FSH</b>
Specific Area Plan Overlay	<b>SAP</b>

### 17.30.10 ZONING MAP

The Zoning Map is incorporated herein and is deemed as much a part of this Code as if fully set forth. If a conflict appears between the Zoning Map and the written portion of this Code, the written portion shall control. The map and each amendment shall remain on file in the Planning Director's Office.

The boundaries of all districts are established as shown on the Zoning Map, which is made a part of this Code. All notations and references and other matters shown shall be and are hereby made part of this Code.

### 17.30.20 RESIDENTIAL DENSITY CALCULATION PROCEDURE

The number of dwelling units permitted on a parcel of land is calculated after the determination of the net site area and the acreage of any restricted development areas (as defined by Chapter 17.60). Limited density transfers are permitted from restricted development areas to unrestricted areas **consistent with** the provisions of the Flood and Slope Hazard Area Overlay District, Chapter 17.60.

Calculation of Net Site Area (NSA): Net site area should be calculated in acres based upon a survey of the property boundaries excluding areas dedicated for public use.

A. Minimum and Maximum Dwelling Units for Sites with No Restricted Areas

The allowable range of housing units on a piece of property is calculated by multiplying the net site area (NSA) in acres by the minimum and maximum number of dwelling units allowed in that zone.

For example: A site (NSA) containing 10 acres in the Single Family Residential Zoning District requires a minimum of 30 units and allows a maximum of 58 units. (NSA x 3 units/acre = 30 units minimum) (NSA x 5.8 units/acre = 58 units maximum)

B. Minimum and Maximum Dwelling Units for Sites with Restricted Areas

1. Unrestricted Site Area: To calculate unrestricted site area (USA): subtract all restricted development areas (RDA) as defined by Section 17.60.20(A) from the net site area (NSA), if applicable.

$$\text{NSA} - \text{RDA} = \text{USA}$$

2. Minimum Required Dwelling Units: The minimum number of dwelling units required for the site is calculated using the following formula:

USA (in acres) x Minimum Density (Units per Acre) of Zoning District = Minimum Number of Dwelling Units Required.

3. Maximum Allowed Dwelling Units: The maximum number of dwelling units allowed on a site is the lesser of the results of these two formulas:

a. NSA (in acres) x Maximum Density of Zoning District (units/acre)

b. USA (in acres) x Maximum Density of Zoning District (units/acre) x 1.5 (maximum allowable density transfer based on Chapter 17.60)

For example: suppose a site in a zone with a maximum density of eight (8) units per acre has 6 acres of unrestricted site area (USA= 6) and two acres of restricted development area (RDA=2), for a total net site area of 8 acres (NSA= 8). Then NSA (8) x 8 units/acre = 64 and USA (6) x 8 units/acre x 1.5 = 72, so the maximum permitted number of dwelling units is 64 (the lesser of the two results).

- C. Lot Sizes: Lot sizes shall comply with any minimum lot size standards of the underlying zoning district.

- D. Rounding: A dwelling unit figure is rounded down to the nearest whole number for all total maximum or minimum figures less than four dwelling units. For dwelling unit figures greater than four dwellings units, a partial figure of one-half or greater is rounded up to the next whole number.

For example: A calculation of 3.7 units is rounded down to 3 units. A calculation of 4.2 units is rounded down to 4 units and a calculation of 4.5 units is rounded up to 5 units.

## CHAPTER 17.34 - SINGLE-FAMILY RESIDENTIAL (SFR)

### 17.34.00 INTENT

The district is intended to implement the Low Density Residential Comprehensive Plan designation by providing for low-density residential development in specific areas of the city. The purpose of this district is to allow **limited development** of property while not precluding more dense future development, as urban services become available. Density shall not be less than 3 or more than 5.8 units per net acre.

### 17.34.10 PERMITTED USES

#### A. Primary Uses Permitted Outright:

1. Single detached dwelling subject to design standards in Chapter 17.90;
2. Single detached manufactured dwelling subject to design standards in Chapter 17.90;

#### B. Accessory Uses Permitted Outright:

1. Accessory dwelling unit subject to the provisions in Chapter 17.74;
2. Accessory structure, detached or attached subject to the provisions in Chapter 17.74;
3. Family day care, as defined in Chapter 17.10 subject to any conditions imposed on the residential dwellings in the zone;
4. Home business subject to the provisions in Chapter 17.74;
5. Livestock and small animals, excluding carnivorous exotic animals: The keeping, but not the propagating, for solely domestic purposes on a lot having a minimum area of one acre. The structures for the housing of such livestock shall be located within the rear yard and at a minimum distance of 100 feet from an adjoining lot in any residential zoning district;
6. Minor utility facility;
7. Other development customarily incidental to the primary use.

### 17.34.20 MINOR CONDITIONAL USES AND CONDITIONAL USES

#### A. Minor Conditional Uses:

1. Accessory structures for agricultural, horticultural or animal husbandry use in excess of the size limits in Chapter 17.74;
2. Single detached or attached zero lot line dwelling;
3. Duplex;
4. Projections or free-standing structures such as chimneys, spires, belfries, domes, monuments, fire and hose towers, observation towers, transmission towers, flagpoles, radio and television towers, masts, aerials, cooling towers and similar structures or facilities not used for human occupancy exceeding 35 feet in height;
5. Other uses similar in nature.

#### B. Conditional Uses:

1. Community services;
2. Funeral and interment services, cemetery, mausoleum or crematorium;
3. Golf course and club house, pitch-and-putt, but not garden or miniature golf or golf driving range;

4. Hospital or home for the aged, retirement, rest or convalescent home;
5. Lodges, fraternal and civic assembly;
6. Major utility facility;
7. Preschool, orphanage, kindergarten or commercial day care;
8. Residential care facility [ORS 443.000 to 443.825];
9. Schools (public, private, parochial or other educational institution and supporting dormitory facilities, excluding colleges and universities);
10. Other uses similar in nature.

### 17.34.30 DEVELOPMENT STANDARDS

Type	Standard
A. Minimum Lot Area - Single detached dwelling - Other permitted uses	7,500 square ft. No minimum
B. Minimum Average Lot Width - Single detached dwelling	60 ft.
C. Minimum Lot Frontage	20 ft. except as allowed by Section 17.100.160
D. Minimum Average Lot Depth	No minimum
E. Setbacks (Main Building) Front yard Rear yard Side yard (interior) Corner Lot	10 ft. minimum 20 ft. minimum 7.5 ft. minimum 10 ft. minimum on side abutting the street <sup>1</sup>
F. Setbacks (Garage/Carport)	22 ft. minimum for front vehicle access 15 ft. minimum if entrance is perpendicular to street (subject to Section 17.90.220) 5 ft. minimum for alley or rear access
G. Projections into Required Setbacks	See Chapter 17.74
H. Accessory Structures in Required Setbacks	See Chapter 17.74
I. Structure Height	35 ft. maximum
J. Building Site Coverage	No minimum
K. Off-Street Parking	See Chapter 17.98

### 17.34.40 MINIMUM REQUIREMENTS

- A. Must connect to municipal water.
- B. Must connect to municipal sewer if service is currently within 200 feet of the site. Sites more than 200 feet from municipal sewer, **may be approved** to connect to an alternative disposal system provided all of the following are satisfied:
  1. A county septic permit is secured and a copy is provided to the city;
  2. The property owner executes a waiver of remonstrance to a local improvement district and/or signs a deed restriction agreeing to complete improvements, including but not limited, to curbs, sidewalks, sanitary sewer, water, storm sewer **or other improvements which directly benefit the property;**

<sup>1</sup> Must comply with clear vision requirements of Chapter 17.74.  
17.34 - 2

3. The minimum size of the property is one acre or is a **pre-existing buildable lot, as determined by the city;**
  4. Site consists of a **buildable parcel(s)** created through dividing property in the city, which is less than five acres in size.
- C. The location of any real improvements to the property must provide for a future street network to be developed.
  - D. Must have frontage or approved access to public streets.

**17.34.50 ADDITIONAL REQUIREMENTS**

- A. Design review as specified in Chapter 17.90 is required for all uses.
- B. Lots with 40 feet or less of street frontage shall be accessed by a rear alley or a shared private driveway.
- C. Lots with alley access may be up to 10 percent smaller than the minimum lot size of the zone.
- D. Zero Lot Line Dwellings: Prior to building permit approval, the applicant shall submit a recorded easement between the subject property and the abutting lot next to the yard having the zero setback. This easement shall be **sufficient to guarantee rights for maintenance purposes** of structures and yard, but in no case shall it be less than 5 ft. in width.

## CHAPTER 17.80 - ADDITIONAL SETBACKS ON COLLECTOR & ARTERIAL STREETS

### 17.80.00 INTENT

The requirement of additional special setbacks for development on arterial or collector is intended to provide better light, air and vision on more heavily traveled streets. The additional setback, on substandard streets, will protect collector and arterial streets and permit the eventual widening of streets.

### 17.80.10 APPLICABILITY

These regulations apply to all collector and arterial streets as identified in the latest adopted Sandy Transportation System Plan (TSP). The Central Business District (C-1) is exempt from Chapter 17.80 regulations.

### 17.80.20 SPECIFIC SETBACKS

Any structure located on streets listed above or identified in the Transportation System Plan as arterials or collectors shall have a minimum setback of 20 feet measured from the property line. This applies to applicable front, rear and side yards.



## CHAPTER 17.82 - SPECIAL SETBACKS ON TRANSIT STREETS

### 17.82.00 INTENT

The intent is to provide for **convenient, direct, and accessible** pedestrian access to and from public sidewalks and transit facilities; provide a **safe, pleasant and enjoyable** pedestrian experience by connecting activities within a structure to the adjacent sidewalk and/or transit street; and, promote the use of pedestrian, bicycle, and transit modes of transportation.

### 17.82.10 APPLICABILITY

This chapter applies to all residential development located adjacent to a transit street. A transit street is defined as any street designated as a collector or arterial, **unless otherwise designated in the Transit System Plan.**

### 17.82.20 BUILDING ORIENTATION

- A. All residential dwellings shall have their primary entrances oriented toward a transit street rather than a parking area, or if not adjacent to a transit street, toward a public right-of-way or private walkway which leads to a transit street.
- B. Dwellings shall have a primary entrance connecting directly between the street and building interior. A **clearly marked, convenient, safe** and lighted pedestrian route shall be provided to the entrance, from the transit street. The pedestrian route shall consist of materials such as concrete, asphalt, stone, brick, permeable pavers, or **other materials as approved by the Director.** The pedestrian path shall be permanently affixed to the ground with gravel subsurface or a **comparable subsurface as approved by the Director.**
- C. Primary dwelling entrances shall be architecturally emphasized and visible from the street and shall include a covered porch at least 5 feet in depth.
- D. If the site has frontage on more than one transit street, the dwelling shall provide one main entrance oriented to a transit street or to a corner where two transit streets intersect.

**CHAPTER 17.84  
IMPROVEMENTS REQUIRED WITH DEVELOPMENT**

**17.84.00 INTENT**

This chapter provides general information regarding improvements required with residential, commercial, and industrial development. It is intended to clarify timing, extent, and standards for improvements required in conjunction with development. In addition to the standards in this chapter, additional standards for specific situations are contained in other chapters.

**17.84.10 EXCEPTIONS**

Single family residential development on existing lots is exempt from this chapter, with the exception of 17.84.30 Pedestrian and Bicyclist Requirements.

**17.84.20 TIMING OF IMPROVEMENTS**

- A. All improvements required by the standards in this chapter shall be installed concurrently with development, as follows:
  - 1. Where a land division is proposed, each proposed lot shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to approval of the final plat.
  - 2. Where a land division is not proposed, the site shall have required public and franchise utility improvements installed or financially guaranteed in accordance with the provisions of Chapter 17 prior to temporary or final occupancy of structures.
- B. Where specific approval for a phasing plan has been granted for a planned development and/or subdivision, improvements may similarly be phased in accordance with that plan.

**17.84.30 PEDESTRIAN AND BICYCLIST REQUIREMENTS**

- A. Sidewalks shall be required along both sides of all arterial, collector, and local streets, as follows:
  - 1. Sidewalks shall be a minimum of five (5) ft. wide on local streets. The sidewalks shall be separated from curbs by a tree planting area that provides separation between sidewalk and curb, unless modified in accordance with Subsection 3 below.
  - 2. Sidewalks along arterial and collector streets shall be separated from curbs with a planting area, except as necessary to continue an existing curb-tight sidewalk. The planting area shall be landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of six (6) ft. wide.
  - 3. Sidewalk improvements shall be made according to City standards, unless the City determines that the public benefit in the particular case does not warrant imposing a severe adverse impact to a natural or other significant feature such as requiring removal of a mature tree, requiring undue grading, or requiring modification to an existing building. Any exceptions to the standards shall generally be in the following order.
    - a) Narrow landscape strips
    - b) Narrow sidewalk or portion of sidewalk to no less than four (4) feet in width
    - c) Eliminate landscape strips
    - d) Narrow on-street improvements by eliminating on-street parking

- e) Eliminate sidewalks
- 4. The timing of the installation of sidewalks shall be as follows:
  - a) Sidewalks and planted areas along arterial and collector streets shall be installed with street improvements, or with development of the site if street improvements are deferred.
  - b) Sidewalks along local streets shall be installed in conjunction with development of the site, generally with building permits, except as noted in (c) below.
  - c) Where sidewalks on local streets abut common areas, tracts, drainageways, or other publicly owned or semi-publicly owned areas, the sidewalks and planted areas shall be installed with street improvements.
- B. **Safe and convenient** pedestrian and bicyclist facilities that strive to **minimize** travel distance **to the extent practicable** shall be provided in conjunction with new development within and between new subdivisions, planned developments, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks, as follows:
  - 1. For the purposes of this section, “safe and convenient” means pedestrian and bicyclist facilities that: are **reasonably free** from hazards which would interfere with or discourage travel for short trips; provide a direct route of travel between destinations; and meet the travel needs of pedestrians and bicyclists considering destination and length of trip.
  - 2. To meet the intent of “B” above, rights-of-way connecting cul-de-sacs or passing through **unusually long** or **oddly shaped** blocks shall be a minimum of 15 ft. wide with eight (8) feet of pavement.
  - 3. 12 ft. wide pathways shall be provided in areas with **high bicycle volumes** or multi-use by bicyclists, pedestrians, and joggers.
  - 4. Pathways and sidewalks shall be encouraged in new developments by clustering buildings or constructing **convenient** pedestrian ways. Pedestrian walkways shall be provided in accordance with the following standards:
    - a) The pedestrian circulation system shall be at least five (5) feet in width and shall connect the sidewalk on each abutting street to the main entrance of the primary structure on the site to **minimize** out of direction pedestrian travel.
    - b) Walkways at least five (5) feet in width shall be provided to connect the pedestrian circulation system with existing or planned pedestrian facilities which abut the site but are not adjacent to the streets abutting the site.
    - c) Walkways shall be **as direct as possible** and avoid **unnecessary meandering**.
    - d) Walkway/driveway crossings shall be **minimized**. Internal parking lot design shall maintain **ease of access** for pedestrians from abutting streets, pedestrian facilities, and transit stops.
    - e) With the exception of walkway/driveway crossings, walkways shall be separated from vehicle parking or vehicle maneuvering areas by grade, different paving material, painted crosshatching or landscaping. They shall be constructed **in accordance with the sidewalk standards adopted by the City**. (This provision does not require a separated walkway system to collect drivers and passengers from cars that have parked on site unless an **unusual parking lot hazard** exists).
    - f) Pedestrian amenities such as covered walk-ways, awnings, visual corridors and benches will be encouraged. For every two benches provided, the minimum parking requirements will be reduced by one, up to a maximum of four benches per site. Benches shall have direct access to the circulation system.

- C. Where a development site is traversed by or adjacent to a future trail linkage **identified within the Transportation System Plan**, improvement of the trail linkage shall occur concurrent with development. Dedication of the trail to the City shall be provided in accordance with 17.84.90(D).
- D. To provide for orderly development of an effective pedestrian network, pedestrian facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).
- E. To ensure **improved access** between a development site and an existing developed facility such as a commercial center, school, park, or trail system, the Planning Commission or Director **may require** off-site pedestrian facility improvements concurrent with development.

**17.84.40 TRANSIT AND SCHOOL BUS TRANSIT REQUIREMENTS**

- A. Development sites located along existing or planned transit routes shall, **where appropriate**, incorporate bus pull-outs and/or shelters into the site design. These improvements shall be installed **in accordance with** the guidelines and standards of the transit agency. School bus pull-outs and/or shelters may also be required, **where appropriate**, as a condition of approval for a residential development of greater than 50 dwelling units where a school bus pick-up point is anticipated to serve a **large number** of children.
- B. New developments at or **near** existing or planned transit or school bus transit stops shall design development sites to provide **safe, convenient** access to the transit system, as follows:
  - 1. Commercial and civic use developments shall provide a prominent entrance oriented towards arterial and collector streets, with front setbacks reduced **as much as possible** to provide access for pedestrians, bicycles, and transit.
  - 2. All developments shall provide **safe, convenient** pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of 17.84.30 B.

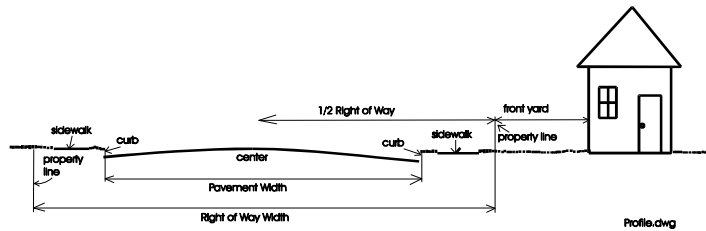
**17.84.50 STREET REQUIREMENTS**

- A. Transportation Impact Study (No Dwellings). For development applications that do not propose any dwelling units, the City may require a transportation impact study that evaluates the impact of the proposed development on the transportation system. Unless the City does not require a transportation impact study, the applicant shall prepare the study in accordance with the following:
  - 1. A proposal establishing the scope of the study shall be submitted for review to the City Traffic Engineer. The scope shall reflect the magnitude of the project in accordance with accepted transportation planning and engineering practices. Large projects shall assess intersections and street segments where the development causes increases of more than 20 vehicles in either the AM or PM peak hours. Once the City Traffic Engineer has approved the scope of the study, the applicant shall submit the results of the study as part of its development application. Failure to submit a required study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering.
  - 2. If the study identifies level-of-service conditions **less than the minimum standard established in** the development code or **the Sandy Transportation System Plan**, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT

standards established in the development code, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.

- B. Transportation Impact Study (Dwellings). For development applications that propose dwelling units, an applicant must submit a transportation impact study unless the application is exempt from this requirement pursuant to subsection (B)(6), below. Failure to submit the study will result in an incomplete application. A traffic impact study shall bear the seal of a Professional Engineer licensed in the State of Oregon and qualified in traffic or civil engineering. The applicant shall prepare the study in accordance with the following:
1. The study area must include all existing and proposed site accesses and all existing and proposed streets and intersections where the development adds more than 20 vehicles during any peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual. The determination of peak hour vehicle addition shall include the cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years.
  2. The study must analyze existing conditions and projected conditions upon completion of the proposed development.
  3. The study must be performed for the weekday a.m. peak hour (one hour between 7 a.m. and 9 a.m.) and p.m. peak hour (one hour between 4 p.m. and 6 p.m.). Analysis of other time periods may be required for uses that generate their highest traffic volumes at other times of the day or on weekends.
  4. The study must demonstrate that the transportation impacts from the proposed development will comply with the City's level-of-service and average daily traffic standards and the Oregon Department of Transportation's mobility standard.
  5. If the study identifies level-of-service conditions **less than the minimum standard established in** the development code or the **Sandy Transportation System Plan**, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT standards established in the development code or fails to meet the Oregon Department of Transportation's mobility standard, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.
  6. A transportation impact study is not required under this section if:
    - a) The cumulative impact of the proposed development and development on abutting properties that received a certificate of occupancy or recorded a plat within the past 5 years will generate no more than 20 vehicle trips in any weekday a.m. or p.m. peak hour as determined by using the most recent edition of the Institute of Transportation Engineers Trip Generation Manual; or
    - b) The proposed development completed a transportation impact study at the time of annexation within the past 5 years and that study assessed the impact of the same or more dwelling units than proposed under the new land use action; or
    - c) The application only proposes to convert an existing detached single family dwelling to a duplex.
- C. Transportation Impact Study (Dwellings) – Discretionary Track. As an alternative to the process outlined in Section 17.84.50(B), an applicant may choose to follow the process in Section 17.84.50(A).

- D. Location of new arterial streets shall conform to the Transportation System Plan in accordance with the following:
1. Arterial streets should generally be spaced in one-mile intervals.
  2. Traffic signals should generally not be spaced closer than 1,500 ft. for reasonable traffic progression.
- E. Local streets shall be designed to discourage through traffic. NOTE: for the purposes of this section, “through traffic” means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic and excessive vehicle speeds the following street design characteristics shall be considered, as well as other designs intended to discourage traffic:
1. Straight segments of local streets should be kept to less than a quarter mile in length. As practical, local streets should include traffic calming features, and design features such as curves and “T” intersections while maintaining pedestrian connectivity.
  2. Local streets should typically intersect in “T” configurations rather than 4-way intersections to minimize conflicts and discourage through traffic. Adjacent “T” intersections shall maintain a minimum of 150 ft. between the nearest edges of the two rights-of-way.
  3. Cul-de-sacs shall not exceed 400 ft. in length nor serve more than 20 dwelling units, unless a proposal is successfully processed through the procedures in Chapter 17.66 of the Sandy Development Code.. Cul-de-sacs longer than 400 feet or developments with only one access point may be required to provide an alternative access for emergency vehicle use only, install fire prevention sprinklers, or provide other mitigating measures, determined by the City.
- F. Development sites shall be provided with access from a public street improved to City standards in accordance with the following:
1. Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.
  2. Half-street improvements are considered the minimum required improvement. Three-quarter-street or full-street improvements shall be required where traffic volumes generated by the development are such that a half-street improvement would cause safety and/or capacity problems. Such a determination shall be made by the City Engineer.
  3. To ensure improved access to a development site consistent with policies on orderly urbanization and extension of public facilities the Planning Commission or Director may require off-site improvements concurrent with development. Off-site improvement requirements upon the site developer shall be reasonably related to the anticipated impacts of the development.
  4. Reimbursement agreements for three-quarter-street improvements (i.e., curb face to curb face) may be requested by the developer per Chapter 12 of the SMC.
  5. A half-street improvement includes curb and pavement 2 feet beyond the center line of the right-of-way. A three-quarter-street improvement includes curbs on both sides of the side and full pavement between curb faces.



- G. As necessary to provide for orderly development of adjacent properties, public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property(ies) in accordance with the following:
1. Temporary dead-ends created by this requirement to extend street improvements to the edge of adjacent properties may be installed without a turn-around, subject to the approval of the Fire Marshal.
  2. In order to assure the eventual continuation or completion of the street, reserve strips may be required.
- H. Where required by the Planning Commission or Director, public street improvements may be required through a development site to provide for the **logical extension** of an existing street network or to connect a site with a nearby neighborhood activity center, such as a school or park. Where this creates a land division incidental to the development, a land partition shall be completed concurrent with the development.
- I. Except for extensions of existing streets, no street names shall be used that will duplicate or **be confused with** names of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area and be subject to approval of the Director.
- J. Location, grades, alignment, and widths for all public streets shall be considered in relation to existing and planned streets, topographical conditions, public **convenience and safety**, and proposed land use. **Where topographical conditions present special circumstances, exceptions to these standards may be granted by the City Engineer provided the safety and capacity of the street network are not adversely affected.** The following standards shall apply:
1. Location of streets in a development shall not preclude development of adjacent properties. Streets shall **conform to planned street extensions identified in the Transportation Plan** and/or provide for continuation of the existing street network in the surrounding area.
  2. Grades shall not exceed 6 percent on arterial streets, 10 percent on collector streets, and 15 percent on local streets.
  3. As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in “T” intersections are unavoidable, they shall leave a minimum of 150 ft. between the nearest edges of the two rights-of-way.
  4. Centerline radii of curves shall not be less than 500 ft. on arterial streets, 300 ft. on collector streets, and 100 ft. on local streets.
  5. Streets shall be designed to intersect at angles as near as practicable to right angles and shall comply with the following:
    - a) The intersection of an arterial or collector street with another arterial or collector street shall have a minimum of 100 ft. of straight (tangent) alignment perpendicular to the intersection.



- b) The intersection of a local street with another street shall have a minimum of 50 ft. of straight (tangent) alignment perpendicular to the intersection.
  - c) Where right angle intersections are not possible, exceptions can be granted by the City Engineer provided that intersections not at right angles have a minimum corner radius of 20 ft. along the right-of-way lines of the acute angle.
  - d) Intersections with arterial and collector streets shall have a minimum curb corner radius of 20 ft. All other intersections shall have a minimum curb corner radius of 10 ft.
6. Right-of-way and improvement widths shall be **as specified by the Transportation System Plan**. Exceptions to those specifications may be approved by the City Engineer to deal with specific unique physical constraints of the site.
- K. Private streets may be considered within a development site provided all the following conditions are met:
- 1. Extension of a public street through the development site is not needed for continuation of the existing street network or for future service to adjacent properties;
  - 2. The development site remains in one ownership, or adequate mechanisms are established (such as a homeowner's association invested with the authority to enforce payment) to ensure that a private street installed with a land division will be adequately maintained; and
  - 3. Where a private street is installed in connection with a land division, paving standards consistent with City standards for public streets shall be utilized to protect the interests of future homeowners.

**17.84.60 PUBLIC FACILITY EXTENSIONS**

- A. All development sites shall be provided with public water, sanitary sewer, broadband (fiber), and storm drainage.
- B. Where necessary to serve property as specified in "A" above, required public facility installations shall be constructed concurrent with development.
- C. Off-site public facility extensions necessary to fully serve a development site and adjacent properties shall be constructed concurrent with development.
- D. As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).
- E. All public facility installations required with development shall **conform to the City's facilities master plans**.
- F. Private on-site sanitary sewer and storm drainage facilities may be considered provided all the following conditions exist:
  - 1. Extension of a public facility through the site is not necessary for the future orderly development of adjacent properties;
  - 2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 17.84.50 F above);



3. The facilities are designed and constructed in accordance with the Uniform Plumbing Code and other applicable codes, and permits and/or authorization to proceed with construction is issued prior to commencement of work.

#### **17.84.70 PUBLIC IMPROVEMENT PROCEDURES**

It is in the best interests of the community to ensure public improvements installed in conjunction with development are constructed in accordance with all applicable City policies, standards, procedures, and ordinances. Therefore, prior to commencement of installation of public water, sanitary sewer, storm drainage, broadband (fiber), street, bicycle, or pedestrian improvements for any development site, developers shall contact the City Engineer to receive information regarding adopted procedures governing plan submittal, plan review and approval, permit requirements, inspection and testing requirements, progress of the work, and provision of easements, dedications, and as-built drawings for installation of public improvements. All work shall proceed in accordance with those adopted procedures, and all applicable City policies, standards, and ordinances.

Whenever any work is being done contrary to the provisions of this Code, the Director may order the work stopped by notice in writing served on the persons engaged in performing the work or causing the work to be performed. The work shall stop until authorized by the Director to proceed with the work or with corrective action to remedy substandard work already completed.

#### **17.84.80 FRANCHISE UTILITY INSTALLATIONS**

These standards are intended to supplement, not replace or supersede, requirements contained within individual franchise agreements the City has with providers of electrical power, telephone, cable television, and natural gas services (hereinafter referred to as “franchise utilities”).

- A. Where a land division is proposed, the developer shall provide franchise utilities to the development site. Each lot created within a subdivision shall have an individual service available or financially guaranteed prior to approval of the final plat.
- B. Where necessary, **in the judgment of the Director**, to provide for orderly development of adjacent properties, franchise utilities shall be extended through the site to the edge of adjacent property(ies), whether or not the development involves a land division.
- C. The developer shall have the option of choosing whether or not to provide natural gas or cable television service to the development site, providing all of the following conditions exist:
  1. Extension of franchise utilities through the site is not necessary for the future orderly development of adjacent property(ies);
  2. The development site remains in one ownership and land division does not occur (with the exception of land divisions that may occur under the provisions of 17.84.50 F above); and,
  3. The development is non-residential.

- D. Where a land division is not proposed, the site shall have franchise utilities required by this section provided in accordance with the provisions of 17.84.70 prior to occupancy of structures.
- E. All franchise utility distribution facilities installed to serve new development shall be placed underground except as provided below. The following facilities may be installed above-ground:
  - 1. Poles for street lights and traffic signals, pedestals for police and fire system communications and alarms, pad mounted transformers, pedestals, pedestal mounted terminal boxes and meter cabinets, concealed ducts, substations, or facilities used to carry voltage higher than 35,000 volts;
  - 2. Overhead utility distribution lines may be permitted upon approval of the City Engineer when unusual terrain, soil, or other conditions make underground installation impracticable. Location of such overhead utilities shall follow rear or side lot lines wherever feasible.
- F. The developer shall be responsible for making necessary arrangements with franchise utility providers for provision of plans, timing of installation, and payment for services installed. Plans for franchise utility installations shall be submitted concurrent with plan submittal for public improvements to facilitate review by the City Engineer.
- G. The developer shall be responsible for installation of underground conduit for street lighting along all public streets improved in conjunction with the development in accordance with the following:
  - 1. The developer shall coordinate with the City Engineer to determine the location of future street light poles. The street light plan shall be designed to provide illumination meeting standards set by the City Engineer.
  - 2. The developer shall make arrangements with the serving electric utility for trenching prior to installation of underground conduit for street lighting.

**17.84.90 LAND FOR PUBLIC PURPOSES**

- A. Easements for public sanitary sewer, water, storm drain, pedestrian and bicycle facilities shall be provided whenever these facilities are located outside a public right-of-way in accordance with the following:
  - 1. When located between adjacent lots, easements shall be provided on one side of a lot line.
  - 2. The minimum easement width for a single utility is 15 ft. The minimum easement width for two adjacent utilities is 20 ft. The easement width shall be centered on the utility to the greatest extent practicable. Wider easements may be required for unusually deep facilities.
- B. Public utility easements with a minimum width of eight (8) feet shall be provided adjacent to all street rights-of-way for franchise utility installations.
- C. Where a development site is traversed by a drainageway or water course, a drainage way dedication shall be provided to the City.

- D. Where a development is traversed by, or adjacent to, a future trail linkage **identified within the Transportation System Plan**, dedications of **suitable width** to accommodate the trail linkage shall be provided. **This width shall be determined by the City Engineer**, considering the type of trail facility involved.
- E. Where existing rights-of-way and/or easements within or adjacent to development sites are nonexistent or of insufficient width, dedications may be required. The need for and widths of those dedications shall be determined by the City Engineer.
- F. Where easement or dedications are required in conjunction with land divisions, they shall be recorded on the plat. Where a development does not include a land division, easements and/or dedications shall be recorded on standard document forms provided by the City Engineer.
- G. If the City has an interest in acquiring any portion of a proposed subdivision or planned development site for a public purpose, other than for those purposes listed above, or if the City has been advised of such interest by a school district or other public agency, and there is a **reasonable assurance** that steps will be taken to acquire the land, the Planning Commission may require those portions of the land be reserved for public acquisition for a period not to exceed one (1) year.
- H. Environmental assessments for all lands to be dedicated to the public or City may be required to be provided by the developer. An environmental assessment shall include information necessary for the City to evaluate potential liability for environmental hazards, contamination, or required waste cleanups related to the dedicated land. An environmental assessment shall be completed prior to the acceptance of dedicated lands in accordance with the following:
  - 1. The initial environmental assessment shall detail the history of ownership and general use of the land by past owners. Upon review of the information provided by the grantor, as well as any site investigation by the City, the Director will determine if the risks of potential contamination warrant further investigation. When further site investigation is warranted, a Level I Environmental Assessment shall be provided by the grantor.

#### **17.84.100 MAIL DELIVERY FACILITIES**

- A. In establishing placement of mail delivery facilities, locations of sidewalks, bikeways, intersections, existing or future driveways, existing or future utilities, right-of-way and street width, and vehicle, bicycle and pedestrian movements shall be considered. The final location of these facilities shall meet the approval of the City Engineer and the Post Office. Where mail delivery facilities are being installed in conjunction with a land division, placement shall be indicated on the plat and meet the approval of the City Engineer and the Post Office prior to final plat approval.
- B. Where mail delivery facilities are proposed to be installed in areas with an existing or future curb-tight sidewalk, a sidewalk transition shall be provided that maintains the required design width of the sidewalk around the mail delivery facility. If the right-of-way width will not accommodate the sidewalk transition, a sidewalk easement shall be provided adjacent to the right-of-way.

- C. Mail delivery facilities and the associated sidewalk transition (if necessary) around these facilities shall conform to the City's standard construction specifications. Actual mailbox units shall conform to the Post Office standards for mail delivery facilities.
- D. Installation of mail delivery facilities is the obligation of the developer. These facilities shall be installed concurrently with the public improvements. Where development of a site does not require public improvements, mail delivery facilities shall be installed concurrently with private site improvements.

Mail delivery facilities may not be placed on arterial or collector streets or in sight distance zones or vision clearance areas.

## CHAPTER 17.86 - PARKLAND & OPEN SPACE

### 17.86.00 INTENT

The availability of parkland and open space is a critical element in maintaining and improving the quality of life in Sandy. Land that features trees, grass and vegetation provides not only an aesthetically pleasing landscape but also buffers incompatible uses, and preserves sensitive environmental features and important resources. Parks and open space, together with support facilities, also help to meet the active and passive recreational needs of the population of Sandy. This chapter implements policies of Goal 8 of the Comprehensive Plan and the Parks Master Plan by outlining provisions for parks and open space in the City of Sandy.

### 17.86.10 MINIMUM PARKLAND DEDICATION REQUIREMENTS

Parkland Dedication: New residential subdivisions, planned developments, multi-family or manufactured home park developments shall be required to provide parkland to serve existing and future residents of those developments. Multi-family developments which provide some "congregate" services and/or facilities, such as group transportation, dining halls, emergency monitoring systems, etc., but which have individual dwelling units rather than sleeping quarters only, are considered to be multi-family developments for the purpose of parkland dedication. Licensed adult congregate living facilities, nursing homes, and all other similar facilities which provide their clients with individual beds and sleeping quarters, but in which all other care and services are communal and provided by facility employees, are specifically exempt from parkland dedication and system development fee requirements.

1. The required parkland shall be dedicated as a condition of approval for the following:
  - a. Tentative plat for a subdivision or partition;
  - b. Planned Development conceptual or detailed development plan;
  - c. Design review for a multi-family development or manufactured home park; and
  - d. Replat or amendment of any site plan for multi-family development or manufactured home park where dedication has not previously been made or where the density of the development involved will be increased.
2. Calculation of Required Dedication: The required parkland acreage to be dedicated is based on a calculation of the following formula rounded to the nearest 1/100 (0.00) of an acre:

*Required parkland dedication (acres) = (proposed units) x (persons/unit) x 0.0043 (per person park land dedication factor)*

- a. Population Formula: The following table shall be used to determine the number of persons per unit to be used in calculating required parkland dedication:

Type of Unit	Total Persons Per Unit
Single family residential	3.0
Standard multi-family unit	2.0
Manufactured dwelling park	2.0
Congregate multi-family unit	1.5

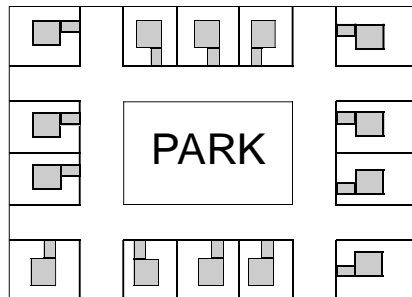
Persons per unit, age distribution, and local conditions change with time. The specific formula for the dedication of land will, therefore, be subject to periodic review and amendment.

- b. Per Person Parkland Dedication Factor: The total parkland dedication requirement shall be 0.0043 of an acre per person based on the adopted standard of 4.3 acres of land per one thousand of ultimate population per the Parks Master Plan<sup>1</sup>. This standard represents the citywide land-to-population ratio for city parks, and may be adjusted periodically through amendments to the Parks Master Plan.

**17.86.20 MINIMUM PARKLAND STANDARDS**

Land required or proposed for parkland dedication shall be contained within a **continuous** unit and must be **suitable** for active use as a neighborhood or mini-park, based on the following criteria:

1. Homes must front on the parkland as shown in the example below:



2. The required dedication shall be contained as a **contiguous** unit and not separated into pieces or divided by roadways.
3. The parkland must be able to **accommodate** play structures, play fields, picnic areas, or other active park use facilities. The average slope of the active use parkland shall not exceed 15%.

<sup>1</sup> Parks Master Plan, Implementation Plan section, Pages 4 and 5 indicate a required park acreage total of 64.5 acres. This number, divided by population (2015) of 15,000 equates to 4.3 acres per 1000 population or 0.0043 per person.

4. Any retaining wall constructed at the perimeter of the park adjacent to a public right-of-way or private street shall not exceed 4 feet in height.
5. Once dedicated, the City will assume maintenance responsibility for the neighborhood or mini parkland.

**17.86.30 DEDICATION PROCEDURES**

Prior to approval of the final plat, the developer shall dedicate the land as previously determined by the City in conjunction with approval of the tentative plat. Dedication of land in conjunction with multi-family development shall be required prior to issuance of permits and commencement of construction.

A. Prior to acceptance of required parkland dedications, the applicant/developer shall complete the following items for all proposed dedication areas:

1. The developer shall clear, fill, and/or grade all land **to the satisfaction of the City**, install sidewalks on the park land adjacent to any street, and seed the park land; and,
2. The developer shall submit a Phase I Environmental Site Assessment completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a **clean environmental record**.

B. Additional Requirements

1. In addition to a formal dedication on the plat to be recorded, the subdivider shall convey the required lands to the city by general warranty deed. The developer of a multi-family development or manufactured home park shall deed the lands required to be dedicated by a general warranty deed. In any of the above situations, the land so dedicated and deeded shall not be subject to any reservations of record, encumbrances of any kind or easements which, **in the opinion of the Director, will interfere with the use of the land for park, open space or recreational purposes**.

The subdivider or developer shall be required to present to the City a title insurance policy on the subject property ensuring the **marketable state** of the title.

2. Where any reservations, encumbrances or easements exist, the City may require payment in lieu of the dedication of lands unless it chooses to accept the land subject to encumbrances.

C. Phased Developments. In a phased development, the required park land for the entire development shall be dedicated prior to approval of the final plat for the first phase. Improvements to the land as required by 17.86.30 (A.1.) shall be made prior to approval of the final plat for the phase that includes the park land.

#### **17.86.40 CASH IN LIEU OF DEDICATION**

At the city's discretion only, the city may accept payment of a fee in lieu of land dedication. The city may require payment in lieu of land when the park land to be dedicated is less than 3 acres. A payment in lieu of land dedication is separate from Park Systems Development Charges, and is not eligible for a credit of Park Systems Development Charges. The amount of the fee in lieu of land dedication (in dollars per acre) shall be set by City Council Resolution, and it shall be based on the typical market value of developed property (finished lots) in Sandy net of related development costs.

1. The following factors shall be used in the choice of whether to accept land or cash in lieu:
  - a. The topography, geology, access to, parcel size, and location of land in the development available for dedication;
  - b. Potential adverse/beneficial effects on environmentally sensitive areas;
  - c. Compatibility with the Parks Master Plan, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program in effect at the time of dedication;
  - d. Availability of previously acquired property; and
  - e. The feasibility of dedication.
2. Cash in lieu of parkland dedication shall be paid prior to approval of the final plat or as specified below:
  - a. 50 percent of the payment shall be paid prior to final plat approval, and
  - b. The remaining 50 percent of the payment pro-rated equally among the lots, plus an administrative surcharge as determined by the City Council through a resolution, will constitute a lien against the property payable at the time of sale.

#### **17.86.50 MINIMUM STANDARDS FOR OPEN SPACE DEDICATION**

The applicant through a subdivision or design review process may propose the designation and protection of open space areas as part of that process. This open space will not, however, be counted toward the parkland dedication requirement of Sections 17.86.10 through 17.86.40.

1. The types of open space that may be provided are as follows:
  - a. Natural Areas: areas of undisturbed vegetation, steep slopes, stream corridors, wetlands, wildlife habitat areas or areas replanted with native vegetation after construction.
  - b. Greenways: linear green belts linking residential areas with other open space areas. These greenways may contain bicycle paths or footpaths. Connecting greenways between residences and recreational areas are encouraged.



2. A subdivision or design review application proposing designation of open space shall include the following information as part of this application:
  - a. Designate the boundaries of all open space areas; and
  - b. Specify the manner in which the open space shall be perpetuated, maintained, and administered; and
  - c. Provide for public access to trails **included in the Park Master Plan**, including but not limited to the Tickle Creek Path.
3. Dedication of open space may occur concurrently with development of the project. **At the discretion of the city**, for development that will be phased, the open space may be set aside in totality and/or dedicated in conjunction with the first phase of the development or incrementally set aside and dedicated in proportion to the development occurring in each phase.
4. Open space areas shall be **maintained so that the use and enjoyment thereof is not diminished or destroyed**. Open space areas may be owned, preserved, and maintained by any of the following mechanisms or combinations thereof:
  - a. Dedication to the City of Sandy or an appropriate public agency approved by the City, if there is a public agency willing to accept the dedication. Prior to acceptance of proposed open space, the City may require the developer to submit a Phase I Environmental Site Assessment completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a clean environmental record.
  - b. Common ownership by a homeowner's association that assumes full responsibility for its maintenance;
  - c. Dedication of development rights to an appropriate public agency with ownership remaining with the developer or homeowner's association. Maintenance responsibility will remain with the property owner; and/or
  - d. Deed-restricted private ownership preventing development and/or subsequent subdivision and providing for maintenance responsibilities.
5. In the event that any private owner of open space fails to maintain it according to the standards of this Code, the City of Sandy, following reasonable notice, may demand that the deficiency of maintenance be corrected, and may enter the open space for maintenance purposes. All costs thereby incurred by the City shall be charged to those persons having the primary responsibility for maintenance of the open space.

## CHAPTER 17.92 - LANDSCAPING & SCREENING GENERAL STANDARDS - ALL ZONES

### 17.92.00 INTENT

The City of Sandy recognizes the aesthetic and economic value of landscaping and encourages its use to establish a **pleasant community character**, unify developments, and buffer or screen **unsightly features**; to soften and buffer **large scale** structures and parking lots; and to aid in energy conservation by providing shade from the sun and shelter from the wind. The community desires and intends all properties to be landscaped and maintained.

This chapter prescribes standards for landscaping, buffering, and screening. While this chapter provides standards for frequently encountered development situations, detailed planting plans and irrigation system designs, when required, shall be reviewed by the City with this purposes clause as the guiding principle.

### 17.92.10 GENERAL PROVISIONS

- A. Where landscaping is required by this Code, detailed planting plans shall be submitted for review with development applications. No development may commence until the Director or Planning Commission has determined the plans comply with the purposes clause and specific standards in this chapter. All required landscaping and related improvements shall be completed or financially guaranteed prior to the issuance of a Certificate of Occupancy.
- B. **Appropriate** care and maintenance of landscaping on-site and landscaping in the adjacent public right-of-way is the right and responsibility of the property owner, unless City ordinances specify otherwise for general public and safety reasons. If street trees or other plant materials do not survive or are removed, materials shall be replaced in kind within 6 months.
- C. Significant plant and tree specimens should be preserved to **the greatest extent practicable** and integrated into the design of a development. Trees of 25-inches or greater circumference measured at a height of 4-½ ft. above grade are considered significant. Plants to be saved and methods of protection shall be indicated on the detailed planting plan submitted for approval. Existing trees may be considered preserved if no cutting, filling, or compaction of the soil takes place between the trunk of the tree and the area 5-ft. outside the tree's drip line. Trees to be retained shall be protected from damage during construction by a construction fence located 5 ft. outside the dripline.
- D. Planter and boundary areas used for required plantings shall have a minimum diameter of 5-ft. (2-½ ft. radius, inside dimensions). Where the curb or the edge of these areas are used as a tire stop for parking, the planter or boundary plantings shall be a minimum width of 7-½ ft.
- E. In no case shall shrubs, conifer trees, or other screening be permitted within vision clearance areas of street, alley, or driveway intersections, or where the City Engineer otherwise deems such plantings would endanger pedestrians and vehicles.
- F. Landscaped planters and other landscaping features shall be used to **define, soften or screen** the appearance of off-street parking areas and other activity from the public street. Up to 35 percent of the total required landscaped area may be developed into pedestrian amenities.

including, but not limited to sidewalk cafes, seating, water features, and plazas, as approved by the Director or Planning Commission.

- G. Required landscaping/open space shall be designed and arranged to offer the **maximum benefits** to the occupants of the development as well as provide **visual appeal** and **building separation**.
- H. Balconies required for entrances and exits shall not be considered as open space except where such exits and entrances are for the sole use of the unit.
- I. Roofed structures shall not be included as open space except for open unenclosed public patios, balconies, gazebos, or other similar structures or spaces.
- J. Driveways and parking areas shall not be included as open space.
- K. All areas not occupied by paved roadways, walkways, patios, or buildings shall be landscaped.
- L. All landscaping shall be continually maintained, including **necessary watering, weeding, pruning and replacing**.

**17.92.20 MINIMUM IMPROVEMENTS - LANDSCAPING AND SCREENING**

The minimum landscaping area of a site to be retained in landscaping shall be as follows:

<b>ZONING DISTRICT OR USE</b>	<b>PERCENTAGE</b>
R-3	25%
Manufactured Home Park	20%
C - 1 Central Business District	10%
C - 2 General Commercial	20%
C - 3 Village Commercial	10%
I - 1 Industrial Park	20%
I - 2 Light Industrial	15%
I - 3 Heavy Industrial	10%

**17.92.30 REQUIRED TREE PLANTINGS**

Planting of trees is required for all parking lots with 4 or more parking spaces, public street frontages, and along private drives more than 150 feet long. Trees shall be planted outside the street right-of-way except where there is a designated planting strip or City adopted street tree plan.

The City maintains a list of appropriate trees for street tree and parking lot planting situations. Selection of species should be made from the city-approved list. Alternate selections may be approved by the Director following written request. The type of tree used shall determine frequency of trees in planting areas. Trees in parking areas shall be dispersed throughout the lot to provide a canopy for shade and visual relief.

Area/Type of Planting	Canopy	Spacing
Street Tree	Medium	30 ft. on center
Street Tree	Large	50 ft. on center
Parking Lot Tree	Medium	1 per 8 cars
Parking Lot Tree	Large	1 per 12 cars

Trees may not be planted:

- Within 5 ft. of permanent hard surface paving or walkways, unless specific species, special planting techniques and specifications approved by the Director are used.
- Unless approved otherwise by the City Engineer:
  - \* Within 10 ft. of fire hydrants and utility poles
  - \* Within 20 ft. of street light standards
  - \* Within 5 ft. from an existing curb face
  - \* Within 10 ft. of a public sanitary sewer, storm drainage or water line
- Where the Director determines the trees may be a hazard to the public interest or general welfare.
- Trees shall be pruned to provide a minimum clearance of 8 ft. above sidewalks and 12 ft. above street and roadway surfaces.

#### 17.92.40 IRRIGATION

Landscaping shall be irrigated, either with a manual or automatic system, to sustain viable plant life.

#### 17.92.50 TYPES AND SIZES OF PLANT MATERIALS

- A. At least 75% of the required landscaping area shall be planted with a suitable combination of trees, shrubs, or evergreen ground cover except as otherwise authorized by Chapter 17.92.10 F.
- B. Plant Materials. Use of native plant materials or plants acclimatized to the Pacific Northwest is encouraged where possible.
- C. Trees shall be species having an average mature spread of crown greater than 15 feet and having trunks which can be maintained in a clear condition with over 5 feet of clear wood (without branches). Trees having a mature spread of crown less than 15 feet may be substituted by grouping the same so as to create the equivalent of a 15-foot crown spread.
- D. Deciduous trees shall be balled and burlapped, be a minimum of 7 feet in overall height or 1 ½ inches in caliper measured 6 inches above the ground, immediately after planting. Bare root trees will be acceptable to plant during their dormant season.
- E. Coniferous trees shall be a minimum five feet in height above ground at time of planting.
- F. Shrubs shall be a minimum of 1 gallon in size or 2 feet in height when measured immediately after planting.

- G. Hedges, where required to screen and buffer off-street parking from adjoining properties shall be planted with an evergreen species maintained so as to form a continuous, solid visual screen within 2 years after planting.
- H. Vines for screening purposes shall be a minimum of 1 gallon in size or 30 inches in height immediate after planting and may be used in conjunction with fences, screens, or walls to meet physical barrier requirements as specified.
- I. Groundcovers shall be fully rooted and shall be **well branched or leafed**. If used in lieu of turf in whole or in part, ground covers shall be planted in such a manner as to provide complete coverage in one year.
- J. Turf areas shall be planted in species normally grown as permanent lawns in western Oregon. Either sod or seed are acceptable. Acceptable varieties include improved perennial ryegrass and fescues used within the local landscape industry.
- K. Landscaped areas may include architectural features or artificial ground covers such as sculptures, benches, masonry or stone walls, fences, rock groupings, bark dust, decorative hard paving and gravel areas, interspersed with planted areas. The exposed area developed with such features shall not exceed 25% of the required landscaped area. Artificial plants are prohibited in any required landscape area.

**17.92.60 REVEGETATION IN UNLANDSCAPED OR NATURAL LANDSCAPED AREAS**

- A. Areas where natural vegetation has been removed or damaged through grading or construction activity in areas not affected by the landscaping requirements and that are not to be occupied by structures or other improvements shall be replanted.
- B. Plant material shall be watered at **intervals sufficient to assure survival and growth**.
- C. The use of native plant materials or plants acclimatized to the Pacific Northwest is encouraged to reduce irrigation and maintenance demands.

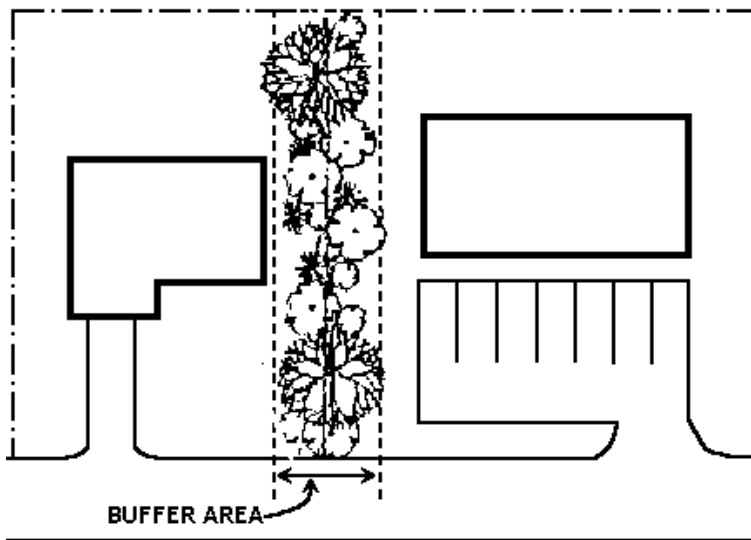
**17.92.70 LANDSCAPING BETWEEN PUBLIC RIGHT-OF-WAY AND PROPERTY LINES**

Except for portions allowed for parking, loading, or traffic maneuvering, a required setback area abutting a public street and open area between the property line and the roadway in the public street shall be landscaped. That portion of the landscaping within the street right-of-way shall not count as part of the lot area percentage to be landscaped.

**17.92.80 BUFFER PLANTING - PARKING, LOADING AND MANUEVERING AREAS**

Buffer plantings are used to reduce building scale, provide transition between contrasting architectural styles, and generally mitigate **incompatible or undesirable views**. They are used to soften rather than block viewing. Where required, a mix of plant materials shall be used to achieve the desired buffering effect.

Buffering is required in conjunction with issuance of construction permits for parking areas containing 4 or more spaces, loading areas, and vehicle maneuvering areas. Boundary plantings shall be used to buffer these uses from adjacent properties and the public right-of-way. On-site plantings shall be used between parking bays, as well as between parking bays and vehicle maneuvering areas. A balance of low-lying ground cover and shrubs, and vertical shrubs and trees shall be used to buffer the view of these facilities. Decorative walls and fences may be used in conjunction with plantings, but may not be used by themselves to comply with buffering requirements. Exception: truck parking lots are exempt from parking bay buffer planting requirements.

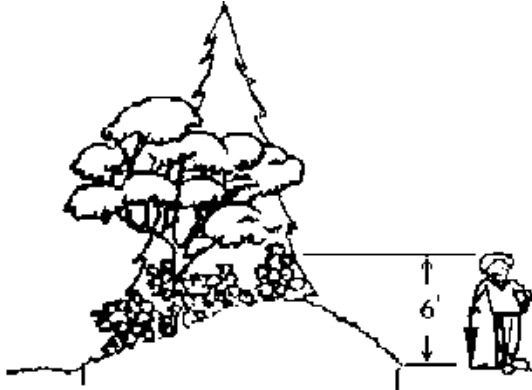


#### 17.92.90 SCREENING (HEDGES, FENCES, WALLS, BERMS)

Screening is used where **unsightly views or visual conflicts** must be obscured or blocked and where privacy and security are desired. Fences and walls used for screening may be constructed of wood, concrete, stone, brick, and wrought iron, or other commonly used fencing/wall materials. Acoustically designed fences and walls are also used where noise pollution requires mitigation.

- A. **Height and Opacity.** Where landscaping is used for required screening, it shall be at least 6 ft. in height and at least 80 percent opaque, as seen from a perpendicular line of sight, within 2 years following establishment of the primary use of the site.
- B. **Chain Link Fencing.** A chain link fence with slats shall qualify for screening only if a landscape buffer is also provided in compliance with Section 17.92.00 above.
- C. **Height Measurement.** The height of hedges, fences, walls, and berm shall be measured from the lowest adjoining finished grade, except where used to comply with screening requirements for parking, loading, storage, and similar areas. In these cases, height shall be measured from the finished grade of such improvements. Screening is not permitted within vision clearance areas.

- D. Berms. Earthen berms up to 6 ft. in height may be used to comply with screening requirements. Slope of berms may not exceed 2:1 and both faces of the slope shall be planted with ground cover, shrubs, and trees.

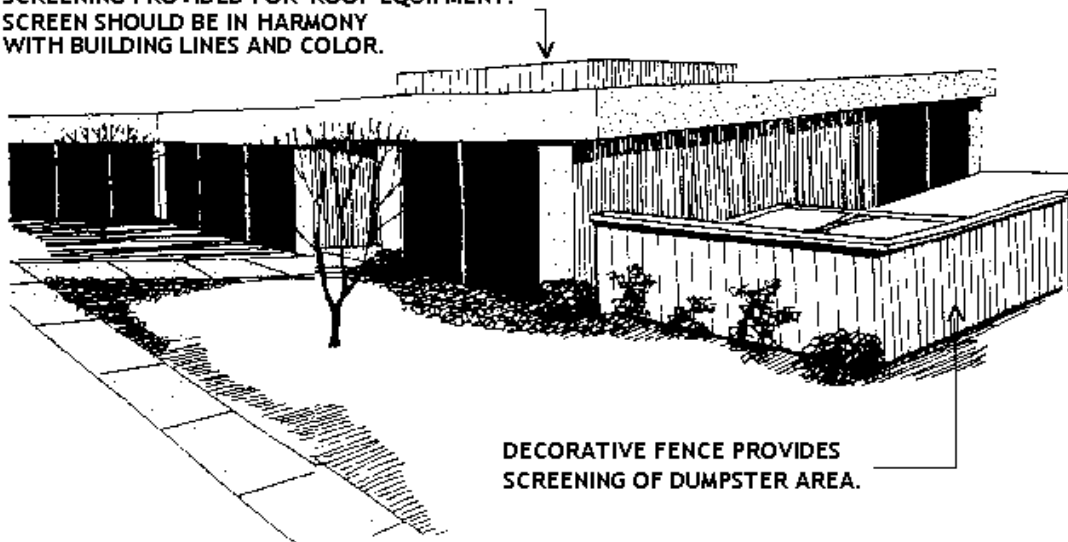


- A. Long expanses of fences and walls shall be designed to prevent visual monotony through use of offsets, changes of materials and textures, or landscaping.

**17.92.100 SCREENING OF SERVICE FACILITIES**

Site-obscuring shrubbery or a berm, wall or fence shall be placed along a property line between residential and commercial and industrial zones and around **unsightly areas** such as trash and recycling areas, gas meters, ground level air conditioning units, disc antennas exceeding 36 inches in diameter and equipment storage or an industrial or commercial use with outside storage of equipment or materials.

**SCREENING PROVIDED FOR ROOF EQUIPMENT.  
SCREEN SHOULD BE IN HARMONY  
WITH BUILDING LINES AND COLOR.**



**DECORATIVE FENCE PROVIDES  
SCREENING OF DUMPSTER AREA.**

### **17.92.110 OUTDOOR STORAGE**

All outdoor storage areas for commercial, industrial, public and semi-public uses are to be entirely screened by a sight obscuring fence, vegetative materials, or other alternative deemed appropriate by the Director. Exceptions to the preceding requirements include: new or used cars, cycles and trucks (but not including car parts or damaged vehicles); new or used boat sales; recreational vehicle sales; new or used large equipment sales or rentals; manufactured home sales; florists and plants nurseries.

### **17.92.130 PERFORMANCE BOND**

If weather conditions or other circumstances beyond the control of the developer or owner make completion of the landscaping impossible prior to desired occupancy, an extension of up to 6 months may be applied for by posting "security" equal to 120% of the cost of the landscaping, assuring installation within 6 months. "Security" may consist of a performance bond payable to the city, cash, certified check, time certificates of deposit, assignment of a saving account, letter of credit, or other such assurance of access to funds necessary for completion as shall meet the approval of the City Attorney. Upon acceptance of the security, the developer or owner may be allowed occupancy for a period of up to 180 days. If the installation of the landscaping improvement is not completed within 180 days, the City shall have access to the security to complete the installation and/or revoke occupancy. Upon completion of the installation by the city, any portion of the remaining security minus administrative charges of 30% shall be returned to the owner. Costs in excess of the posted security shall be assessed against the property and the City shall thereupon have a valid lien against the property, which will come due, and payable.

### **17.92.140 GUARANTEE**

All landscape materials and workmanship shall be guaranteed by the installer and/or developer for a period of time not to exceed two years. This guarantee shall insure that all plant materials survive in **good condition** and shall guarantee replacement of dead or dying plant materials.



## CHAPTER 17.98 - PARKING, LOADING, & ACCESS REQUIREMENTS

### 17.98.00 INTENT

The intent of these regulations is to provide **adequate** capacity and **appropriate** location and design of parking and loading areas as well as **adequate** access to such areas. The parking requirements are intended to provide **sufficient** parking in **close proximity** for residents, guests/visitors, customers, and/or employees of various land uses. These regulations apply to both motorized vehicles (hereinafter referred to as vehicles) and bicycles.

### 17.98.10 GENERAL PROVISIONS

- A. Provision and Maintenance. The provision of required off-street parking for vehicles and bicycles and loading facilities for vehicles is a continuous obligation. Building permits or other permits will only be issued after review and approval of site plans showing location of permanent access, parking and loading facilities.
- B. Unspecified Requirements. Vehicle and bicycle parking requirements for uses not specified in this chapter shall be determined by the Director based upon the requirements of similar specified uses.
- C. New Structure or Use. When a structure is constructed or a new use of land is commenced, on-site vehicle and bicycle parking and loading spaces shall be provided in accordance with Section 17.98.20 below or as otherwise modified through a planned development or specific area plan.
- D. Alteration of Existing Structures. When an existing structure is altered to the extent that the existing use is intensified, on-site vehicle and bicycle parking shall be provided in the amount required for such intensification. Alteration of existing structures, increased intensity, and change in use per Sections 17.98.10 (D.), (E.) and (F.) does not apply to commercial uses in the Central Business District (C-1).
- E. Increased Intensity. When **increased intensity** requires no more than four (4) vehicle spaces, no additional parking facilities shall be required. However, the effects of changes, additions, or enlargements shall be cumulative. When the net effect of one or more changes generates a need for more than four spaces, the additional required spaces shall be provided. Additional spaces shall be required for the intensification but not for the original use.
- F. Change in Use. When an existing structure or use of land is changed in use from one use to another use as listed in Section 17.98.20 below and the vehicle and bicycle parking requirements for each use type are the same; no additional parking shall be required. However, where a change in use results in an intensification of use in terms of number of vehicle and bicycle parking spaces required, additional parking space shall be provided in an amount equal to the difference between the number of spaces required for the existing use and number of spaces required for the more intensive use.
- G. Time of Completion. Required parking spaces and loading areas shall be improved and available for use prior to issuance of a temporary certificate of occupancy and/or final building inspection or final certificate of occupancy.

- H. Inoperative Motor Vehicles. In all residential zoning districts, all motor vehicles incapable of movement under their own power or lacking legal registration shall be completely screened from public view.
- I. Truck Parking. In all residential zoning districts, no overnight parking of trucks or other equipment on wheels or tracks exceeding a 1-ton capacity used in the conduct of a business activity shall be permitted except vehicles and equipment necessary for farming on the premises where such use is conducted.
- J. Mixed Uses. In the case of mixed uses, the total required vehicle and bicycle parking shall be the sum of requirements of individual uses computed separately.
- K. Conflicting Parking Requirements. When a building or use is planned or constructed in such a manner that more than one standard is applicable, the use that requires the greater number of parking spaces shall govern.
- L. Availability of Parking Spaces. Required vehicle and bicycle parking spaces shall be unobstructed, available for parking of vehicles and bicycles of residents, customers, patrons, and employees only, and shall not be used for storage of vehicles or materials or for parking of vehicles and bicycles used in conducting the business or use and shall not be used for sale, repair, or servicing of any vehicle or bicycle.
- M. Residential Parking Analysis Plan. A Residential Parking Analysis Plan shall be required for all new residential planned developments, subdivisions, and partitions to include a site plan depicting all of the following:
1. Location and dimension of required parking spaces as specified in Section 17.98.200.
  2. Location of areas where parking is not permitted as specified in Sections 17.98.200(A)(3) and (5).
  3. Location and design of parking courts (if applicable).
- N. Location of Required Parking.
1. Off-street vehicle parking required for single family dwellings (both attached and detached) and duplexes shall be provided on the development site of the primary structure. Except where permitted by 17.98.40 below, required parking for all other uses in other districts shall be provided on the same site as the use or upon abutting property.
  2. Bicycle parking required for all uses in all districts shall be provided on the development site in accordance with Section 17.98.160 below.
- O. Unassigned Parking in Residential Districts.
1. Multi-family dwelling units with more than 10 required vehicle parking spaces shall provide unassigned parking. The unassigned parking shall consist of at least 15 percent of the total required parking spaces and be located to be available for use by all occupants and guests of the development.
  2. Multi-family dwelling units with more than 10 required bicycle parking spaces may provide shared outdoor bicycle parking. The shared bicycle parking shall consist of at least 15 percent of the total required parking spaces and be located such that they are available for shared use by all occupants and guests of the development.

- P. Fractions. When the sum of the required vehicle and bicycle parking spaces is a fraction of a space (0.5 or more of a space) a full space shall be required.
- Q. Maximum Parking Allowed. Commercial or Industrial zoned properties shall not be permitted to exceed the minimum off-street vehicle parking required by Section 17.98.20 by more than 30 percent.

**17.98.20 OFF-STREET PARKING REQUIREMENTS**

A. **Off Street Parking Requirements.** Off street parking shall conform to the following standards:

1. Commercial uses in the Central Business District (C-1) are exempt from off street parking requirements. Residential uses in the Central Business District (C-1) have to provide off street parking per this section but may get a reduction per Section 17.98.30 (B.).
2. All square footage measurements are gross square feet of total floor area.
3. 24 lineal inches of bench shall be considered 1 seat.
4. Except as otherwise specified, parking for employees shall be provided based on 1 space per 2 employees for the largest shift in addition to required parking specified in Sections 8 – 11 below.
5. Where less than 5 parking spaces are required, then only one bicycle space shall be required except as otherwise modified in Sections 8 – 11 below.
6. In addition to requirements for residential off-street parking, new dwellings shall meet the on-street parking requirements in Section 17.98.200.
7. Uses that rely on square footage for determining parking requirements may reduce the overall square footage of the use by deducting bathrooms, mechanical rooms, and other auxiliary rooms as approved by the Director.

8.

Residential Uses	Number of Parking Spaces	Number of Bicycle Spaces
Single Family Detached/Attached	2 per dwelling unit	Exempt
Duplexes	2 per dwelling unit	Exempt
Manufactured Home Park	2 per dwelling, plus 1 visitor space for each 10 vehicle spaces	Exempt
Multi-Family Dwellings	1.5 per studio unit or 1-bedroom unit 2.0 per 2-bedroom unit or greater	1 per dwelling unit
Congregate Housing, Retirement Homes, Intermediate Care Facilities, Group Care Facilities, and Halfway Houses	1 per each 3 residents, plus 1 per 2 employees	5% or 2 whichever is greater

9.

<b>Community Service, Institutional and Semi-Public Uses</b>	<b>Number of Parking Spaces</b>	<b>Number of Bicycle Spaces</b>
Administrative Services	1 per 400 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Community Recreation Buildings, Library, or Museum	1 per 250 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Church, Chapel, Auditorium, or Fraternal Lodge without eating and drinking facilities	1 per 4 fixed seats or 1 per each 50 sq. ft. of public assembly area where there are no fixed seats, plus 1 per 2 employees	5% or 2 whichever is greater
Hospitals	1 per examine room or bed, and 1 per 4 seats in waiting room or chapel, plus 1 per 2 employees	5% or 2 whichever is greater
Commercial Daycare	2 for the facility, plus 1 per employee on the largest shift	2
School – Preschool/Kindergarten	2 per classroom, plus 1 per 2 employees	2
School – Elementary or Middle School/Junior High	2 per classroom, plus 1 per 2 employees	5% or 2 whichever is greater
School – Senior High, Vocational or College	6 per classroom, plus 1 per employee on the largest shift	5% or 2 whichever is greater

10.

<b>Commercial Uses</b>	<b>Number of Parking Spaces</b>	<b>Number of Bicycle Spaces</b>
Retail Sales, General or Personal Services, Professional Offices, Shopping Centers, Grocery Stores, Convenience Stores	1 per 400 sq. ft., plus 1 per 2 employees	5% or 2 whichever is greater
Retail Sales of Bulky Merchandise (examples: furniture or motor vehicles)	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Eating or Drinking Establishments	1 per 250 sq. ft. of gross floor area or 1 per 4 fixed seats or stools, plus 1 per 2 employees	5% or 2 whichever is greater
Funerals and Interment Services: Crematory and Undertaking <i>Interring and Cemeteries are exempt</i>	1 per 4 fixed seats or 1 space for each 50 sq. ft. of public assembly area where there are no fixed seats, plus 1 per 2 employees	2
Fuel Sales (without store)	1 per employee on the largest shift	2
Medical or Dental Office or Clinic	1 per examine room or bed, and 1 per 4 seats in waiting room, plus 1 per 2 employees	5% or 2 whichever is greater
Participant Sports or Recreation: Indoor or Outdoor; Spectator Sports;	1 per 4 fixed seats or 1 space per 4 participants based on projected	5% or 2 whichever is greater

Theater or similar use	participant capacity, plus 1 per 2 employees	
Campground or RV Park	1 per designated space, plus 1 visitor space for each 8 designated spaces, plus 1 per 2 employees	Exempt
Hotel or Motel	1 per guest room or suite, plus 1 per 2 employees	2

11.

Industrial Uses	Number of Parking Spaces	Number of Bicycle Spaces
Sales, Storage, Rental, Services and Repairs of: Agricultural and Animals Automotive/Equipment Fleet Storage Light Equipment Non-operating vehicles, boats and recreational vehicles Building Equipment	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Sales, Storage, Rental, and Repairs of: Heavy Equipment, or Farm Equipment	1 per 1,000 sq. ft., plus 1 per 2 employees	2
Storage, Distribution, Warehousing, or Manufacturing establishment; trucking freight terminal	1 per employee on the largest shift	2

### 17.98.30 REDUCTION OF PARKING REQUIREMENTS

#### A. Transit Amenity Reduction.

1. Any existing or proposed use in the C-2, C-3, or I-1 Zoning Districts subject to minimum parking requirements and located within 400 feet of an existing transit route may reduce the number of required parking spaces by up to 10 percent by providing a transit stop and related amenities including a public plaza, pedestrian sitting areas, or additional landscaping provided such landscaping does not exceed 25 percent of the total area dedicated for transit oriented purposes.
2. Required parking spaces may be reduced at a ratio of 1 parking space for each 100 square feet of transit amenity space provided above and beyond the minimum requirements.
3. Uses, which are not eligible for these reductions, include truck stops, building materials and lumber sales, nurseries and similar uses not likely to be visited by pedestrians or transit customers.

#### B. Residential uses in the Central Business District and Village Commercial District Reduction.

Required off-street parking for residential uses in the C-1 and C-3 Zoning District may be reduced by 25 percent.

#### **17.98.40 SHARED USE OF PARKING FACILITIES**

- A. Except for single family dwellings (both attached and detached) and duplexes, required parking facilities may be located on an adjacent parcel of land or separated only by an alley or local street, provided the adjacent parcel is maintained in the same ownership as the use it is required to serve or a shared parking agreement that can only be released by the Director is recorded in the deed records of Clackamas County.
- B. In the event that several parcels occupy a single structure or parcel of land, the total requirements for off-street parking shall be the sum of the requirements for the uses computed separately.
- C. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facility used jointly, to the extent that it can be shown by the owners or operators that the needs of the facilities do not materially overlap (e.g., uses primarily of day time versus night time uses) and provided that such right of joint use is evidenced by a deed, lease, contract or similar written instrument recorded in the deed records of Clackamas County establishing such joint use.

#### **17.98.50 SETBACKS**

- A. Parking areas, which abut a residential zoning district, shall meet the setback of the most restrictive adjoining residential zoning district.
- B. Required parking shall not be located in a required front or side yard setback area abutting a public street except in industrial districts. For single family and duplexes, required off-street parking may be located in a driveway.
- C. Parking areas shall be setback from a lot line adjoining a street the same distance as the required building setbacks. Regardless of other provisions, a minimum setback of 5 feet shall be provided along the property fronting on a public street. The setback area shall be landscaped as provided in this code.

#### **17.98.60 DESIGN, SIZE AND ACCESS**

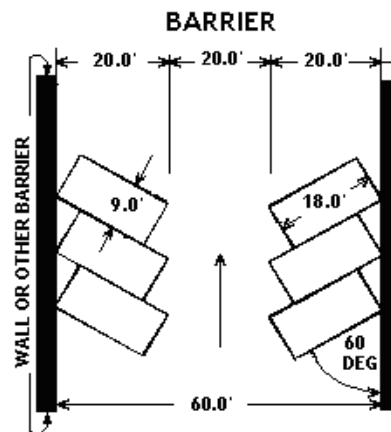
All off-street parking facilities, vehicular maneuvering areas, driveways, loading facilities, accessways, and private streets shall conform to the standards set forth in this section.

- A. Parking Lot Design. All areas for required parking and maneuvering of vehicles shall have a durable hard surface such as concrete or asphalt.
- B. Size of Space.
  - 1. A standard parking space shall be 9 feet by 18 feet.
  - 2. A compact parking space shall be 8 feet by 16 feet.
  - 3. Accessible parking spaces shall be 9 feet by 18 feet and include an adjacent access aisle meeting ORS 447.233. Access aisles may be shared by adjacent spaces. Accessible parking shall be provided for all uses in compliance with the requirements of the State of Oregon (ORS 447.233) and the Americans with Disabilities Act.
  - 4. Parallel parking spaces shall be a length of 22 feet.

5. No more than 40 percent of the parking stalls shall be compact spaces.

C. Aisle Width.

Parking Aisle	Single Sided One-Way	Single Sided Two-Way	Double Sided One-Way	Double Sided Two-Way
90 degree	20 feet	22 feet	25 feet	25 feet
60 degree	20 feet	20 feet	20 feet	20 feet
45 degree	20 feet	20 feet	20 feet	20 feet
Parallel	12 feet	12 feet	16 feet	16 feet



**17.98.70 ON-SITE CIRCULATION**

- A. Groups of more than three (3) parking spaces shall be permanently striped. Accessible parking spaces and accompanying access aisles shall be striped regardless of the number of parking spaces.
- B. Backing and Maneuvering. Except for a single family dwelling, duplex, or accessory dwelling unit, groups of more than 3 parking spaces shall be provided with adequate aisles or turnaround areas so that all vehicles enter the right-of-way (except for alleys) in a forward manner. Parking spaces shall not have backing or maneuvering movements for any of the parking spaces occurring across public sidewalks or within any public street, except as approved by the City Engineer. Evaluations of requests for exceptions shall consider constraints due to lot patterns and impacts to the safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

**17.98.80 ACCESS TO ARTERIAL AND COLLECTOR STREETS**

- A. Location and design of all accesses to and/or from arterials and collectors (as designable in the Transportation System Plan) are subject to review and approval by the City Engineer. Where practical, access from a lower functional order street may be required. Accesses to

arterials or collectors shall be located a minimum of 150 ft. from any other access or street intersection. Exceptions may be granted by the City Engineer. Evaluations of exceptions shall consider posted speed of the street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.

- B. No development site shall be allowed more than one access point to any arterial or collector street (as designated in the Transportation System Plan) except as approved by the City Engineer. Evaluations of exceptions shall be based on a traffic impact analysis and parking and circulation plan and consider posted speed of street on which access is proposed, constraints due to lot patterns, and effects on safety and capacity of the adjacent public street, bicycle and pedestrian facilities.
- C. When developed property is to be expanded or altered in a manner that significantly affects on-site parking or circulation, both existing and proposed accesses shall be reviewed under the standards in A and B above. As a part of an expansion or alteration approval, the City may require relocation and/or reconstruction of existing accesses not meeting those standards.

#### **17.98.90 ACCESS TO UNIMPROVED STREETS**

Access to Unimproved Streets. At the Director's discretion development may occur without access to a City standard street when that development constitutes infill on an existing substandard public street. A condition of development shall be that the property owner signs an irrevocable petition for street improvements and/or a declaration of deed restrictions agreeing to future completion of street improvements. The form shall be provided by the City and recorded with the property through the Clackamas County Recorder's Office. This shall be required with approval of any of the following applications:

- Land partitions
- Conditional uses
- Building permits for new non-residential construction or structural additions to non-residential structures (except accessory development)
- Building permits for new residential units

#### **17.98.100 DRIVEWAYS**

- A. A driveway to an off-street parking area shall be improved from the public right-of-way to the parking area a minimum width of 20 feet for a two-way drive or 12 feet for a one-way drive, but in either case not less than the full width of the standard approach for the first 20 feet of the driveway.
- B. A driveway for a single-family dwelling shall have a minimum width of 10 feet. The driveway approach within the public right-of-way shall not exceed 24 feet in width measured at the bottom of the curb transition. A driveway approach shall be constructed in accordance with applicable city standards and the entire driveway shall be paved with asphalt or concrete. Shared driveway approaches may be required for adjacent lots in cul-de-sacs in order to maximize room for street trees and minimize conflicts with utility facilities (power and telecom pedestals, fire hydrants, streetlights, meter boxes, etc.)



- C. A driveway for a two-family dwelling shall have a minimum width of 20 feet. The driveway approach in the public right-of-way shall not exceed 24 feet in width as measured in section B above. A driveway approach shall be constructed in accordance with applicable city standards and the entire driveway shall be paved with asphalt or concrete.
- D. Driveways, aisles, turnaround areas and ramps shall have a minimum vertical clearance of twelve feet for their entire length and width, but such clearance may be reduced in parking structures as approved by the Director.
- E. No driveway shall exceed a grade of 15 percent at any point along the driveway length, measured from the right-of-way line to the face of garage or furthest extent of the driveway.
- F. The nearest edge of a driveway approach shall be located a minimum of 15 feet from the point of curvature or tangency of the curb return on any street.
- G. The sum of the width of all driveway approaches within the bulb of a cul-de-sac as measured in section B above shall not exceed fifty percent of the circumference of the cul-de-sac bulb. The cul-de-sac bulb circumference shall be measured at the curb line and shall not include the width of the stem street. The nearest edge of driveway approaches in cul-de-sacs shall not be located within 15 feet of the point of curvature, point of tangency or point of reverse curvature of the curb return on the stem street.

Acronyms on the next page:

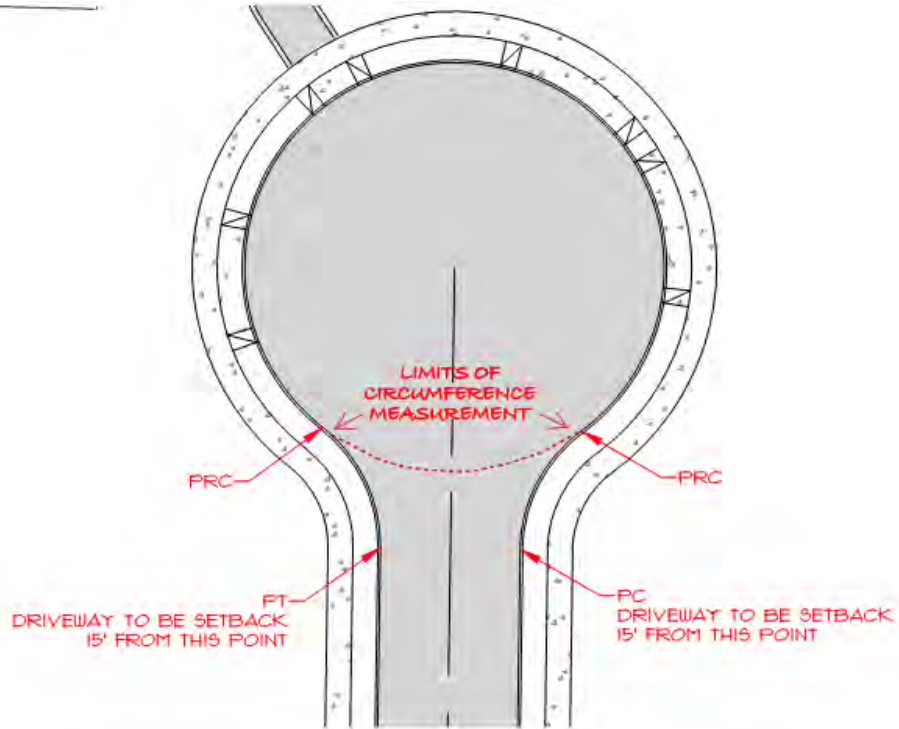
PT = point of tangency

PC = point of curvature

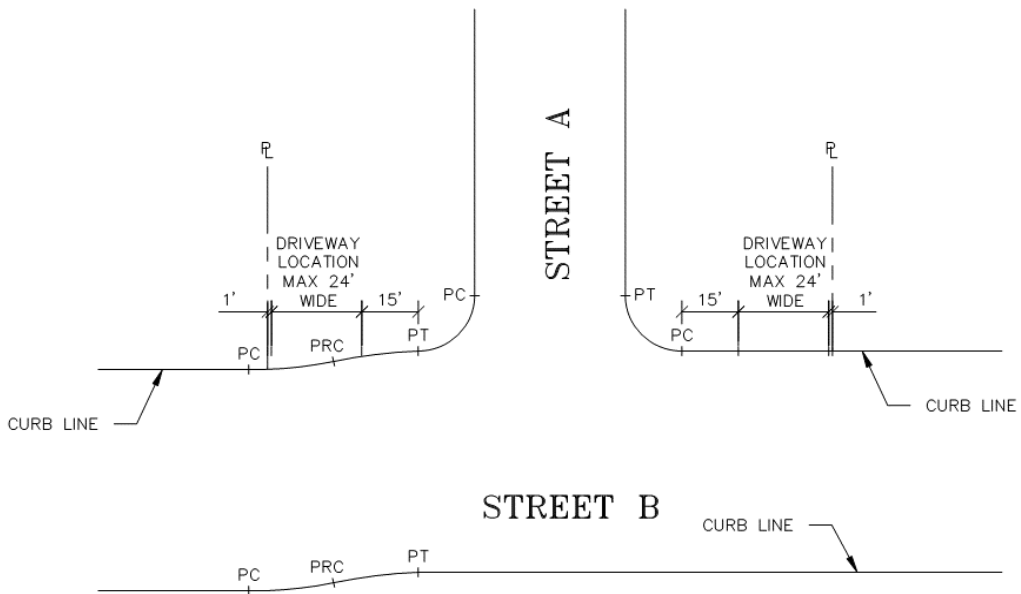
PRC = point of reverse curvature

- H. The location and design of any driveway approach shall provide for unobstructed sight per the vision clearance requirements in section 17.74.30. **Requests for exceptions to these requirements will be evaluated by the City Engineer considering the physical limitations of the lot and safety impacts to vehicular, bicycle, and pedestrian traffic.**
- I. Driveways shall taper to match the driveway approach width to prevent stormwater sheet flow from traversing sidewalks.

**CUL-DE-SAC EXHIBIT**



**DRIVEWAY LOCATION EXHIBIT**



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Revised by Ordinance No. 2020-06 (effective 05/06/2020)

### **17.98.110 VISION CLEARANCE**

- A. Except within the Central Business District, vision clearance areas shall be provided at intersections of all streets and at intersections of driveways and alleys with streets to promote pedestrian, bicycle, and vehicular safety. The extent of vision clearance to be provided shall be determined from standards in Chapter 17.74 and taking into account functional classification of the streets involved, type of traffic control present at the intersection, and designated speed for the streets.
- B. Traffic control devices, streetlights, and utility installations meeting approval by the City Engineer are permitted within vision clearance areas.

### **17.98.120 LANDSCAPING AND SCREENING**

- A. Screening of all parking areas containing 4 or more spaces and all parking areas in conjunction with an off-street loading facility shall be required in accordance with zoning district requirements and Chapter 17.98. Where not otherwise specified by district requirement, screening along a public right-of-way shall include a minimum 5 feet depth of buffer plantings adjacent to the right-of-way.
- B. When parking in a commercial or industrial district adjoins a residential zoning district, a sight-obscuring screen that is at least 80 percent opaque when viewed horizontally from between 2 and 8 feet above the average ground level shall be required. The screening shall be composed of materials that are an adequate size so as to achieve the required degree of screening within 3 years after installation.
- C. Except for a residential development which has landscaped yards, parking facilities shall include landscaping to cover not less than 10 percent of the area devoted to parking facilities. The landscaping shall be uniformly distributed throughout the parking area and may consist of trees, shrubs, and ground covers.
- D. Parking areas shall be divided into bays of not more than 20 spaces in parking areas with 20 or more spaces. Between, and at the end of each parking bay, there shall be planters that have a minimum width of 5 feet and a minimum length of 17 feet for a single depth bay and 34 feet for a double bay. Each planter shall contain one major structural tree and ground cover. Truck parking and loading areas are exempt from this requirement.
- E. Parking area setbacks shall be landscaped with major trees, shrubs, and ground cover as specified in Chapter 17.92.
- F. Wheel stops, bumper guards, or other methods to protect landscaped areas and pedestrian walkways shall be provided. No vehicle may project over a property line or into a public right-of-way. Parking may project over an internal sidewalk, but a minimum clearance of 5 feet for pedestrian circulation is required.

### **17.98.130 PAVING**

- A. Parking areas, driveways, aisles and turnarounds shall be paved with concrete, asphalt or **comparable surfacing**, constructed to City standards for off-street vehicle areas.
- B. Gravel surfacing shall be permitted only for areas designated for non-motorized trailer or equipment storage, propane or electrically powered vehicles, or storage of tracked vehicles.

### **17.98.140 DRAINAGE**

Parking areas, aisles and turnarounds shall have **adequate provisions** made for the on-site collection of drainage waters to eliminate sheet flow of such waters onto sidewalks, public rights-of-way and abutting private property.

### **17.98.150 LIGHTING**

The Dark Sky Ordinance in Chapter 15 of the municipal code applies to all lighting. Artificial lighting shall be provided in all required off-street parking areas. Lighting shall be directed into the site and shall be arranged to not produce direct glare on adjacent properties. Light elements shall be shielded and shall not be visible from abutting residential properties. Lighting shall be provided in all bicycle parking areas so that all facilities are **thoroughly illuminated** and visible from adjacent sidewalks or vehicle parking lots during all hours of use.

### **17.98.160 BICYCLE PARKING FACILITIES**

Multi-family developments, industrial, commercial and community service uses, transit transfer stations, and park and ride lots shall meet the following standards for bicycle parking facilities. The intent of this section is to provide secure bicycle parking that is visible from a building's primary entrance and convenient to bicyclists.

- A. Location.
  - 1. Bicycle parking shall be located on-site, convenient to primary building entrances, and have direct access to both the public right-of-way and to the main entrance of the primary structure.
  - 2. Bicycle parking areas shall be visible from building interiors where possible.
  - 3. For facilities with multiple buildings or parking lots, bicycle parking shall be located in areas of greatest use and convenience to bicyclists.
  - 4. If the bicycle parking area is located within the vehicle parking area, the bicycle facilities shall be separated from vehicular maneuvering areas by curbing or other barrier to prevent damage to parked bicycles.
  - 5. Curb cuts shall be installed to provide safe, convenient access to bicycle parking areas.
- B. Bicycle Parking Space Dimensions.
  - 1. Each required bicycle parking space shall be at least 2 ½ feet by 6 feet. If bicycle parking is covered, vertical clearance of 7 feet shall be provided.
  - 2. An access aisle of at least 5 feet wide shall be provided and maintained beside or between each row of bicycle parking. Vertical or upright bicycle storage structures are exempted from the parking space length.

- C. Security.
  1. Bicycle parking facilities shall offer security in the form of either a lockable enclosure in which the bicycle can be stored or a stationary object (i.e., a “rack”) upon which the bicycle can be located.
  2. Racks requiring user-supplied locks shall accommodate both cable and U-shaped locks.
  3. Bicycle racks shall be securely anchored to the ground or a structure and shall be designed to hold bicycles securely.
  4. All outdoor bicycle parking facilities shall provide adequate shelter from precipitation where possible.
- D. Signing. Where bicycle facilities are not directly visible from the public right-of-way, primary structure entry, or civic space then directional signs shall be provided to direct bicyclists to the bicycle parking facility.
- E. Exemptions. Temporary uses and other uses identified in Section 17.98.20 as not requiring bicycle parking are exempt from Section 17.98.160.

**17.98.170 CARPOOL AND VANPOOL PARKING**

New industrial, commercial, and community service uses with more than 100 employees shall meet the following minimum requirements for carpool and vanpool parking.

- A. Number and Marking. At least 10 percent of the employee parking spaces shall be marked and signed for use as a carpool/vanpool space. The carpool/vanpool spaces shall be clearly marked “Reserved - Carpool/Vanpool Only”.
- B. Location. Designated carpool/vanpool parking spaces shall be the closest employee parking spaces to the building entrance normally used by employees except for any handicapped spaces provided.

**17.98.180 SCHOOL DESIGN REQUIREMENTS**

A driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading children shall be located on the site of a school having a capacity greater than 50 students.

**17.98.190 OFF-STREET LOADING FACILITIES**

- B. All commercial and industrial uses that anticipate loading and unloading of products/materials shall provide an off-street area for loading/unloading of products/materials.
- C. The required loading berth shall be not less than 10 feet in width by 35 feet in length and shall have an unobstructed height clearance of 14 feet.
- D. Loading areas shall be screened from public view from public streets. The loading areas shall be screened from adjacent properties except in industrial districts and shall require the same screening as parking lots.

- E. Sufficient space for turning and maneuvering of vehicles shall be provided on the site in accordance with the standard specifications established by the City Engineer.

**17.98.200 RESIDENTIAL ON-STREET PARKING REQUIREMENTS**

- A. Residential On-Street Parking Requirements. Residential on-street parking shall conform to the following standards:
1. In addition to required off-street parking, all new residential planned developments, subdivisions and partitions shall provide one (1) on-street parking space within 300 feet of each dwelling except as provided in Section 17.98.200(A)(6) below. The 300 feet shall be measured from the primary entrance of the dwelling.
  2. The location of residential on-street parking shall be reviewed for compliance with this section through submittal of a Residential Parking Analysis Plan as required in Section 17.98.10(M).
  3. Residential on-street parking shall not obstruct required clear vision areas and shall not violate any local or state laws.
  4. Parallel residential on-street parking spaces shall be a minimum of 22 feet in length.
  5. Residential on-street parking shall be measured along the curb from the outside edge of a driveway wing or curb cut. Parking spaces shall be set back a minimum of 15 feet from the point of tangency or curvature at an intersection and may not be located within 10 feet of a fire hydrant.
  6. Portions of residential on-street parking required by this section may be provided in parking courts that are interspersed throughout a development when the following standards are met:
    - a. No more than ten (10) parking spaces shall be provided in a parking court, except parking courts that utilize backing movements into the right-of-way in which case the parking court shall be limited to two (2) parking spaces;
    - b. Parking spaces within a parking court shall be nine (9) feet wide and 18 feet in depth. In no instance shall a vehicle or any appurtenances parked in a parking court protrude into the public right-of-way;
    - c. Notwithstanding Section 17.98.70, vehicles parked in a parking court on **a local street as defined in the Transportation System Plan** are permitted to back onto the public right-of-way from the parking court so long as the parking court is limited to two (2) parking spaces;
    - d. A parking court shall be located within 300 feet of the dwellings requiring parking in accordance with the requirements of Section 17.98.10(M);
    - e. No more than two (2) parking courts shall be provided within a block, with only one (1) parking court provided along a block face;
    - f. A parking court shall be paved in compliance with the standards of this chapter and constructed to the grading and drainage standards in 17.98.140;
    - g. A parking court adjacent to a public right-of-way, shall be privately owned and maintained;

- h. If a parking court is adjacent to a private drive, it shall be privately owned and maintained. For any parking court there shall be a legal recorded document which includes:
  - A legal description of the parking court;
  - Ownership of the parking court;
  - Use rights; and
  - A maintenance agreement and the allocation and/or method of determining liability for maintenance of the parking court;
- i. A parking court shall be used solely for the parking of operable passenger vehicles.

## CHAPTER 17.100 LAND DIVISION

### 17.100.00 INTENT

The intent of this chapter is to implement the Comprehensive Plan, to provide procedures, regulations, and design standards for land divisions and associated improvements and to provide for orderly and efficient land division patterns supported by a connected system of streets, fiber (broadband), water supply, sanitary sewer and stormwater drainage facilities.

The division of land is the initial step in establishing Sandy's ultimate development pattern. The framework of streets, blocks and individual lots is implemented through the land division process. Density, dimensional standards, setbacks, and building height are established in applicable zoning district regulations.

This chapter presents the review procedures, design standards and improvement requirements for land divisions. Procedures for replats and property line adjustments are also addressed in this chapter.

### 17.100.10 GENERAL PROVISIONS

- A. No land shall be divided prior to approval of a minor partition, major partition or subdivision in accordance with this Code.
- B. No sale or conveyance of any portion of a lot, other than for a public purpose, shall leave a structure on the remainder of a lot with less than the minimum lot, yard or setback requirements of the zoning district.
- C. Land division is processed by approval of a tentative plan prior to approval of the final land division plat or map. Where a Type II or Type III procedure is required for land division approval, that procedure shall apply to the tentative plan approval. As long as there is compliance with the approved tentative plat and conditions, the Director shall have the authority to approve final plats and maps for land divisions through a Type I procedure.

### 17.100.20 LAND DIVISION CLASSIFICATION - TYPE I, II OR III PROCEDURES

- A. Type I Land Division (Property Line Adjustment). Property line adjustments shall be a Type I procedure if the resulting parcels comply with standards of the Development Code and this chapter.
- B. Type I Land Division (Minor Partition). A minor partition shall be a Type I procedure if the land division does not create a street and the resulting parcels comply with the standards of the zoning district and this chapter.
- C. Type II Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type II procedure when a street is extended, satisfactory street conditions exist and the resulting parcels/lots comply with the standards of the zoning district and this chapter. Satisfactory street conditions exist when the Director determines one of the following:



1. Existing streets are stubbed to the property boundaries and are linked by the land division.
  2. An existing street or a new proposed street need not continue beyond the land division in order to complete an appropriate street system or to provide access to adjacent property.
  3. The proposed street layout is consistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.
- D. Type II Land Division (Minor Replat). A minor replat of an existing platted subdivision shall be a Type II procedure when the street(s) are existing and no extension or reconstruction/realignment is necessary, when the replat does not increase the allowable density, the resulting parcels comply with the standards of the zoning district and this chapter, and the replat involves no more than six (6) lots.
- E. Type III Land Division (Major Partition or Subdivision). A major partition or subdivision shall be a Type III procedure if unsatisfactory street conditions exist or the resulting parcels/lots do not comply with the standards of the zoning district and this chapter. The Director shall determine if unsatisfactory street conditions exist based on one of the following criteria:
1. The land division does not link streets that are stubbed to the boundaries of the property.
  2. An existing street or a new proposed street will be extended beyond the boundaries of the land division to complete a street system or provide access to adjacent property.
  3. The proposed street layout is inconsistent with a street pattern adopted as part of the Comprehensive Plan or an officially adopted City street plan.
- F. Type III Land Division (Major Replat). A major replat involves the realignment of property lines involving more than six lots, even if the subdivision does not increase the allowable density. All parcels resulting from the replat must comply with the standards of the zoning district and this chapter. Any replat involving the creation, extension or modification of a street shall be processed as a major replat.

### 17.100.30 PROPERTY LINE ADJUSTMENT

Approval of a property line adjustment is required to move a common boundary between two parcels or lots. A Type I property line adjustment is not considered a development action for purposes of determining whether floodplain, greenway, or right-of-way dedication or improvements are required.

- A. Application Requirements. Property line adjustment applications shall be made on forms provided by the City and shall be accompanied by:
1. Two (2) copies of the property line adjustment map;
  2. The required fee;
  3. Any data or narrative necessary to explain the application.
- B. Map Information. The property line adjustment map and narrative shall include the following:
1. The names, addresses and phone numbers of the owner(s) of the subject parcels and authorized representative;
  2. Scale of the drawing using an engineer's scale;
  3. North arrow and date;

4. Legal description of the property;
  5. Dimensions and size of the parcels involved in the property line adjustment;
  6. Approximate locations of structures, utilities, rights-of-way and easements;
  7. Points of access, existing and proposed;
  8. Any natural features such as waterways, drainage area, significant vegetation or rock outcroppings;
  9. Approximate topography, particularly noting any area of steep slope.
- C. Approval Criteria. The Director shall approve a request for a property line adjustment if the following criteria are satisfied:
1. No additional parcels are created.
  2. All parcels meet the density requirements and dimensional standards of the base zoning district.
  3. Access, utilities, easements, and proposed future streets will not be adversely affected by the property line adjustment.
- D. Final Approval. Three paper copies of the final map shall be submitted within one year of approval of the property line adjustment. The final map shall include a boundary survey, which complies with ORS Chapters 92 and 209. The approved final map, along with required deeds, must be recorded with Clackamas County.

#### **17.100.40 MINOR AND MAJOR PARTITIONS**

Approval of a partition is required for a land division of 3 or fewer parcels in a calendar year. Partitions, which do not require creation or extension of a street for access, is classified as a Type I minor partition. Partitions, which require creation or extension of a street for access, are classified as Type II, major partitions.

- A. Preapplication Conference. The applicant for a minor or major partition shall participate in a preapplication conference with City staff to discuss procedures for approval, applicable state and local requirements, **objectives and policies of the Sandy Comprehensive Plan**, and the availability of services. A preapplication conference is required.
- B. Application Requirements. Partition applications shall be made on forms provided by the planning department and shall be accompanied by:
1. Eight copies of the tentative plan for the minor or major partition;
  2. The required fee;
  3. Any data or narrative necessary to explain the application;
  4. List of affected property owners.
- C. Tentative Partition Plan. The tentative plan shall be a minimum of 8 1/2 x 11 inches in size and shall include the following information:
1. The date, north point, engineering scale, and legal description;
  2. Name and address of the owner of record and of the person who prepared the partition plan;
  3. Zoning, size and dimensions of the tract to be partitioned;
  4. Size, dimensions and identification of proposed parcels (Parcel 1, Parcel 2, Parcel 3);
  5. Approximate location of any structures on the tract to be partitioned, including setbacks to proposed parcel boundaries;

6. Location, names and widths of streets, sidewalks and bikeways within the tract to be partitioned and extending 400 feet beyond the tract boundaries;
  7. Location, width and purpose of existing and proposed easements on the tract to be partitioned;
  8. Location and size of sanitary sewer, water and stormwater drainage facilities proposed to serve the property to be partitioned;
  9. Natural features such as waterways, drainage area, significant vegetation or rock outcroppings;
  10. Approximate topography, particularly noting any area of steep slope;
  11. A plan for future parcel redivision, if the proposed parcels are large enough to be redivided under the comprehensive plan or zoning designation.
- D. Approval Criteria. The Director or Planning Commission shall review the tentative plan for a minor or major partition based on the classification procedure (Type I, II or III) and the following approval criteria:
1. The proposed partition is consistent with the density, setback and dimensional standards of the base zoning district.
  2. The proposed partition is consistent with the design standards set forth in this chapter.
  3. Adequate public facilities are available or can be provided to serve the proposed partition.
  4. All proposed improvements meet City standards.
  5. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.
  6. The plan preserves the potential for future redivision of the parcels, if applicable.
- E. Conditions. The Director or Planning Commission may require dedication of land and easements and may specify such conditions or modifications of the tentative partition plan as deemed necessary. In no event, however, shall the Director or Planning Commission require greater dedications or conditions than could be required if the entire tract were subdivided.
- F. Approval of Tentative Partition Plan. When a tentative partition plan has been approved, all copies shall be marked with the date and conditions of approval. One copy shall be returned to the applicant, one copy shall be sent to the county and one copy shall be retained by the City.
- G. Approval Signatures for Final Partition Map. Following review and approval of a final partition map, the Director shall:
1. Review Plat for Accuracy. The Director may require field investigations to verify that the plat survey is accurate. The applicant shall be notified and afforded an opportunity to make corrections if needed.
  2. Sign the plat to certify that the map is approved.
  3. Notify the applicant that the partition map and accompanying documents have been approved and are ready for recording with the Clackamas County Recorder.
  4. Deliver the signed original to the applicant who shall deliver the original and two exact copies to the County Recorder's office. One recorded copy shall be returned to the City of Sandy immediately after recording is completed.
- H. Effective Date for Final Partition Map Approval. The partition shall become final upon recording of the approved partition map together with any required documents with the County Recorder. Work specifically authorized following tentative approval may take place

prior to processing of the final partition map. The documents effectuating a partition shall become null and void if not recorded with the County Recorder within one year following approval.

- I. Improvements. The same improvements shall be installed to serve each parcel of a partition as required of a subdivision. Improvement standards are set forth in Section 17.90. If the Director and City Engineer find a need to vary the improvement standards for a partition, the application shall be processed through a Type III hearing and may exempt specific improvements.
- J. Exceptions to Improvements. Exceptions to improvements may be approved in transition areas or other areas as deemed appropriate by the City. In lieu of excepting an improvement, the Planning Commission may recommend to the City Council that the improvement be installed in the area under special assessment financing or other facility extension policies of the City.

#### **17.100.50 NONRESIDENTIAL PARTITIONS OR SUBDIVISIONS**

This section includes special provisions for partitions or subdivisions of land that is zoned for commercial or industrial use.

- A. Principles and Standards. In addition to the standards established for partitions or subdivisions, the applicant for a nonresidential partition or subdivision shall demonstrate that the street, parcel and block pattern proposed is adapted to uses in the vicinity. The following principles and standards shall be observed:
  - 1. Proposed commercial and industrial parcels shall be suitable in area and dimensions to the types of development anticipated.
  - 2. Street right-of-way and pavement shall be adequate to accommodate the type and volume of traffic anticipated.
  - 3. Special requirements may be imposed by the City with respect to street, curb, gutter and sidewalk design and construction.
  - 4. Special requirements may be imposed by the City with respect to the installation of public utilities, including but not limited to water, sanitary sewer, and stormwater drainage facilities.
  - 5. Efforts shall be made to protect adjacent residential areas from potential nuisance from a proposed commercial or industrial subdivision. Such efforts may include the provision of extra depth in parcels backing up on existing or potential residential development and landscaped buffers.
  - 6. Streets carrying nonresidential traffic, particularly truck traffic, should not normally be extended through adjacent residential areas.
  - 7. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.

#### **17.100.60 SUBDIVISIONS**

Approval of a subdivision is required for a land division of 4 or more parcels in a calendar year. A two-step procedure is required for subdivision approval: (1) tentative plat review and approval; and (2) final plat review and approval.

- A. Preapplication Conference. The applicant for a subdivision shall participate in a preapplication conference with City staff to discuss procedures for approval, applicable state and local requirements, **objectives and policies of the Sandy Comprehensive Plan**, and the availability of services. The preapplication conference provides the opportunity to discuss the conceptual development of the property in advance of formal submission of the tentative plan in order to save the applicant unnecessary delay and cost.
- B. Application Requirements for a Tentative Plat. Subdivision applications shall be made on forms provided by the planning department and shall be accompanied by:
1. 20 copies of the tentative plat;
  2. Required fee and technical service deposit;
  3. 20 copies of all other supplementary material as may be required to indicate the general program and objectives of the subdivision;
  4. Preliminary title search;
  5. List of affected property owners.
- C. Format. The Tentative Plat shall be drawn on a sheet 18 x 24 inches in size and at a scale of one inch equals one hundred feet unless an alternative format is approved by the Director at the preapplication conference. The application shall include one copy of a scaled drawing of the proposed subdivision, on a sheet 8 1/2 x 11, suitable for reproduction.
- D. Data Requirements for Tentative Plat.
1. Scale of drawing, north arrow, and date.
  2. Location of the subdivision by section, township and range, and a legal description sufficient to define the location and boundaries of the proposed tract.
  3. A vicinity map, showing adjacent property boundaries and how proposed streets may be extended to connect to existing streets.
  4. Names, addresses, and telephone numbers of the owner(s) of the property, the engineer or surveyor, and the date of the survey.
  5. Streets: location, names, paved widths, alleys, and right-of-way (existing and proposed) on and within 400 feet of the boundaries of the subdivision tract.
  6. Easements: location, widths, purpose of all easements (existing and proposed) on or serving the tract.
  7. Utilities: location of stormwater drainage, sanitary sewers and water lines (existing and proposed) on and abutting the tract. If utilities are not on or abutting the tract, indicate the direction and distance to the nearest locations.
  8. Ground elevations shown by contour lines at two-foot vertical intervals for ground slopes of less than 10 percent and at ten-foot vertical intervals for ground slopes exceeding 10 percent. Ground elevation shall be related to an established benchmark or other datum approved by the Director.
  9. Natural features such as marshes, rock outcroppings, watercourses on and abutting the property, and location of wooded areas.
  10. Approximate location of areas subject to periodic inundation or storm sewer overflow, location of any floodplain or flood hazard district.
  11. Location, width, and direction of flow of all water courses.
  12. Identification of the top of bank and boundary of mandatory setback for any stream or water course.
  13. Identification of any associated wetland and boundary of mandatory setback.
  14. Identification of any wetland and boundary of mandatory setback.

15. Location of at least one temporary bench mark within the tract boundaries.
  16. Existing uses of the property, including location and present use of all existing structures to remain on the property after platting.
  17. Lots and Blocks: approximate dimensions of all lots, minimum lot sizes, and proposed lot and block numbers.
  18. Existing zoning and proposed land use.
  19. Designation of land intended to be dedicated or reserved for public use, with the purpose, conditions, or limitations of such reservations clearly indicated.
  20. Proposed development phases, if applicable.
  21. Any other information determined necessary by the Director such as a soil report or other engineering study, traffic analysis, floodplain or wetland delineation, etc.
- E. **Approval Criteria.** The Director or Planning Commission shall review the tentative plat for the subdivision based on the classification procedure (Type II or III) set forth in Chapter 17.12 and the following approval criteria:
1. The proposed subdivision is **consistent with** the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval.
  2. The proposed subdivision is **consistent with** the design standards set forth in this chapter.
  3. The proposed street pattern is **connected** and **consistent with the Comprehensive Plan or official street plan for the City of Sandy.**
  4. Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.
  5. **Adequate public facilities** are available or can be provided to serve the proposed subdivision.
  6. All proposed improvements meet **City standards.**
  7. The phasing plan, if requested, can be carried out in a manner that meets the objectives of the above criteria and provides **necessary public improvements** for each phase as it develops.
- F. **Conditions.** The Director or Planning Commission may require dedication of land and easements, and may specify such conditions or modifications of the tentative plat as deemed necessary.
- G. **Improvements.** A detailed list of required improvements for the subdivision shall be set forth in the approval and conditions for the tentative plat.
- H. **Tentative Plat Expiration Date.** The final plat shall be delivered to the Director for approval within two (2) years following approval of the tentative plat, and shall incorporate any modification or condition required by approval of the tentative plat. The Director may, upon written request, grant an extension of the tentative plat approval for up to one (1) additional year. The one year extension by the Director is the maximum extension that may be granted for a subdivision.
- I. **Submission of Final Plat.** The applicant shall survey the subdivision and prepare a final plat in conformance with the tentative plat approval and the requirements of ORS Chapter 92.

- J. Information on Plat. In addition to information required for the tentative plat or otherwise specified by state law, the following information shall be shown on the final plat for the subdivision:
1. Tract boundary lines, right-of-way lines of streets and property lines with dimensions, bearings or deflection angles and radii, arcs, points of curvature and tangent bearings. All bearings and angles shall be shown to the nearest one-second and all dimensions to the nearest 0.01 foot. If circular curves are proposed in the plat, the following data must be shown in table form: curve radius, central angles, arc length, and bearing of long chord. All information shown on the face of the plat shall be mathematically perfect.
  2. Easements denoted by fine dotted lines, clearly identified and, if already of record, their recorded references. If an easement is not definitely located of record, a statement of the easement shall be given. The width of the easement, its length and bearing, and sufficient ties to locate the easement with respect to the subdivision shall be shown. If the easement is being dedicated by the plat, it shall be properly referenced in the owner's certificates of dedication.
  3. Any building setback lines if more restrictive than the City zoning ordinance.
  4. Location and purpose for which sites, other than residential lots, are dedicated or reserved.
  5. Easements and any other areas for public use dedicated without any reservation or restriction.
  6. A copy of any deed restrictions written on the face of the plat or prepared to record with the plat with reference on the face of the plat.
  7. The following certificates that may be combined where appropriate:
    - a) A certificate signed and acknowledged by all parties having any recorded title interest in the land, consenting to the preparation and recording of the plat.
    - b) A certificate signed and acknowledged as above, dedicating all land intended for public use except land that is intended for the exclusive use of the lot owners in the subdivision, their licensees, visitors, tenants and servants.
    - c) A certificate with the seal of and signed by the engineer or the surveyor responsible for the survey and final plat.
    - d) Other certificates now or hereafter required by law.
  8. Supplemental Information with Plat. The following data shall accompany the final plat:
    - a) A preliminary title report issued by a title insurance company in the name of the owner of the land, showing all parties whose consent is necessary and their interest in the tract.
    - b) Sheets and drawings showing the following:
      - 1) Traverse data including the coordinates of the boundary of the subdivision and ties to section corners and donation land claim corners, and showing the error of closure, if any.
      - 2) The computation of distances, angles and courses shown on the plat.
      - 3) Ties to existing monuments, proposed monuments, adjacent subdivisions, street corners and state highway stationing.
    - c) A copy of any deed restrictions applicable to the subdivision.
    - d) A copy of any dedication requiring separate documents.
    - e) A list of all taxes and assessments on the tract which have become a lien on the tract.
    - f) A certificate by the engineer that the subdivider has complied with the improvement requirements.

9. Certification by the City Engineer or by the owner of a privately owned domestic water supply system, that water will be available to the property line of each and every lot depicted in the final plat.
- K. Technical Plat Review. Upon receipt by the City, the plat and supplemental information shall be reviewed by the City Engineer and Director through a Type I procedure. The review shall focus on conformance of the final plat with the approved tentative plat, conditions of approval and provisions of city, county or state law applicable to subdivisions.
1. The City Engineer may make field checks as needed to verify that the final plat is sufficiently correct on the ground, and City representatives may enter the subdivision property for this purpose.
  2. If the City Engineer or Director determines that full conformance has not been made, they shall advise the subdivider of the changes or additions that must be made and shall afford the subdivider an opportunity to make the changes or additions.
  3. All costs associated with the technical plat review and recording shall be the responsibility of the applicant.
- L. Approval of Final Plat. The signatures of the Director and the City Engineer shall indicate approval of the final plat. After the plat has been approved by all city and county officials, a digital copy of the plat and a digital copy of any recorded documents shall be delivered to the Director within 20 working days of recording.
- M. Recording of Final Plat. Approval of the plat by the City shall be conditioned on its prompt recording. The subdivider shall, without delay, submit the plat to the county assessor and the county governing body for signatures as required by ORS 92.100. The plat shall be prepared as provided by ORS 92.080. Approval of the final plat shall be null and void if the plat is not submitted for recording within 30 days after the date the last required approving signature has been obtained.

#### **17.100.70 LAND DIVISION DESIGN STANDARDS**

All land divisions shall be in conformance with the requirements of the applicable base zoning district and this chapter, as well as with other applicable provisions of this Code. Modifications to these requirements may be accomplished through a Planned Development. **The design standards in this section shall be used in conjunction with street design standards included in the City of Sandy Transportation System Plan and standards and construction specifications for public improvements as set forth in adopted Public Facilities Plans** and the Sandy Municipal Code.

#### **17.100.80 CHARACTER OF THE LAND**

Land which the Director or the Planning Commission finds to be **unsuitable** for development due to flooding, improper drainage, steep slopes, rock formations, adverse earth formations or topography, utility easements, or other features which will **reasonably be harmful** to the safety, health, and general welfare of the present or future inhabitants of the partition or subdivision and the surrounding areas, shall not be developed unless **adequate** methods are formulated by the subdivider and approved by the Director or the Planning Commission to solve the problems created by the unsuitable land conditions.



### **17.100.90 ACCESS CONTROL GUIDELINES AND COORDINATION**

- A. Notice and coordination with ODOT required. The city will coordinate and notify ODOT regarding all proposals for new or modified public and private accesses on to Highways 26 and 211.
- B. It is the city policy to, over time, reduce noncompliance with the Oregon Highway Plan Access Management Policy guidelines.
- C. Reduction of compliance with the cited State standards means that all reasonable alternatives to reduce the number of accesses and avoid new non-complying accesses will be explored during the development review. The methods to be explored include, but are not limited to: closure, relocation, and consolidation of access; right-in/right-out driveways; crossover easements; and use of local streets, alleys, and frontage roads.

### **17.100.100 STREETS GENERALLY**

No subdivision or partition shall be approved unless the development has frontage or approved access to an existing public street. In addition, all streets shall be graded and improved in conformance with the City's construction standards, approved by the City Engineer, in accordance with the construction plans.

- A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.
- B. Transportation Impact Studies. An applicant is required to prepare and submit a transportation impact study in accordance with the standards of Chapter 17.84 unless those standards exempt the application from the requirement.:
  - 1.
- C. Topography and Arrangement. All streets shall be properly related to special traffic generators such as industries, business districts, schools, and shopping centers and to the pattern of existing and proposed land uses.
- D. Street Spacing. Street layout shall **generally** use a rectangular grid pattern with modifications as appropriate to adapt to topography or natural conditions.
- E. Future Street Plan. Future street plans are conceptual plans, street extensions and connections on acreage adjacent to land divisions. They assure access for future development and promote a logical, connected pattern of streets. It is in the interest of the city to promote a logical, connected pattern of streets. All applications for land divisions shall provide a future street plan that shows the pattern of existing and proposed future streets within the boundaries of the proposed land divisions, proposed connections to abutting properties, and extension of streets to adjacent parcels within a 400 foot radius of the study area where development may practically occur.

- F. Connections. Except as permitted under Exemptions, all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan. Streets shall terminate at other streets or at parks, schools or other public land within a neighborhood.

Local streets shall align and connect with other roads when crossing collectors and arterials per the criteria in Section 17.84.50K(5)(e).

Proposed streets or street extensions shall be located to provide direct access to existing or planned transit stops, and existing or planned neighborhood activity centers, such as schools, shopping areas and parks.

- G. Exemptions.

1. A future street plan is not required for partitions of residentially zoned land when none of the parcels may be redivided under existing minimum density standards.
2. Standards for street connections do not apply to freeways and other highways with full access control.
3. When street connection standards are inconsistent with an adopted street spacing standard for arterials or collectors, a right turn in/right turn out only design including median control may be approved. Where compliance with the standards would result in unacceptable sight distances, an accessway may be approved in place of a street connection.

#### **17.100.110 STREET STANDARDS AND CLASSIFICATION**

Street standards are illustrated in the figures included at the end of this chapter. Functional definitions of each street type are described in the Transportation System Plan as summarized below.

- A. Major arterials are designed to carry high volumes of through traffic, mixed with some unavoidable local traffic, through or around the city. Major arterials should **generally** be spaced at 1-mile intervals.
- B. Minor arterials are designed to collect and distribute traffic from major and minor arterials to neighborhood collectors and local streets, or directly to traffic destinations. Minor arterials should **generally** be spaced at 1-mile intervals.
- C. Residential minor arterials are a hybrid between minor arterial and collector type streets that allow for moderate to high traffic volumes on streets where over 90% of the fronting lots are residential.
- D. Collector streets are designed to collect and distribute traffic from **higher type** arterial streets to local streets or directly to traffic destinations. Collector streets should **generally** be spaced at 1/2-mile intervals.
- E. Local streets provide direct access to abutting property and connect to collector streets. Local streets shall be spaced no less than 8 and no more than 10 streets per mile, except as the city may otherwise approve through an adjustment or variance pursuant to Chapter 17.66. Local

streets shall not exceed the ADT standards set forth in Chapter 17.10, except that the ADT standard for local streets shall not apply to outright permitted development within the C-1 zone.

- F. Cul-de-sacs and dead end streets are discouraged. If deemed necessary, cul-de-sacs shall be as short as possible and shall not exceed 400 feet in length.
- G. Public access lanes are designed to provide primary access to a limited number of dwellings when the construction of a local street is unnecessary.
- H. Alleys are designed to provide access to multiple dwellings in areas where lot frontages are narrow and driveway spacing requirements cannot be met.

#### **17.100.120 BLOCKS AND ACCESSWAYS**

- A. Blocks. Blocks shall have **sufficient width** to provide for two tiers of lots at **appropriate depths**. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.
- B. Residential Blocks. Blocks fronting local streets shall not exceed 400 feet in length, **unless topographic, natural resource, or other similar physical conditions justify longer blocks**. Blocks may exceed 400 feet if approved as part of a Planned Development, Specific Area Plan, adjustment or variance.
- C. Commercial Blocks. Blocks located in commercial districts shall not exceed 400 feet in length.
- D. Pedestrian and Bicycle Access Way Requirements. In any block in a residential or commercial district over 600 feet in length, a pedestrian and bicycle accessway with a minimum improved surface of 10 feet within a 15-foot right-of-way or tract shall be provided through the middle of the block. To enhance public convenience and mobility, such accessways may be required to connect to cul-de-sacs, or between streets and other public or semipublic lands or through greenway systems.

#### **17.100.130 EASEMENTS**

A minimum eight (8) foot public utility easement shall be required along property lines abutting a right-of-way for all lots within a partition or subdivision. Where a partition or subdivision is traversed by a watercourse, drainage way, channel or stream, the land division shall provide a stormwater easement or drainage right-of-way **conforming substantially** with the lines of such watercourse, **and such further width as determined needed** for water quality and quantity protection.

#### **17.100.140 PUBLIC ALLEYS**

- A. Public alleys shall have a minimum width of 20 feet. Structural section and surfacing shall conform to standards set by the City Engineer.

- B. Existing alleys may remain unimproved until redevelopment occurs. When development occurs, each abutting lot shall be responsible for completion of improvements to that portion of the alley abutting the property.
- C. Parking within the alley right-of-way is prohibited except as provided in Section 17.100.140(D) below.
- D. An alley with a minimum width of 28 feet may permit parallel parking on one side of the alley only.

#### **17.100.150 RESIDENTIAL SHARED PRIVATE DRIVES**

A shared private drive is intended to provide access to a maximum of two (2) dwelling units.

##### **A. Criteria for Approval**

Shared private drives may be approved by the Director when one or more of the following conditions exist:

1. Direct access to a local street is not possible due to physical aspects of the site including size, shape, or natural features.
2. The construction of a local street is determined to be unnecessary.

##### **B. Design**

1. A shared private drive constructed to city standards shall not serve more than two (2) dwelling units.
2. A shared access easement and maintenance agreement shall be established between the two units served by a shared private drive. The language of the easement and maintenance agreement shall be subject to approval by the Director. Such easements shall be recorded in the Deed Records of Clackamas County.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. Shared private drives shall be fully improved with an all weather surface (e.g. concrete, asphalt, permeable pavers) in conformance with city standards. The pavement width shall be 20 feet.
5. Parking shall not be permitted along shared private drives at any time and shall be signed and identified accordingly.

#### **17.100.160 PUBLIC ACCESS LANES**

Public access lanes are designed to provide primary access to a limited number of dwellings where the construction of a local street is not necessary. Public access lanes are intended to serve a maximum of six (6) dwelling units.

##### **A. Criteria for Approval**

Public access lanes may be approved by the Director when certain conditions exist which make the construction of a standard local street unnecessary. Approval of public access lanes shall be based on one or more of the following:

1. Physical conditions such as natural features, unusual lot size, shape, or other unique features prevent the construction of a local street.

2. It is determined that construction of a local street is not necessary to facilitate orderly development of a future street system.
3. It is determined that there are no logical extensions of an existing local street to serve the site.

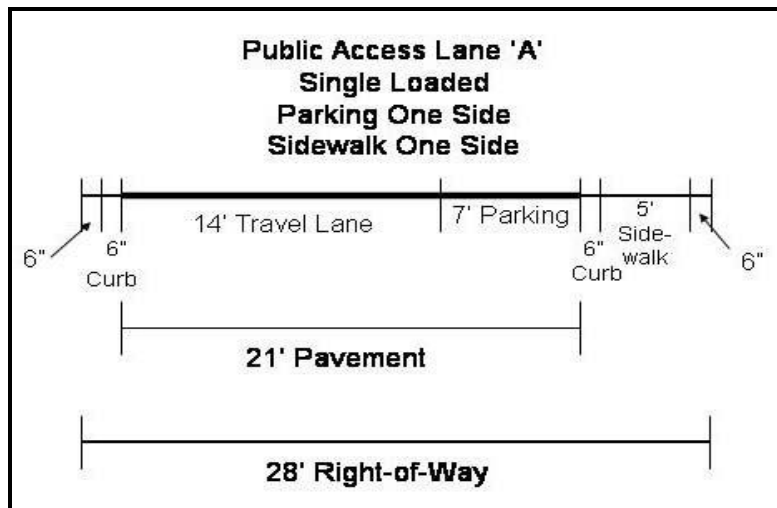
**B. General Provisions**

1. A public access lane may serve a maximum of six (6) dwelling units.
2. Public access lanes are subject to spacing requirements of Section 17.100.120.
3. Public utility easements shall be provided where necessary in accordance with Section 17.100.130.
4. If a public access lane is designed as a dead end, a turnaround shall be provided at the point where the lane terminates. The design of the turnaround shall be subject to approval by the Director and the Fire Department.
5. Parking shall be prohibited in public access lane turnarounds.
6. Street lighting may be required in public access lanes for traffic and pedestrian safety.

**C. Public Access Lane Design**

1. Public Access Lane 'A' (Figure 17.100 - A)
  - a) Public access lane 'A' is designed to be single loaded and provide access to lots located on one side of the lane only.
  - b) Public access lanes shall be constructed to city standards and must meet the required dimensions as specified in this section.
  - c) Curbside sidewalks on the side of the lane which abuts lot frontage are along public access lanes to achieve specified dimensions.
  - d) Planter strips are not required along public access lanes due to the minimal lots served. Lots abutting a public access lane are required to have street trees planted in accordance with Section 17.100.290.
  - e) Parking is permitted on one side of a public access lane 'A' as shown in Figure 17.100 - A. Parking shall be permitted on the side of the lane that abuts lot frontages only. Signage shall be displayed to indicate the parking regulations along the lane and in the turnaround.

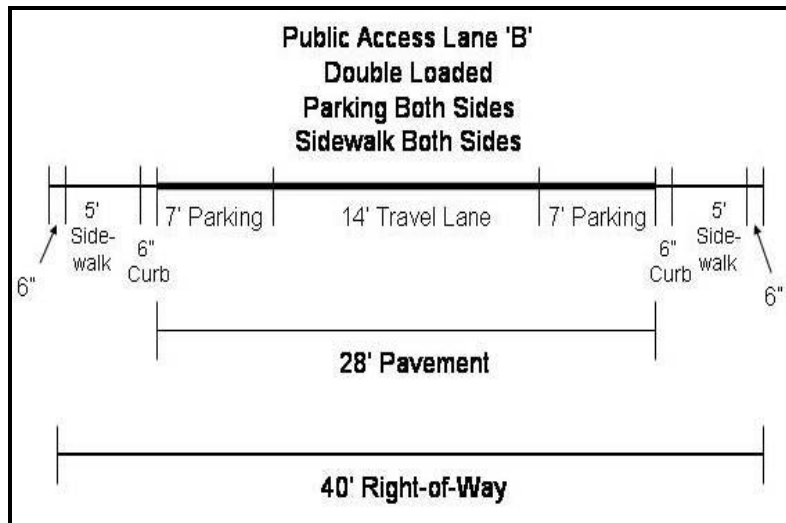
**Figure 17.100 – A: Public Access Lane ‘A’**



2. Public Access Lane Option ‘B’ (Figure 17.100 - B).

- a) Public access lane ‘B’ is designed to be double loaded and provide access to lots located on both sides of the lane.
- b) Public access lanes shall be constructed to city standards and must meet the required dimensions as specified in this section.
- c) Curbside sidewalks are required along both sides of the access lane to achieve specified dimensions.
- d) Planter strips are not required along public access lanes due to the minimal lots served. Lots abutting a public access lane are required to have street trees planted in accordance with Section 17.100.290.
- e) Parking is permitted on both sides of a public access lane ‘B’ as shown in Figure 17.100 - B. Signage shall be displayed to indicate the parking regulations along the lane and in the turnaround.

**Figure 17.100 – B: Public Access Lane ‘B’**



**17.100.170 FLAG LOTS**

Flag lots can be created where it can be shown that no other street access is possible to achieve the requested land division. The flag lot shall have a minimum street frontage of 15 feet for its accessway. The following dimensional requirements shall apply to flag lots:

- A. Setbacks applicable to the underlying zoning district shall apply to the flag lot.
- B. The access strip (pole) may not be counted toward the lot size requirements.
- C. The accessway shall have a minimum paved width of 10 feet.

**17.100.180 INTERSECTIONS**

- A. Intersections. Streets shall be laid out so as to intersect **as nearly as possible** at right angles. A proposed intersection of two new streets at an angle of less than 75 degrees shall not be acceptable. No more than two streets shall intersect at any one point unless specifically approved by the City Engineer. The city engineer may require left turn lanes, signals, special crosswalks, curb extensions and other intersection design elements justified by a traffic study or necessary to comply with the Development Code.
- B. Curve Radius. All local and neighborhood collector streets shall have a minimum curve radius (at intersections of rights-of-way) of 20 feet, unless otherwise approved by the City Engineer. When a local or neighborhood collector enters on to a collector or arterial street, the curve radius shall be a minimum of 30 feet, unless otherwise approved by the City Engineer.

### **17.100.190 STREET AND TRAFFIC CONTROL SIGNS**

The City Engineer shall specify the type and location of traffic control signs, street signs and/or traffic safety devices.

### **17.100.200 STREET SURFACING**

Public streets, including alleys, within the development shall be improved in accordance with the requirements of the City or the Oregon Standard Specifications. All streets shall be paved with asphaltic concrete or Portland cement concrete surfacing. Where required, speed humps shall be constructed in conformance with the City's standards and specifications.

### **17.100.210 STREET LIGHTING**

A complete lighting system (including, but not limited to: conduits, wiring, bases, poles, arms, and fixtures) shall be the financial responsibility of the subdivider on all cul-de-sacs, local streets, and neighborhood collector streets. The subdivider will be responsible for providing the arterial street lighting system in those cases where the subdivider is required to improve or fronts on an arterial street. Standards and specifications for street lighting shall conform to IESNA roadway illumination standards and the City's streetlighting guidelines

### **17.100.220 LOT DESIGN**

- A. The lot arrangement shall be such that there will be **no foreseeable difficulties**, for reason of topography or **other conditions**, in securing building permits to build on all lots in compliance with the Development Code.
- B. The lot dimensions shall comply with the minimum standards of the Development Code. **When lots are more than double the minimum lot size required for the zoning district, the subdivider may be required to arrange such lots to allow further subdivision and the opening of future streets to serve such potential lots.**
- C. The lot or parcel width at the front building line shall meet the requirements of the Development Code and shall abut a public street other than an alley for a width of at least 20 feet. A street frontage of not less than 15 feet is acceptable in the case of a flag lot division resulting from the division of an unusually deep land parcel that is of a size to warrant division into not more than two parcels.
- D. Double frontage lots shall be avoided except where necessary to provide separation of residential developments from arterial streets or to overcome specific disadvantages of topography or orientation.
- E. Lots shall not take access from major arterials, minor arterials or collector streets if access to a local street exists. When driveway access from major or minor arterials may be necessary for several adjoining lots, the Director or the Planning Commission may require that such lots be served by a common access drive in order to limit traffic conflicts on such streets. Where possible, driveways shall be designed and arranged to avoid requiring vehicles to back into traffic on minor or major arterials.



**17.100.230 WATER FACILITIES**

Water lines and fire hydrants serving the subdivision or partition, and connecting the development to City mains, shall be installed to provide adequate water pressure to serve present and future consumer demand. The materials, sizes, and locations of water mains, valves, service laterals, meter boxes and other required appurtenances shall be in accordance with American Water Works Association and the Oregon Standard Specifications standards of the Fire District, the City, and the Oregon Health Authority Drinking Water Services section.

If the City requires the subdivider to install water lines in excess of eight inches, the City may participate in the oversizing costs. Any oversizing agreements shall be approved by the City manager based upon council policy and dependent on budget constraints. If required water mains will directly serve property outside the subdivision, the City may enter into an agreement with the subdivider setting forth methods for reimbursement for the proportionate share of the cost.

**17.100.240 SANITARY SEWERS**

Sanitary sewers shall be installed to serve the subdivision and to connect the subdivision to existing mains. Design of sanitary sewers shall take into account the capacity and grade to allow for desirable extension beyond the subdivision.

If required sewer facilities will directly serve property outside the subdivision, the City may enter into an agreement with the subdivider setting forth methods for reimbursement by nonparticipating landowners for the proportionate share of the cost of construction.

**17.100.250 SURFACE DRAINAGE AND STORM SEWER SYSTEM**

- A. Drainage facilities shall be provided within the subdivision and to connect with off-site drainage ways or storm sewers. Capacity, grade and materials shall be by a design approved by the city engineer. Design of drainage within the subdivision shall take into account the location, capacity and grade necessary to maintain unrestricted flow from areas draining through the subdivision and to allow extension of the system to serve such areas.
- B. In addition to normal drainage design and construction, provisions shall be taken to handle any drainage from preexisting subsurface drain tile. It shall be the design engineer's duty to investigate the location of drain tile and its relation to public improvements and building construction.
- C. The roof and site drainage from each lot shall be discharged to either curb face outlets (if minor quantity), to a public storm drain or to a natural acceptable drainage way if adjacent to the lot.

**17.100.260 UNDERGROUND UTILITIES**

All subdivisions or major partitions shall be required to install underground utilities (including, but not limited to, electrical, fiber, cable, and telephone wiring). The utilities shall be installed pursuant to the requirements of the utility company.

**17.100.270 SIDEWALKS**

Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision.

**17.100.280 BICYCLE ROUTES**

If appropriate to the extension of a system of bicycle routes, existing or planned, the Director or the Planning Commission may require the installation of bicycle lanes within streets. Separate bicycle access ways may be required to reduce walking or cycling distance when no feasible street connection is available.

**17.100.290 STREET TREES**

Where planting strips are provided in the public right-of-way, a master street tree plan shall be submitted and approved by the Director. The street tree plan shall provide street trees approximately every 30' on center for all lots.

**17.100.300 EROSION CONTROL**

Grass seed planting shall take place prior to September 30th on all lots upon which a dwelling has not been started but the ground cover has been disturbed. The seeds shall be of an annual rye grass variety and shall be sown at not less than four pounds to each 1000 square feet of land area.

**17.100.310 REQUIRED IMPROVEMENTS**

The following improvements shall be installed at no expense to the City, consistent with the standards of Chapter 17.84, except as otherwise provided in relation to oversizing.

- A. Lot, street and perimeter monumentation
- B. Mailbox delivery units
- C. Sanitary sewers
- D. Stormwater drainage facilities
- E. Sidewalks
- F. Street lights
- G. Street name signs
- H. Street trees
- I. Streets
- J. Traffic control devices and signs
- K. Underground communication lines, including broadband (fiber), telephone, and cable.  
Franchise agreements will dictate whether telephone and cable lines are required.
- L. Underground power lines
- M. Water distribution lines and fire hydrants
- N. Fiber (broadband)

**17.100.320 IMPROVEMENT PROCEDURES**

Improvements installed by a land divider either as a requirement of these regulations or at their own option shall conform to the standards of Chapter 17.84 and improvement standards and

specifications adopted by the City. Improvements shall be installed in accordance with the following general procedure:

- A. Improvement work shall not start until plans have been checked for **adequacy** and approved by the City Engineer. To the extent necessary for evaluation of the proposal, improvement plans may be required before approval of the tentative plan of a partition or subdivision.
- B. Improvement work shall not start until after the City is notified. If work is discontinued for any reason it shall not resume until the City is notified.
- C. Improvements shall be constructed under the inspection and to the satisfaction of the City Engineer.
- D. All improvements installed by the subdivider shall be guaranteed for a period of one (1) year following acceptance by the City Engineer. Such guarantee shall be secured by cash deposit in the amount of the value of the improvements as set by the City Engineer. Subdividers may elect to provide a subdivision maintenance bond equal to ten (10) percent of the value of the public improvements for a period of two (2) years following acceptance by the City.
- E. As-constructed plans in both digital and hard copy formats shall be filed with the City Engineer upon completion of the improvements.

#### **17.100.330    OPTIONS FOR IMPROVEMENTS**

Before the signature of the City Engineer is obtained on the final partition or subdivision plat, the applicant shall install the required improvements, agree to install required improvements, or have gained approval to form an improvement district for installation of the improvements required with the tentative plat approval. These procedures are more fully described as follows:

- A. Install Improvements. The applicant may install the required improvements for the subdivision prior to recording the final subdivision plat. If this procedure is to be used, the subdivision plat shall contain all the required certifications except the County Surveyor. The City shall keep the subdivision plat until the improvements have been completed and approved by the City Engineer. Upon City Engineer's approval, the City shall forward the final subdivision plat for certification by the County Surveyor and then to the County Clerk for recording; or
- B. Agree to Install Improvement. The applicant may execute and file with the City an agreement specifying the period within which required improvements shall be completed. The agreement shall state that if the work is not completed within the period specified, the City may complete the work and recover the full cost and expense from the applicant. A performance bond equal to 110 percent of the value of the guaranteed improvements shall be required. Performance bonds shall be issued by a surety registered to do business in Oregon. The value of the guaranteed improvements may include engineering, construction management, legal and other related expenses necessary to complete the work. The agreement may provide for the construction of the improvements in increments and for an extension of time under specified conditions; or

- C. Form Improvement District. The applicant may have all or part of the public improvements constructed under an improvement district procedure. Under this procedure the applicant shall enter into an agreement with the City proposing establishment of the district for improvements to be constructed, setting forth a schedule for installing improvements, and specifying the extent of the plat to be improved. The City reserves the right under the improvement district procedure to limit the extent of improvements in a subdivision during a construction year and may limit the area of the final subdivision plat to the area to be improved. The performance bond described in section B above shall be required under the improvement district procedure. The formation of a Local Improvement District (LID) is entirely within the discretion of the City.

**17.100.340 PERFORMANCE GUARANTEE**

If the applicant chooses to utilize the opportunities provided under "A" or "B" above, the applicant shall provide a performance guarantee equal to 110 percent of the cost of the improvements to assure full and faithful performance thereof, in one of the following forms:

- A. A surety bond executed by a surety company authorized to transact business in the State of Oregon in a form approved by the City Attorney.
- B. In lieu of the surety bond, the applicant may:
1. Deposit with the City cash money to be released only upon authorization of the City Engineer;
  2. Supply certification by a bank or other reputable lending institution that an irrevocable letter of credit in compliance with the International Chamber of Commerce Uniform Customs and Practice for Documentary Credits, UCP 600 or most current revision, has been established to cover the cost of required improvements, to be released only upon authorization of the City Engineer. The amount of the letter of credit shall equal 110% of the value of the improvements to be guaranteed; or
  3. Provide bonds in a form approved by the City Attorney.
- C. Such assurance of full and faithful performance shall be for a sum determined by the City Engineer as sufficient to cover the cost of required improvements, including related engineering and incidental expenses.
- D. If the applicant fails to carry out provisions of the agreement and the City has expenses resulting from such failure, the City shall call on the performance guarantee for reimbursement. If the amount of the performance guarantee exceeds the expense incurred, the remainder shall be released. If the amount of the performance guarantee is less than the expense incurred, the applicant shall be liable to the City for the difference.

## CHAPTER 17.102 - URBAN FORESTRY

### 17.102.00 INTENT

- A. This chapter is intended to conserve and replenish the ecological, aesthetic and economic benefits of urban forests, by regulating tree removal on properties greater than one acre within the Sandy Urban Growth Boundary.
- B. This chapter is intended to facilitate planned urban development **as prescribed by the Sandy Comprehensive Plan**, through the appropriate location of harvest areas, landing and yarding areas, roads and drainage facilities.
- C. This chapter shall be construed in a manner **consistent with** Chapter 17.60 Flood and Slope Hazard Overlay District. In cases of conflict, Chapter 17.60 shall prevail.

### 17.102.10 DEFINITIONS

Technical terms used in this chapter are defined below. See also Chapter 17.10, Definitions.

#### Urban Forestry Related Definitions:

- **Diameter at Breast Height (DBH):** The diameter of a tree inclusive of the bark measured 4½ feet above the ground on the uphill side of a tree.
- **Hazard Tree:** A tree located within required setback areas or a tree required to be retained as defined in 17.102.50 that is cracked, split, leaning, or physically damaged to the degree that it is likely to fall and injure persons or property. Hazard trees include diseased trees, meaning those trees with a disease of a nature that, without reasonable treatment or pruning, is likely to spread to adjacent trees and cause such adjacent trees to become diseased or hazard trees.
- **Protected Setback Areas:** Setback areas regulated by the Flood and Slope Hazard Ordinance (FSH), Chapter 17.60 and 70 feet from top of bank of Tickle Creek and 50 feet from top of bank of other perennial streams outside the city limits, within the urban growth boundary.
- **Tree:** For the purposes of this chapter, tree means any living, standing, woody plant having a trunk 11 inches DBH or greater.
- **Tree Protection Area:** The area reserved around a tree or group of trees in which no grading, access, stockpiling or other construction activity shall occur.
- **Tree Removal:** Tree removal means to cut down a tree, 11 inches DBH or greater, or remove 50 percent or more of the crown, trunk, or root system of a tree; or to damage a tree so as to cause the tree to decline and/or die. Tree removal includes topping but does not include normal trimming or pruning of trees.

### 17.102.20 APPLICABILITY

This chapter applies only to properties within the Sandy Urban Growth Boundary that are greater than one acre including contiguous parcels under the same ownership.

- A. **General:** No person shall cut, harvest, or remove trees 11 inches DBH or greater without first obtaining a permit and demonstrating compliance with this chapter.

1. As a condition of permit issuance, the applicant shall agree to implement required provisions of this chapter and to allow all inspections to be conducted.
  2. Tree removal is subject to the provisions of Chapter 15.44, Erosion Control, Chapter 17.56, Hillside Development, and Chapter 17.60 Flood and Slope Hazard.
- B. Exceptions: The following tree removals are exempt from the requirements of this chapter.
1. Tree removal as required by the city or public utility for the installation or maintenance or repair of roads, utilities, or other structures.
  2. Tree removal to prevent an imminent threat to public health or safety, or prevent imminent threat to public or private property, or prevent an imminent threat of serious environmental degradation. In these circumstances, a Type I tree removal permit shall be applied for within seven days following the date of tree removal.

### **17.102.30 PROCEDURES AND APPLICATION REQUIREMENTS**

A person who desires to remove trees shall first apply for and receive one of the following tree cutting permits before tree removal occurs:

- A. Type I Permit. The following applications shall be reviewed under a Type I procedure:
1. Tree removal on sites within the city limits under contiguous ownership where 50 or fewer trees are requested to be removed.
  2. Removal of a hazard tree or trees that presents an **immediate danger** of collapse and represents a **clear and present danger** to persons or property.
  3. Removal of up to two trees per year, six inches DBH or greater within the FSH Overlay District as shown on the City Zoning Map and described in Chapter 17.60.
  4. Tree removal on sites outside the city limits and within the urban growth boundary and outside protected setback areas.
  5. Removal of up to two trees per year outside the city limits within the UGB and within protected setback areas.
- B. An application for a Type I Tree Removal permit shall be made upon forms prescribed by the City to contain the following information:
1. Two copies of a scaled site plan to contain the following information:
    - a. Dimensions of the property and parcel boundaries.
    - b. Location and species of trees 11" DBH or greater to be retained.
    - c. Location and type of tree protection measures to be installed.
  2. A brief narrative describing the project.
  3. Estimated starting and ending dates.

4. A scaled re-planting plan indicating ground cover type, species of trees to be planted, and general location of re-planting.
  5. An application for removal of a hazard tree within a protected setback area or a tree required to be retained as defined in Chapter 17.102.50 shall also contain a report from a certified arborist or professional forester indicating that the condition or location of the tree presents a hazard or danger to persons or property and that such hazard or danger cannot **reasonably** be alleviated by treatment or pruning.
- C. Type II Permit. The following applications shall be reviewed under a Type II procedure:
1. Tree removal on sites under contiguous ownership where greater than 50 trees are requested to be removed as further described below:
    - a. Within City Limits: outside of FSH Restricted Development Areas as defined in Chapter 17.60.
- D. An application for a Type II Permit shall contain the same information as required for a Type I permit above in addition to the following:
- a. A list of property owners on mailing labels within 200 feet of the subject property.
  - b. A written narrative addressing permit review criteria in 17.102.40.
- E. Type III Permit. The following applications shall be reviewed under a Type III procedure:
1. Request for a variance to tree retention requirements as specified in Section 17.102.50 may be permitted subject to the provisions of 17.102.70.
- F. An application for a Type III Permit shall contain the same information as required for a Type I permit in addition to the following:
- a. A list of property owners on mailing labels within 300 feet of the subject property.
  - b. A written narrative addressing applicable code sections 17.102.50, 17.102.60, and 17.102.70.

#### **17.102.40 PERMIT REVIEW**

An application for a Type II or III tree removal permit shall demonstrate that the provisions of Chapter 17.102.50 are satisfied. The Planning Director may require a report from a certified arborist or professional forester to substantiate the criteria for a permit.

- A. The Director shall be responsible for interpreting the provisions of this chapter. The Director may consult with the Oregon Department of Forestry in interpreting applicable provisions of the Oregon Forest Practices Act (OAR Chapter 629). Copies of all forestry operation permit applications will be sent to the Oregon Department of Forestry and Department of Revenue. The City may request comments from the Oregon Department of Forestry, the Oregon Department of Fish & Wildlife or other affected state agencies.

- B. Expiration of Tree Removal Permits. Tree removal permits shall remain valid for a period of one year from the date of issuance or date of final decision by a hearing body, if applicable. A 30-day extension shall be automatically granted by the Planning Director if requested in writing before the expiration of the permit. Permits that have lapsed are void.

**17.102.50 TREE RETENTION AND PROTECTION REQUIREMENTS**

- A. **Tree Retention:** The landowner is responsible for retention and protection of trees required to be retained as specified below:

1. At least three trees 11 inches DBH or greater are to be retained for every one-acre of contiguous ownership.
2. Retained trees can be located anywhere on the site at the landowner's discretion before the harvest begins. Clusters of trees are encouraged.
3. Trees proposed for retention shall be healthy and likely to grow to maturity, and be located to minimize the potential for blow-down following the harvest.
4. **If possible**, at least two of the required trees per acre must be of conifer species.
5. Trees within the required protected setback areas may be counted towards the tree retention standard if they meet these requirements.

- B. **Tree Protection Area:** Except as otherwise determined by the Planning Director, all tree protection measures set forth in this section shall be instituted prior to any development activities and removed only after completion of all construction activity. Tree protection measures are required for land disturbing activities including but not limited to tree removal, clearing, grading, excavation, or demolition work.

1. Trees identified for retention shall be marked with yellow flagging tape and protected by protective barrier fencing placed no less than 10 horizontal feet from the outside edge of the trunk.
2. Required fencing shall be a minimum of six feet tall supported with metal posts placed no farther than ten feet apart installed flush with the initial undisturbed grade.
3. No construction activity shall occur within the tree protection zone, including, but not limited to dumping or storage of materials such as building supplies, soil, waste items, equipment, or parked vehicles.

- C. **Inspection.** The applicant shall not proceed with any tree removal or construction activity, except erosion control measures, until the City has inspected and approved the installation of tree protection measures. Within 15 days of the date of accepting an application for a Type I permit, the city shall complete an onsite inspection of proposed activities and issue or deny the permit. Within 15 days of is suing a Type II or Type III permit, the city shall complete an onsite inspection of proposed activities.

For ongoing forest operations, the permit holder shall notify the city by phone or in writing 24 hours prior to subsequent tree removal. The city may conduct an onsite re-inspection of permit conditions at this time.



### **17.102.60 TREE REPLANTING REQUIREMENTS**

1. All areas with exposed soils resulting from tree removal shall be replanted with a ground cover of native species within 30 days of harvest during the active growing season, or by June 1st of the following spring.
2. All areas with exposed soils resulting from tree removal occurring between October 1 and March 31 shall also be covered with straw to minimize erosion.
3. Removal of hazard trees as defined shall be replanted with two native trees of quality nursery stock for every tree removed.
4. Tree Removal allowed within the FSH Overlay District shall be replanted with two native trees of quality nursery stock for every tree removed.
5. Tree Removal not associated with a development plan must be replanted following the provisions of OAR Chapter 629, Division 610, Section 020-060

### **17.102.70 VARIANCES**

Under a Type III review process, the Planning Commission may allow newly-planted trees to substitute for retained trees if:

1. The substitution is at a ratio of at least two-to-one (i.e., at least two native quality nursery grown trees will be planted for every protected tree that is removed); and
2. The substitution more nearly meets the intent of this ordinance due to:
  - a. The location of the existing and proposed new trees, or
  - b. The physical condition of the existing trees or their compatibility with the existing soil and climate conditions; or
  - c. An undue hardship is caused by the requirement for retention of existing trees.
  - d. Tree removal is necessary to protect a scenic view corridor.

### **17.102.80 ENFORCEMENT**

The provisions of Chapter 17.06, Enforcement, shall apply to tree removal that is not in conformance with this chapter. Each unauthorized tree removal shall be considered a separate offense for purposes of assigning penalties under Section 17.06.80. Funds generated as a result of enforcement of this ordinance shall be dedicated to the Urban Forestry Fund established under Section 17.102.100 below.

### **17.102.90 APPLICABILITY OF THE OREGON FOREST PRACTICES ACT**

The following provisions of the Oregon Forest Practices Act (OAR Chapter 629) are adopted by reference for consideration by the City in the review of Forest Operations Plans. Although the Director may seek advice from the Department of Forestry, the Director shall be responsible for interpreting the following provisions.

Division 610 - Reforestation Stocking Standards. Where reforestation is required, the provisions of OAR Chapter 629, Division 610, Section 020-060 shall be considered by the Director, in addition to the requirements of Section 17.102.60.

Division 615 - Treatment of Slash. Slash shall not be placed within the protected setback areas. Otherwise, the Director shall consider the provisions of OAR Chapter 629, Division 615 in determining how to dispose of slash.

Adopted November 18, 2002 Ordinance 2002-10

Exhibit 1, Page 128 of 129

Division 620 - Chemical and Other Petroleum Products Rules. The storage, transferring, cleaning of tanks and mixing of chemicals and petroleum products shall occur outside the protected setback areas. Aerial spraying shall not be permitted within the Urban Growth Boundary. Otherwise, the provisions of Chapter 629, Division 620 shall apply.

Division 625 - Road Construction and Maintenance. Forest roads, bridges and culverts shall not be constructed within the protected setback areas, except where permitted within the FSH overlay area as part of an approved urban development. Otherwise, the Director shall consider the provisions of OAR Chapter 629, Division 625 in the review of road, bridge and culvert construction.

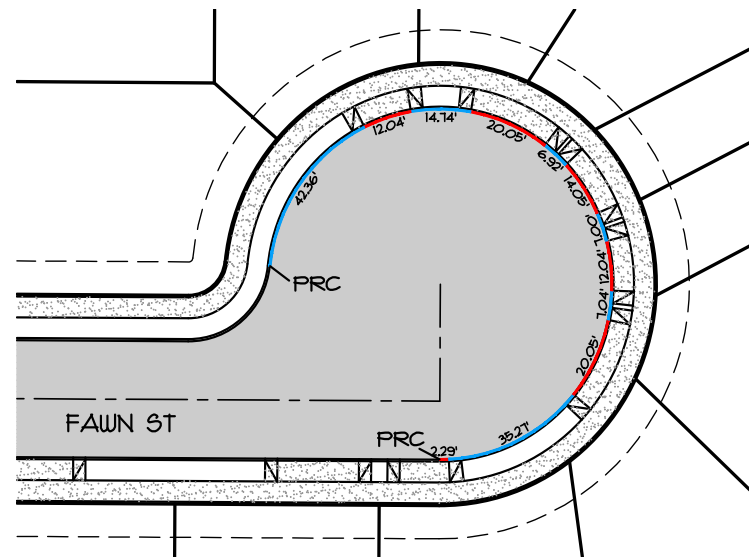
Division 630 - Harvesting. Forest harvesting operations, including but not limited to skidding and yarding practices, construction of landings, construction of drainage systems, treatment of waste materials, storage and removal of slash, yarding and stream crossings, shall not be permitted within protected setback areas. Otherwise, the provisions of Chapter 629, Division 630 shall apply.

#### **17.102.100 URBAN FORESTRY FUND CREATED**

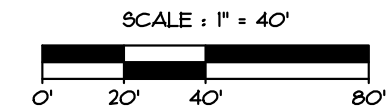
In order to encourage planting of trees, the City will create a fund or account to be used for tree planting in rights-of-way, city parks, riparian areas, and other public property. The source of funds will be donations, grants, and any other funds the City Council may designate.

# DEER MEADOW CUL-DE-SAC EXHIBIT

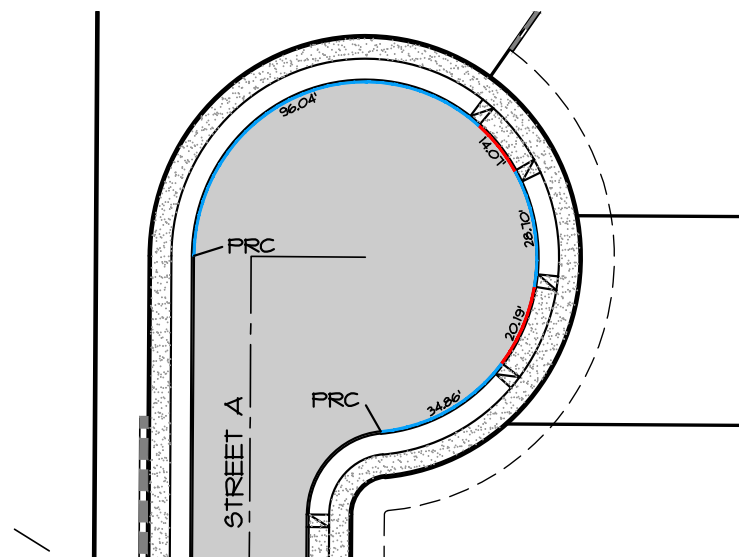
## FAWN ST CUL-DE-SAC



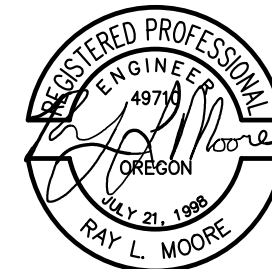
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 TOTAL GAPS = 113.33' (58.5%)  
 TOTAL DRIVEWAY LENGTH = 80.52' (41.5%)  
 (41.5% IS LESS THAN 50%. MEETS CODE)



## STREET A CUL-DE-SAC



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.86'  
 TOTAL GAPS = 159.60' (82.3%)  
 TOTAL DRIVEWAY LENGTH = 34.26' (17.7%)  
 (17.7% IS LESS THAN 50%. MEETS CODE)



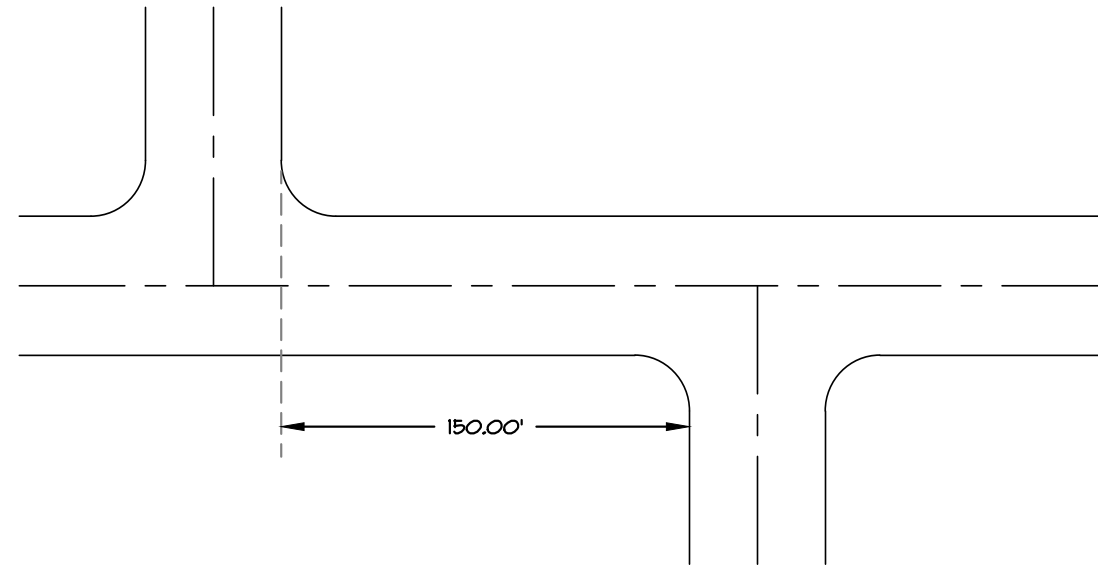
RENEWAL DATE: 12/31/2022

**All County Surveyors & Planners, Inc.**  
 Surveying, Planning and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

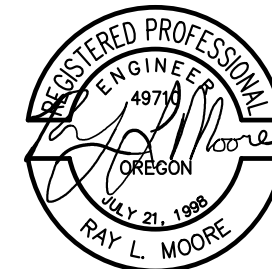
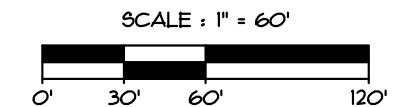
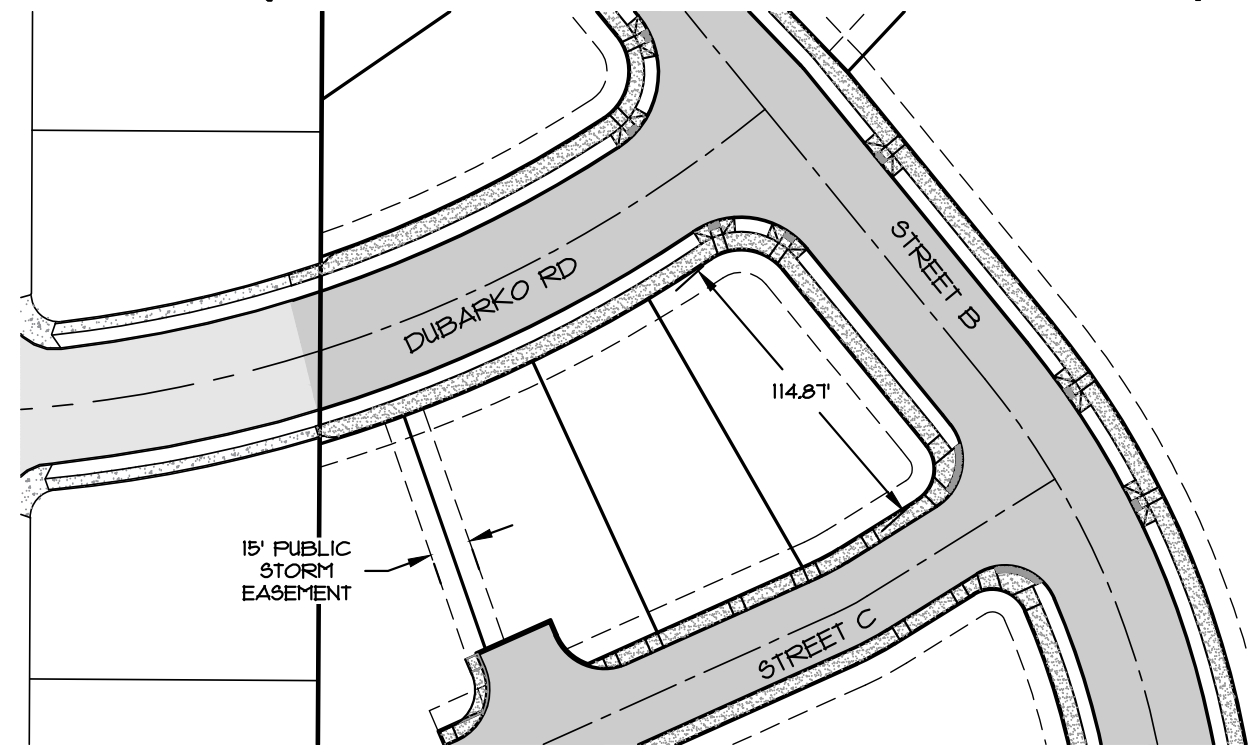
19-035-Planning-B.dwg  
 DATE OF PLOT: 09/21/2021

# DEER MEADOW T-INTERSECTION EXHIBIT

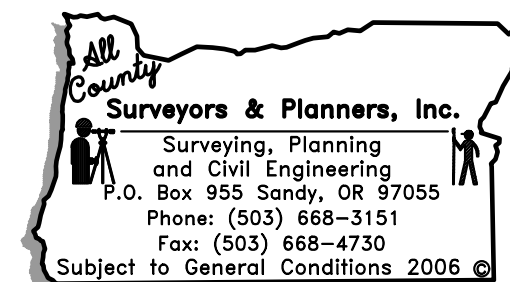
## EXAMPLE OF STAGGERED T-INTERSECTION



## PROPOSED T-INTERSECTION (NOT A STAGGERED T-INTERSECTION)

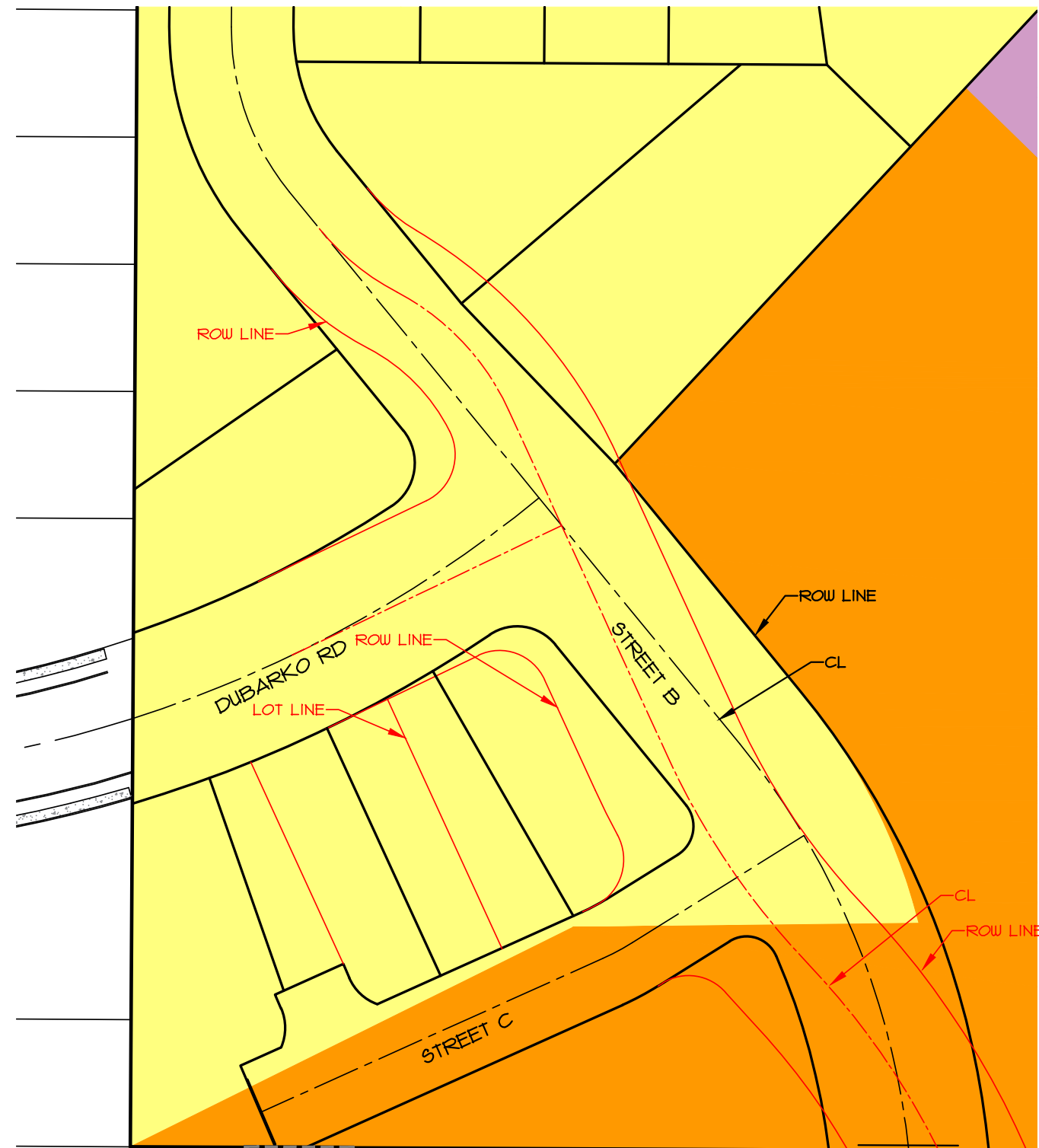


RENEWAL DATE: 12/31/2022

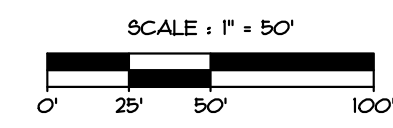


19-035-Planning-B.dwg  
DATE OF PLOT: 09/21/2021

# DUBARKO RD WITH 100' TANGENT EXHIBIT

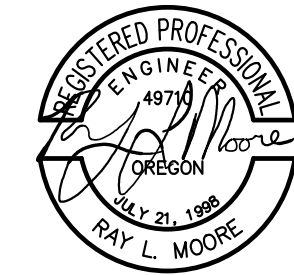


NOTE: 100' TANGENTS CAN BE PROVIDED ON STREET B AND DUBARKO AS SHOWN. THE RESULTING ALIGNMENT WOULD MAKE LOT 32 LARGER, AND ELIMINATE ONE LOT FROM LOTS 21-30.



## LEGEND

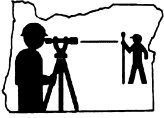
- R-1 ZONE
- R-2 ZONE
- C-3 ZONE



RENEWAL DATE: 12/31/2022

**All County Surveyors & Planners, Inc.**  
 Surveying, Planning and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

19-035-Planning-B.dwg  
 DATE OF PLOT: 09/24/2021  
 Exhibit 4, Page 1 of 1



# *All* County Surveyors & Planners, Inc.

PO Box 955 • Sandy, Oregon 97055 • Phone: 503-668-3151 • Fax: 503-668-4730

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September 16, 2021

City of Sandy  
ATTN: Kelly O'Neill  
39250 Pioneer Blvd.  
Sandy, OR 97055

**RE: Deer Meadow Subdivision City File No. 21-014 SUB/TREE  
Our Job Number: 19-035**

Dear Mr. O'Neill,

The purpose of this letter is to respond to the public and agency comments received to date for the Deer Meadow Subdivision.

**In response to the Sandy Fire District comments from Gary Boyles, dated August 10, 2021:**

These are the typical, boiler-plate comments provided during initial review of new development. The applicant intends to meet the requirements of the current Oregon Fire Code, which will satisfy the provided comments. All County will work with the fire department to determine hydrant locations, and locate turnarounds onsite, as needed, at the time of final engineering.

**In response to the comments from Gary Roche, dated August 16, 2021:**

The proposed subdivision is being processed as a "needed housing" development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. A traffic study was conducted for the proposed subdivision which demonstrates the existing facilities can accommodate the additional proposed lots. Refer to submitted transportation report, as well as response letter from transportation consultant.

**In response to the comments from Dave and Nancy Allan, dated August 23, 2021:**

The proposed subdivision is being processed as a "needed housing" development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. A traffic study was conducted for the proposed subdivision which demonstrates the existing facilities can accommodate the additional proposed lots. Refer to submitted transportation report, as well as response letter from transportation consultant.

Affiliated: Professional Land Surveys of Oregon • American Congress of Surveying and Mapping

**In response to the comments from Ashley Yukich, dated August 23, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. The applicant is meeting the approval criteria for tree retention. No park is proposed with the development as legal counsel has advised the applicant that none is needed under the clear and objective development standards process. A traffic study was conducted for the proposed subdivision which demonstrates the existing facilities can accommodate the additional proposed lots. Refer to submitted transportation report, as well as response letter from transportation consultant. Multifamily dwellings are allowed uses within the R-2 and C-3 zones. The applicant will adhere to the density requirements of the applicable code sections for these zones.

**In response to the Sandy Transit comments from Andi Howell, dated August 26, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. It is the belief of legal counsel that the TSP is not incorporated into the Sandy Development Code (SDC) in an adequate fashion to require the extension of Dubarko Road to Highway 26. As such, no connection to Highway 26 is proposed with this application. The applicant will provide the requested transit amenities. All County will work with city staff to finalize the locations of said amenities, at the time of final engineering.

**In response to the Parks and Trails Advisory Board comments from Sarah Richardson, dated August 30, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. It is the belief of legal counsel that the Parks and Trails Master Plan is not incorporated into the Sandy Development Code in an adequate fashion to require the dedication of the parkland. The applicant instead seeks to pay the parkland dedication fee-in-lieu-of option pursuant to SDC section 17.86.40.

**In response to the Sandy Public Works comments from Mike Walker, dated August 31, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. It is the belief of legal counsel that the spacing requirements of sections 17.84.50 and 17.98.80 are not clear and objective, and are therefore not being met with the proposed application. The proposed driveway layout of the cul-de-sacs meet the requirements of section 17.98.100. Additional grading/dimensional exhibits can be provided at the time of final engineering to demonstrate compliance with this section. Legal counsel believes the connection to Highway 26 and the frontage improvements along Highway 26 are not clear and objective, and as such are not being provided with this application.

The applicant will adjust the width of the proposed utility easements between lots 27 & 28, and along lots 9-13 to adhere to the requirements in 17.84.90. A minimum width of 15' will be provided with the final plat for the proposed development. The applicant understands the requirements for the existing water main/s onsite. Utilities will be provided with the subdivision pursuant to all clear and objective Sandy Development Code requirements.

**In response to the ODOT comments, dated September 1, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. It is the belief of legal counsel that the frontage improvements along Highway 26 and the connection of Dubarko Road to Highway 26 are not clear and objective and are therefore not being proposed with this development. Refer to letter from transportation consultant as well.

**In response to the comments from Marilyn Euteneier, dated September 8, 2021:**

The proposed subdivision is being processed as a “needed housing” development. The applicant will adhere to those applicable development code sections deemed to be clear and objective. The existing zoning for the site is not changing with the proposed application and will be developed with the allowed uses and densities pursuant to all applicable clear and objective standards in the SDC.

If you have any questions or need additional information, please feel free to contact our office.

Sincerely,

**All County Surveyors & Planners, Inc.**



Tyler Henderson, PE  
*Engineering Division*



## EXHIBIT AA



**MINUTES**  
**Parks & Trails Advisory Board Meeting**  
**Wednesday, August 11, 2021 Virtual Via**  
**Zoom 7:00 PM**

**BOARD MEMBERS PRESENT:** Don Robertson, Board Member, Will Toogood, Board Member, and Mary Casey, Board Member

**BOARD MEMBERS ABSENT:** David Breames, Board Member and Sarah Schrodetz, Board Member

**STAFF PRESENT:** Sarah Richardson, Community Services

**MEDIA PRESENT:**

**1. Meeting Format**

Meeting Format Notice:

**The Parks and Trails Advisory Board will conduct this meeting electronically using the Zoom video conference platform.**

Members of the public may listen, view, and/or participate in this meeting using Zoom.

Using Zoom is free of charge. See the instructions below:

- To login to the electronic meeting online using your computer, [click this link:](#)
- **Note a passcode may be required:**
- If you would rather access the meeting via telephone, dial 1-669-900-6833. When prompted, enter the following meeting number: 844 3378 6198
- If you do not have access to a computer or telephone and would like to take part in the meeting, please contact the Sandy Community Center (503-668-5569) by August 10th and arrangements will be made to facilitate your participation.

**2. Roll Call**

**3. Public Comment**

**4. Consent Agenda**

4.1. Meeting Minutes

**Moved by Mary Casey, seconded by Will Toogood**

***Motion to approve the minutes.***

**CARRIED. 3-0**

**5. Changes to the Agenda**

**6. New Business**

6.1. Bell St. - 362nd Extension Project

Mike Walker, Public Works Director attended to discuss required mitigation related to the Bell St. -362nd Extension Project. Seeking feedback from the Parks Board regarding some options in city owned open space near Bluff Park.

Mike provided an overview of the extension project and introduced Ivy Watson an environmental scientist with Harper Hauf. Ivy presented two options for the board's consideration.

Ivy explained that there will be some wetland and stream impact that is less than a 10th of an acre, although that could change depending on the design. The city will be required to provide mitigation matching the type of impact. The ratio of mitigation that the Oregon Department of State Lands requires varies depending on whether we will be enhancing an existing resource or creating a new resource.

Ivy provided an overview of the open space area that is being considered for mitigation and shared two options.

Option 1: Drain the in-line pond and convert the depression to scrub-shrub wetland and stream channel.

Option 2: Enhance existing stream and pond and create wetland at the pond fringe. Result would be water quality and habitat enhancement.

Board member Will Toogood asked about what the construction of the stream channel would look like in option one. Ivy described the plan and explained that the channel would move around naturally once the area was graded and other enhancements completed. Clarified that this would change the area to more of a marsh in the winter. Might be able to add an access point for wildlife and wetland habitat viewing. Will asked if either option was beneficial to migratory birds. Option 1 would provide less attractive habitat for migratory birds, and option 2 would provide more attractive habitat for migratory birds.

Mary Casey asked a question about pollinators and whether the plan could incorporate habitat to support them. Ivy noted that flowering wetland shrubs could be utilized. Mary expressed some concern about marshland attracting mosquitos etc. Wondered if this would be an issue. Ivy noted they are already likely breeding in the pond and that both options would likely attract more frogs. Identified Option 1 as likely best for native frogs. Clarified that marsh is not the best description of what will be the result of option 1.

Don Robertson asked if Option 2 would create any flow through the pond. Ivy noted that it would flow longer than it does now but once it drops below the outlet level it would slow. Don asked Mike Walker about stormwater. Mike provided an overview of the stormwater systems. Don noted the pond had been there for quite some time and Mike described its history. Don asked if Public Works had a preference. Mike identified Option 2 as a preference.

Public Works is interested in advice from the Parks Board and noted that it will be Council who makes the final decision. Mike noted these options will likely be acceptable to the regulatory agencies. Important that this parcel is owned by the public and will remain so whereas other nearby areas will likely be developed.

Don asked if the board members had a preference. Mary noted both have good points with Option 2 being more migratory bird friendly. Don identified the path and some benches that are already there and good for viewing. Will noted he is torn between what may be better water quality vs better habitat for migratory birds and esthetically likes Option 2. Don said his personal preference would be Option 2. Likes that it maintains the historical use, viewing opportunities, and it really is an amenity for the park area.

Don asked that along with the motion that the feedback about habitat for birds and pollinators be included in information being forwarded to council.

**Moved by Mary Casey, seconded by Will Toogood**

***Mary Casey moves that the board recommend Option 2.***

**CARRIED. 3-0**

6.2. Deer Meadows Proposed Development

Kelly O'Neill, Development Services Director attended to provide an overview of the Deer Meadows proposed development.

Deer Meadows is a 32 lot proposed subdivision in the area of Hwy 26 and Dubarko road. Kelly provided a visual denoting the proposed development site. Deer Meadows is adjacent to parkland dedicated with the Deerpointe plat. It is undeveloped and is about 1.4 acres. One of the main reason this park has not been developed is because of the intended parkland dedication that would expand the area of the park that is part of the subject property. It is staff recommendation that dedication of this land would be consistent with the long term vision for this park, and align with the new Parks and Trails Master Plan that will be before council for adoption in September.

Kelly reviewed the formula for determining parkland dedication and what variables can impact the total dedication.

Tracy Brown, the developers representative. reviewed the previous application known as Bull Run Terrace. As part of the Bull Run proposal the developer proposed dedicating 1.4 acres of parkland and offered to assist with preparing the land for park development. Tracy noted that the board at that time recommended the parkland dedication and entering into an agreement with the developer to do the initial park improvements.

The Bull Run proposal included a request for a zone change. Tracy noted this proposal was recommended for approval by the Planning Commission but denied by council. As a result the developers proposal to dedicate the parkland and to assist with the park improvements went away. The new Deer Meadow proposal is not requesting a zone change. Without a change in the zoning and the ability to increase housing density the dedication of parkland becomes problematic to the economic viability of the project, and the developers attorney believes that the city cannot legally require parkland dedication because the standards in 17.86 are not "clear and objective". The applicant is interested in working with the city on a win-win scenario. Tracy outlined the applicants proposal and invited questions. Kelly shared a visual of the proposal.

Will noted the proposed dedication is not a lot of land. Mary agreed. Don shared that he is extremely disappointed that we are having this conversation although he doesn't doubt council had good reasons for the denial. Referencing the current proposal he noted that just because you have the legal right to do something, doesn't mean it is the right thing to do. Don shared that he believes that the board got it right the first time and is inclined

to stand pat on that original decision. Recognizes that the applicant may go forward but noted they would responsible for the Fee in Lieu and the System Development Charges.

Kelly shared that the city attorney agrees with the applicants attorney that the current Parks and Trails Master Plan is not fully incorporated into the city development code but they disagree on parkland dedication. Our attorney believes the city has the legal right to require parkland dedication but may have difficulty dictating the location of the dedication within a proposal. Wants to be clear the attorneys do not agree on the interpretation. Don noted to acquire the parkland adjacent to Deer Pointe we would be relying on the good will of the applicant. Kelly added or alternatively relying on the city forcing the issue in an approval, and then the applicant would need to appeal it to the State of Oregon, or the city denying the application. It could lead to a legal decision.

Will noted the proposal doesn't come close to realizing the Deer Pointe vision and the strip of land proposed does not add much. Mary does not see another place in the proposal for a park except that one little area. Don shared the the neighborhood has been very patient and waiting a long time for a developed park.

**Moved by Don Robertson, seconded by Will Toogood**

***Motion to stick with the first recommendation of accepting land dedication and some hope of connectivity to the other parkland property in Deer Pointe.***

**CARRIED. 3-0**

6.3. Bornstedt Views Proposed Development

Kelly O'Neill, Development Services Director, noted Bornstedt Views application is considered incomplete at this time.

Staff recommends Fee in Lieu of Parkland Dedication given the size of the development and its proximity to both Bornstedt and Cascadia Park.

Mac Even, the applicant, notes they are proposing Fee in Lieu and they are proposing to preserve quite a lot of trees.

Don pointed out that we are pretty park rich in this area of the community.  
Agrees the best option is to accept the Fee in Lieu.

Mary asked about the blue area noted in the packet. Kelly clarified that is the retention pond.

**Moved by Mary Casey, seconded by Will Toogood**

***Motion to accept the Fee in Lieu for Bornstedt Views proposed development.***

**CARRIED. 3-0**

6.4. Sandy Woods Phase II Proposed Development

Kelly O'Neill, Development Services Director attended to provide an overview of the proposed development.

43 lot subdivision and although the application is currently incomplete the planning staff does not anticipate big changes.

Kelly shared a visual and noted the location of Sandy Woods Phase I. Noted pedestrian access between the two Sandy Wood Phases. Sarah Richardson, staff liaison, noted that it gives the residents in the new phase pretty direct access to Bluff Park. Kelly pointed out that the access points will be a requirement as well as a tree tract through Phase II. The tract will include many old growth trees. It will not officially be parkland but it will provide some open space in this new phase.

Don asked for board questions or comment.

**Moved by Mary Casey, seconded by Will Toogood**

***Motion to accept a Fee in Lieu of land dedication for the Sandy Woods Phase II proposed development. Includes the support for the requirement of the access points connecting Phase 1 and Phase II which provides direct access to Bluff Park and future trail connections.***

**CARRIED. 3-0**

7. Old Business

Don reminded the board that we have two open seats on the board, and a vacancy in the Vice Chair position that needs to be filled.

**8. STAFF UPDATES**

Looking forward to the updates to the development code that relates to parks (17.86 and 17.32). Will give the board a stronger position to implement the new Parks and Trails Master Plan and more certainty with regard to the interpretation of the code.

**9. Adjourn**

Draft

**EXHIBIT BB**

COMMENT SHEET for File No. 21-014 SUB/TREE:

Sandy's future should include Duberko connecting to Hwy. 26 at Vista Loop DR. This would be beneficial for Sandy Fire and Police. Also, Vista Loop has plans under review for over 250 home sites with more coming. Public safety would be well served with this change.

RECEIVED  
SEP 27 2021  
City of Sandy

Dave Carter  
Your Name

503 883-3313  
Phone Number

41248 SE Vista Loop DR, Sandy  
Address

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.



**EXHIBIT CC**



**DEER MEADOWS SUBDIVISION  
TRAFFIC IMPACT STUDY**

**SANDY, OREGON**



**PREPARED FOR:**  
Alex Reverman

**PREPARED BY:**  
Michael Ard, PE  
Ard Engineering

**DATE:**  
September 27, 2021

21370 SW Langer Farms Parkway, Suite 142, Sherwood, OR 97140 - (503)862-6960



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## EXECUTIVE SUMMARY

1. A property located on the south side of US Highway 26 opposite SE Vista Loop Drive in Sandy, Oregon is proposed for a 32-lot subdivision which will support up to 32 single-family homes and 120 apartment units. The site will take access via extensions of Dubarko Road and Fawn Street into the site.
2. Upon completion of residential development within the R-1, R-2, and C-3 zones, the subject property is projected to generate up to 79 site trips during the morning peak hour, 99 trips during the evening peak hour, and 1,180 daily site trips.
3. With conversion to all-way stop control, the intersection of Highway 211 at Dubarko Road is projected to operate better under year 2023 traffic conditions with construction of the proposed development than without the development and the all-way stop control conversion. Accordingly, installation of all-way stop control is sufficient to offset the impacts of the proposed development and any additional mitigation would be disproportionate to the actual impact of the proposed development. All other study intersections are projected to operate acceptably through year 2023 either with or without the addition of site trips from the proposed development. No other operational mitigations are necessary or recommended in conjunction with the proposed subdivision.
4. Based on the examination of existing and future local street volumes, the local streets in the site vicinity currently carry fewer than 1,000 daily trips and will continue to carry fewer than 1,000 daily trips upon completion of the proposed development. No mitigations are necessary or recommended for the local streets in the site vicinity in conjunction with the proposed development.
5. Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. This intersection meets all-way stop control warrants based on crash history, and conversion to all-way stop control would be expected to reduce the frequency and severity of right-angle and turning-movement collisions. It is therefore recommended that all-way stop control be installed at the intersection of Highway 211 and Dubarko Road. No other safety improvements are recommended.
6. Based on the warrant analysis, no new turn lanes or traffic signals are recommended in conjunction with the proposed subdivision.



## **PROJECT DESCRIPTION & LOCATION**

### ***INTRODUCTION***

A property located on the south side of US Highway 26 opposite SE Vista Loop Drive is proposed for development with 32 lots across R-1, R-2, and C-3 zoning. The site can support up to 30 single-family homes, 2 duplex units, and 120 apartment units. The portion of the site zoned C-3 is expected to ultimately include some form of commercial development; however, the nature of this future use has not yet been determined. Accordingly, a future traffic study will be required as part of the design review application for the future commercial site use. The site will take access via extensions of Dubarko Road and Fawn Street into the site. Dubarko Road will be extended to intersect a new north/south collector street within the site, which will stub to the south side of the property.

This report addresses the impacts of the proposed development on the surrounding street system. An operational and safety analysis was conducted for the intersections of:

- Highway 26 at SE Ten Eyck Road;
- Highway 26 at SE Langensand Road;
- Highway 211 at Dubarko Road; and
- Dubarko Road at SE Langensand Road.

An analysis of future traffic volumes on local streets in the site vicinity is also included in this report.

The purpose of this analysis is to determine whether the surrounding transportation system is capable of safely and efficiently supporting the proposed use and to identify any necessary improvements and mitigations.

### ***SITE LOCATION AND STUDY AREA DESCRIPTION***

The project site has an area of approximately 16 acres, which is currently undeveloped. The property is surrounded by a mixture of residential development, agricultural uses and undeveloped forested land.

The proposed development will include an extension of Dubarko Road into the site to intersect a new north/south collector roadway. The proposed development will connect to the existing street system via extensions of Dubarko Road and Fawn Street into the project site.

US Highway 26 (Mt. Hood Highway) is classified by the Oregon Department of Transportation as a Statewide Highway and a Freight Route. It has two through lanes in each direction and added turn lanes at intersections. Between SE Langensand Road and SE Vista Loop Drive it has a center two-way left-turn lane. It has a posted speed limit of 25 mph at SE Ten Eyck Road, 40 mph at SE Langensand Road, and 55 mph at SE Vista Loop Drive. West of SE Ten Eyck Road the highway divides into a couplet, with westbound traffic traveling on Proctor Boulevard and eastbound traffic traveling on Pioneer Boulevard. It should be noted that Highway 26 is access controlled by the Oregon Department of Transportation.



SE Ten Eyck Road has one through lane in each direction and is striped to prohibit passing in the site vicinity. It has a basic rule speed limit of 55 mph and is classified by the City of Sandy as a Minor Arterial.

SE Langensand Road is also classified by the City of Sandy as a Minor Arterial. It has a two-lane cross-section with one through lane in each direction and a posted speed limit of 25 mph. Partial sidewalks are in place on both sides of the roadway, and on-street parking is available where sufficient paved width is provided.

Oregon Highway 211 (Eagle Creek Sandy Highway) is classified by the Oregon Department of Transportation as a District Highway. It has a two-lane cross-section with one through lane in each direction and added turn lanes at major intersections. It has a posted speed limit of 45 mph in the vicinity of Dubarko Road.

Dubarko Road is classified by the City of Sandy as a Minor Arterial. It generally has a two-lane cross-section with some added turn lanes at major intersections and bike lanes on each side of the roadway. Partial sidewalks are in place on each side of the roadway adjacent to developed properties. It has a posted residential speed limit of 25 mph.



## EXISTING CONDITIONS

The intersection of US Highway 26 at SE Ten Eyck Road/Wolf Drive is controlled by a traffic signal. The northbound and southbound approaches each have a single, shared lane for all turning movements. The westbound approach has a left-turn lane, two through lanes, and a short right-turn pocket. The eastbound approach has a left-turn lane, a dedicated through lane and a shared through/right lane. The northbound and southbound approaches operate with concurrent signal phasing. Protected phasing is provided for the eastbound and westbound left-turn movements. Bike lanes are provided along Highway 26 to the right of the through lanes.

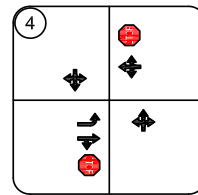
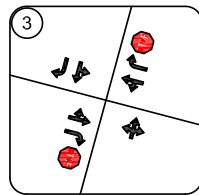
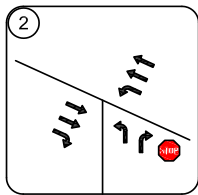
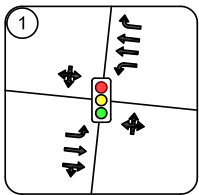
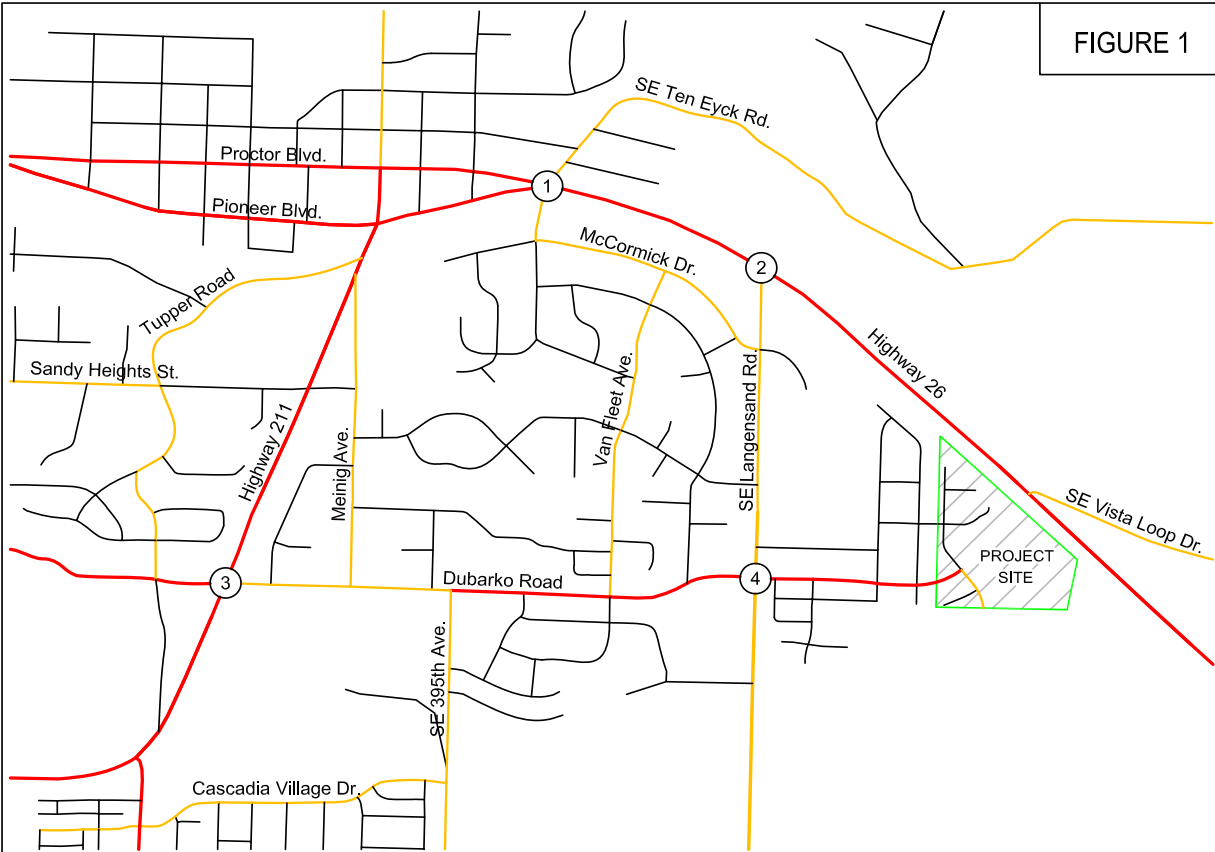
The intersection of US Highway 26 at SE Langensand Road is a T- intersection controlled by a stop sign on the northbound Langensand Road approach. Through traffic traveling along Highway 26 does not stop. The northbound approach has a left-turn lane and a right-turn lane. The eastbound approach has two through lanes and a right-turn lane. The westbound approach has a left-turn lane and two through lanes. Bike lanes are provided along Highway 26 to the right of the through lanes.

The intersection of Oregon Highway 211 at Dubarko Road is a four-way intersection controlled by stop signs on the eastbound and westbound Dubarko Road approaches. The southbound, eastbound and westbound approaches each have a shared through/left lane, a bike lane, and a dedicated right-turn lane. The northbound approach has a single, shared lane for all motorized turning movements and a bike lane.

The intersection of Dubarko Road at SE Langensand Road is a four-way intersection currently controlled by stop signs on the eastbound and westbound Dubarko Road approaches. Through traffic traveling along SE Langensand Road does not stop. The northbound and southbound approaches each have a single, shared lane for all turning movements. The westbound approach has a single, shared lane for all motor vehicle turning movements and a bike lane. The eastbound approach has a left-turn lane, a shared through/right lane and a bike lane.

A vicinity map displaying the project site, vicinity streets, and the study intersections including lane configurations is provided in Figure 1 on page 7.

FIGURE 1



LEGEND

- Study Intersection
- 🚦 Traffic Signal
- 🛑 Stop Sign



VICINITY MAP  
Study Intersections  
Lane Configurations and Traffic Control

PAGE  
7



### ***TRAFFIC COUNT DATA***

Traffic counts were conducted at the two intersections on Highway 26 as well as the intersection of Dubarko Road at Langensand Road on Tuesday September 21, 2021 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. Traffic count data for the intersection of Highway 211 at Dubarko Road was collected on Wednesday June 9<sup>th</sup>, 2021 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. Data was used from the highest-volume hour for each study intersection during each analysis period.

Since the count data was collected during a non-peak period of the year, the observed traffic volumes were adjusted to account for seasonal traffic variations in order to represent the 30<sup>th</sup>-highest hour design volumes.

US Highway 26 serves local and commuter traffic as well as trips to and from Mt. Hood and beyond. These trip types would be expected to exhibit very different seasonal variations in travel demands over the course of the year, since local and commuter traffic volumes are relatively stable regardless of season, while travel volumes to and from Mt. Hood vary significantly based on the season.

In order to determine the portion of traffic attributable to each of the two primary travel types, data from ODOT's 2019 Highway Volume Tables was utilized. Specifically, the data used was collected at ODOT's Automatic Count Data station 03-006, located 0.30 miles east of Camp Creek Road in Rhododendron, Oregon. This site is located on Highway 26 approximately 21 miles east of SE Vista Loop Drive. Although the distance to the ATR station means the data cannot be used directly, the ATR data provides useful information regarding the variation in traffic volumes traveling to Mt. Hood and beyond during the time of the count data collection as well as during the peak season of the year. Accordingly, this data allows determination of the likely portion of highway traffic that falls into each of the two seasonal variation categories ("commuter" and "recreational summer/winter"), as well as providing information regarding the most appropriate seasonal adjustment factor for the recreational summer/winter traffic.

Based on the data, 8,391 vehicles per day (approximately 839 per hour during the peak hour) travel along Highway 26 to and from Mt. Hood at the Rhododendron permanent count station location during the month of September, with 55 percent westbound and 45 percent eastbound. This volume represents 39.4 percent of the through traffic volumes measured on Highway 26 east of Oregon Highway 211, since the September counts showed 2,129 vehicles on Highway 26 west of Ten Eyck Road. Accordingly, no more than 39.4 percent of the trips traveling along Highway 26 at that location can be traveling to and from destinations beyond the Rhododendron count station. Since the remaining 60.6 percent of through traffic volumes on Highway 26 at Highway 211 never reach Mt. Hood, it was assumed that these traffic volumes represent more typical commuter and local trips.

The ODOT data also showed that 10,810 vehicles were measured per day (approximately 1081 per hour during the peak hour) during the peak-season month of July at the ATR station near Rhododendron. This indicates that the seasonal recreational traffic volumes along the Highway 26 corridor increased by no more than 2,419 vehicles per day (10,810 vehicles per day in August - 8,391 vehicles per day in September). This equates to roughly 242 additional vehicles per hour during the peak hour of the peak recreational season. Accounting for directionality of trips, this is approximately 133 westbound vehicles and 109 eastbound vehicles.





In order to seasonally adjust the local and commuter traffic volumes, the through traffic volumes on Highway 26 were reduced by the amount of the ATR-recorded traffic traveling to and from Mt. Hood (839 vehicles per hour during the evening peak hour), and a seasonal adjustment of 2.8 percent was applied to the remaining local and commuter traffic volumes based on data from ODOT's Seasonal Trend Table. Following this commuter adjustment, the 839 Mt. Hood trips previously subtracted were re-added to the totals, and the additional projected 242 peak-season Mt Hood trips were added to determine the total peak-season traffic volumes. This methodology accounts for both the commuter and the recreational summer/winter peak season traffic adjustments in direct proportion to the calculated mix of each traffic type.

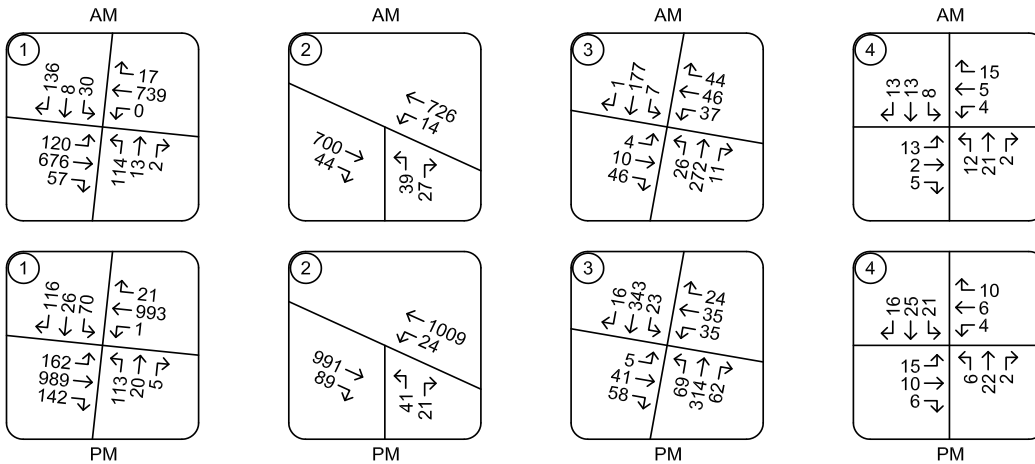
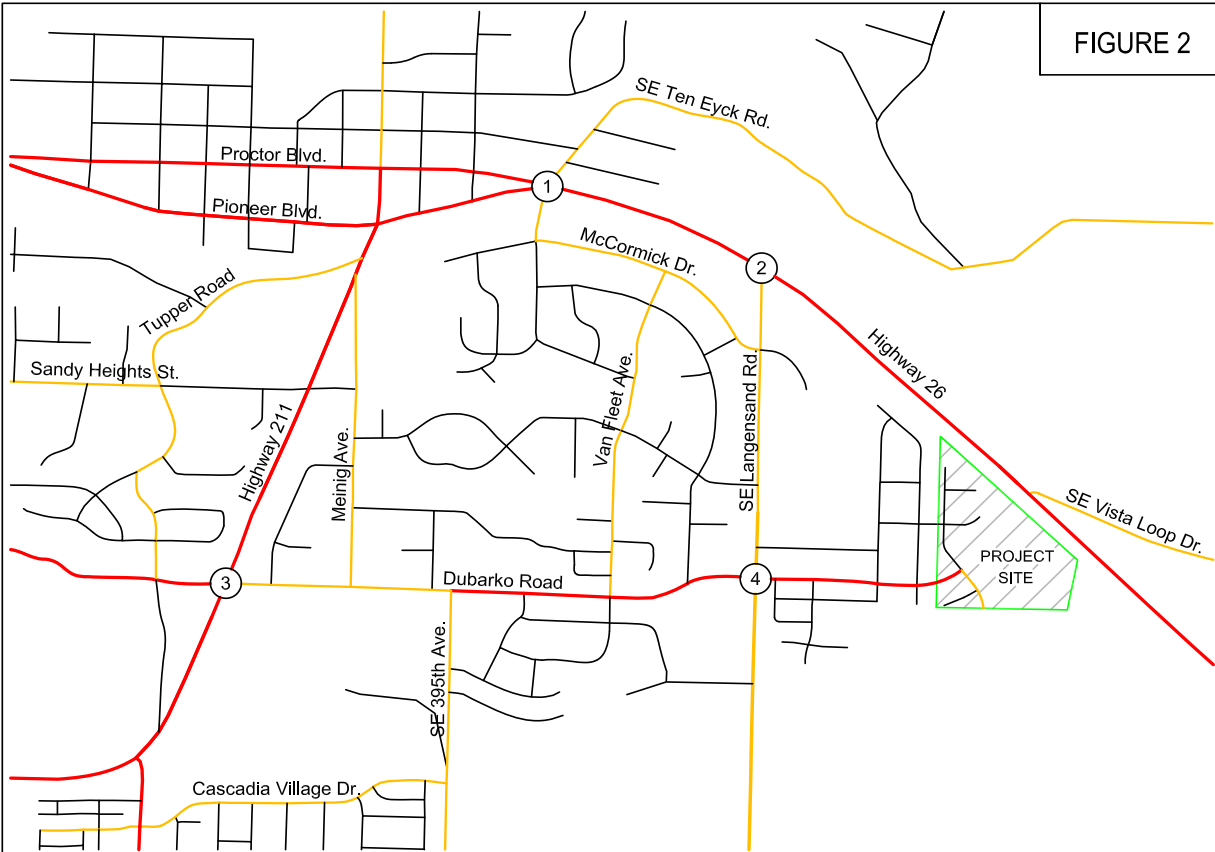
The resulting calculated through traffic volumes represent the anticipated traffic volumes on Highway 26 immediately west of Ten Eyck Road during the 30<sup>th</sup>-highest hour in July. The morning peak hour through traffic volumes along Highway 26 were then increased by the same overall percentage as the evening peak hour volumes (16.2 percent).

The observed traffic volumes along Highway 211 had a commuter seasonal adjustment of 0.7 percent applied based on ODOT's Seasonal Trend Table data for commuter routes and for data collected on June 9<sup>th</sup> to reflect the peak commuter time of June 15<sup>th</sup>.

In addition to the seasonal adjustments, the observed traffic volumes were increased to account for the impacts of the COVID-19 pandemic on traffic volumes in the site vicinity. Based on data from ODOT's most recent Weekly COVID-19 Traffic Reports, traffic volumes along Highway 26 are currently approximately 5.0 percent below the levels that would have otherwise been projected for this corridor in 2021. Similarly, the traffic volumes statewide average approximately 5.6 percent lower than would otherwise be projected absent the impacts of the pandemic. Accordingly, the projected year 2021 peak-season traffic volumes were increased by 5.0 percent for through traffic on Highway 26 and by 5.6 percent for all other roadways to estimate traffic volumes absent the impacts of the continuing pandemic.

Figure 2 on page 10 shows the existing year 2021 30<sup>th</sup>-highest hour traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 2



**TRAFFIC VOLUMES**  
 2021 Existing 30th-Highest Hour (August) Conditions  
 Morning and Evening Peak Hours



### ***OPERATIONAL ANALYSIS***

An operational analysis was conducted for the study intersections using Synchro 10 software, with outputs calculated based on the *HIGHWAY CAPACITY MANUAL, 6<sup>th</sup> Edition*. The analysis was conducted for the weekday morning and evening peak hours.

The purpose of the existing conditions analysis is to establish how the study area intersections operate currently and allow for calibration of the operational analysis if required.

The results of the operational analysis are reported based on delay, Level of Service (LOS), and volume-to-capacity ratio (v/c). Delays are reported in seconds. Level of service is reported as a letter grade and can range from A to F, with level of service A representing nearly free-flow conditions and level of service F representing high but tolerable delays and severe congestion. A report of level of service D generally indicates moderately high but tolerable delays, and typically occurs prior to reaching intersection capacity. For unsignalized intersections, the v/c represents the portion of the available intersection capacity that is being utilized on the worst intersection approach. For signalized intersections, it indicates the portion of the overall intersection's capacity that is being used. A v/c ratio of 1.0 would indicate that the intersection is operating at capacity.

The Oregon Department of Transportation requires that the signalized intersection of Highway 26 at SE Ten Eyck Road operate with a v/c ratio of 0.85 or less during the peak hours. The intersection of Highway 26 at SE Langensand Road is required to operate with a v/c ratio of 0.80 or less on the major-street approaches and a v/c ratio of 0.90 or less on the minor-street approaches.

Intersections operating under the jurisdiction of the City of Sandy are required to operate at level of service D or better. This operational standard applies to the intersections of Dubarko Road at Langensand Road and Highway 211 at Dubarko Road.

A summary of the existing conditions operational analysis is provided in Table 1 on the following page. For the unsignalized intersections the reported delays and levels-of-service represent the approach lane which experiences the highest delays. The reported v/c ratios represent the highest ratio for the major-street and minor-street movements. For the signalized intersection of Highway 26 at SE Ten Eyck Road, the reported delays, levels-of-service and v/c ratios represent the operation of the overall intersection.

Based on the analysis, the intersections are currently operating acceptably per the respective ODOT and City of Sandy standards. Detailed capacity analysis worksheets are provided in the technical appendix.



**Table 1 - Operational Analysis Summary: Year 2021 30th-Highest Hour Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c*	Delay	LOS	v/c*
Highway 26 at Ten Eyck Road	23.5	C	0.55	25.2	C	0.64
Highway 26 at Langensand Road	33.5	D	0.24 / 0.26	80.2	F	0.32 / 0.49
Highway 211 at Dubarko Road	2.9	C	0.32	32.4	D	0.36
Dubarko Road at Langensand Road	9.7	A	0.04	9.6	A	0.03

\*(major street v/c) / (minor-street v/c) is shown for the unsignalized ODOT intersection.



## SITE TRIPS

### Proposed Development

The proposed subdivision will support development of 32 single-family homes as well as up to 120 apartment units. Although some commercial development is expected to occur within the C-3 zoned portion of the property in the longer-range future, a separate design review application and analysis will be required for future commercial development. To estimate the number of trips that will be generated by the potential residential development within the proposed subdivision, trip rates from the *TRIP GENERATION MANUAL, 10<sup>th</sup> EDITION* were used. Data from land-use code 210, *Single-Family Detached Housing*, and 220, *Multi-Family Housing*, were used. The trip estimates are based on the number of dwelling units.

A summary of the trip generation calculations is provided in Table 2 below. Detailed trip generation worksheets are also included in the technical appendix.

**Table 2 - Proposed Development Trip Generation Summary**

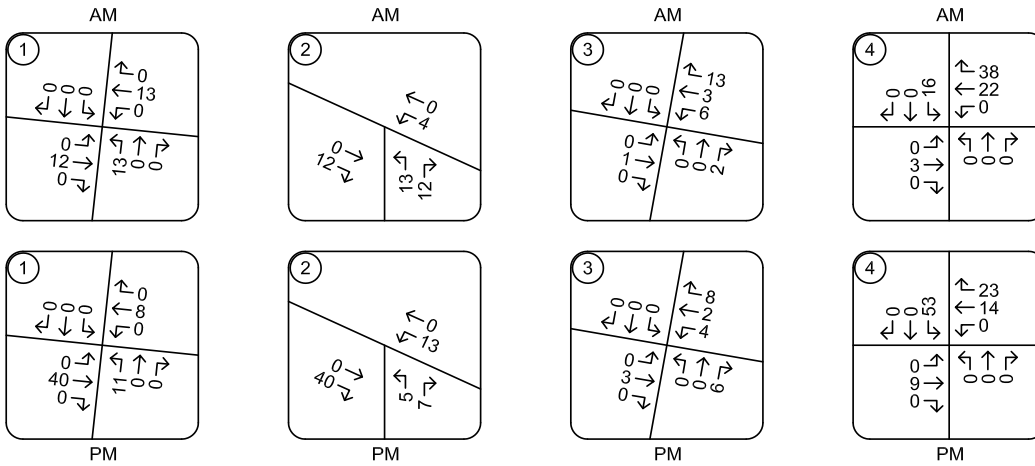
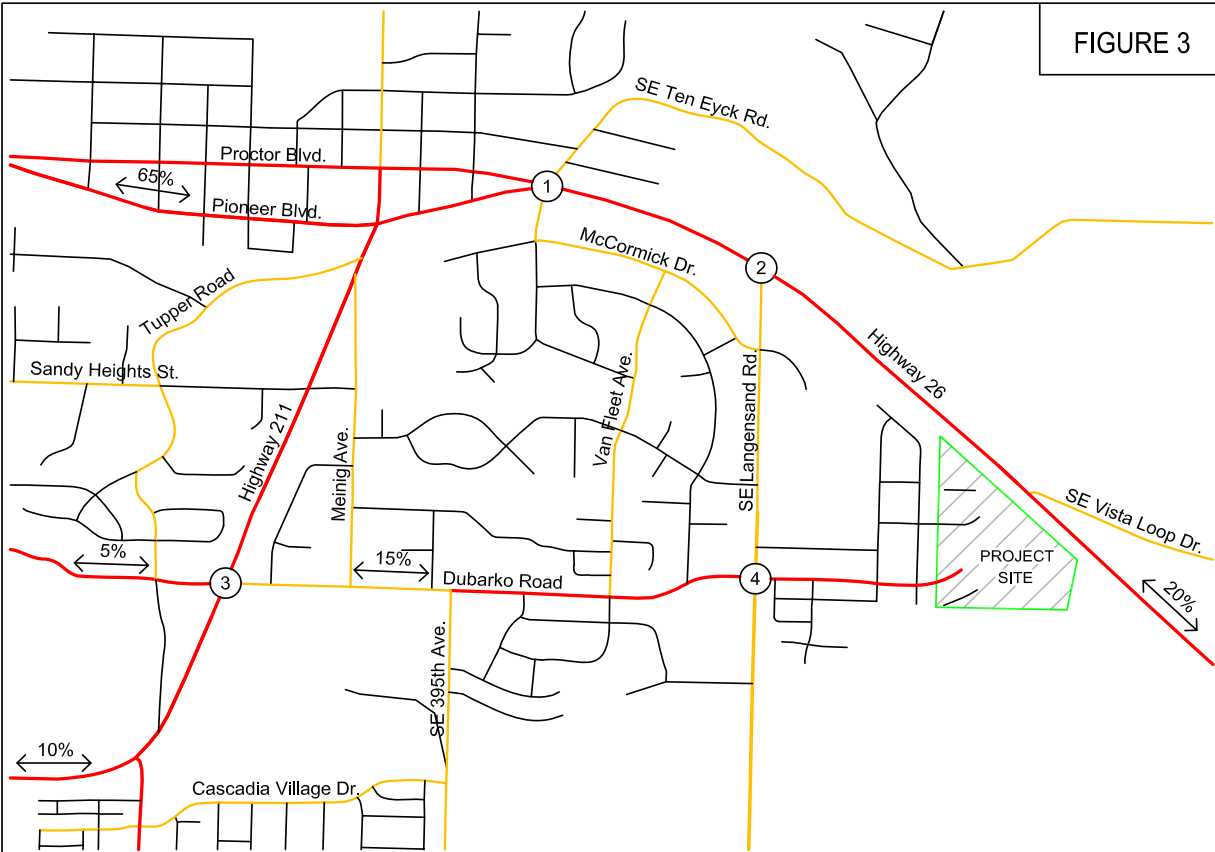
	AM Peak Hour			PM Peak Hour			Daily Total
	In	Out	Total	In	Out	Total	
32 Single-Family Homes	6	18	24	20	12	32	302
120 Multi-Family Dwelling Units	13	42	55	42	25	67	878
Total Site Trips	19	60	79	62	37	99	1,180

### TRIP DISTRIBUTION

The directional distribution of site trips to and from the project site was estimated based the existing travel patterns in the site vicinity, as well as the locations of likely trip destinations and major transportation routes. Overall, 65 percent of the anticipated site trips are projected to travel to and from the northwest on Highway 26, 20 percent are projected to travel to and from the southeast on Highway 26, and the remaining 15 percent of site trips are projected to travel to and from the west on Dubarko Road. Site trips will travel to and from Highway 26 using the existing streets in the site vicinity, which will be extended into the Deer Meadows Subdivision.

The trip distribution percentages and trip assignment for residential development within the proposed subdivision are shown in Figure 3 on page 14.

FIGURE 3



**TRAFFIC VOLUMES**  
 Proposed Development - Primary Site Trips  
 Morning and Evening Peak Hours



## **FUTURE CONDITIONS ANALYSIS**

### ***BACKGROUND VOLUMES***

In order to determine the expected impact of site trips on the study area intersections, it is necessary to compare traffic conditions both with and without the addition of the projected traffic from the proposed development. This comparison is made for future traffic conditions at the time of project completion. It is anticipated that the proposed use will be completed and occupied within two years. Accordingly, the analysis was conducted for year 2023 traffic conditions.

Prior to adding the projected site trips to the study intersections, the existing traffic volumes were adjusted to account for background traffic growth over time. Based on data from ODOT's Future Volume Tables, the growth rate for traffic volumes on Highway 26 in the site vicinity was calculated to be 1.96 percent per year (linear). This growth rate was applied to the through traffic volumes on Highway 26. All other turning movements had a growth factor of 2 percent per year (exponential) applied.

In addition to the background growth, future site trips associated with other anticipated developments within the City of Sandy were added to the background traffic volumes. These projects included the Clackamas County Health Clinic, Mt. Hood Senior Living, The Pad, The Views, Shaylee Meadows, Mt. View Ridge, Marshall Ridge, Jacoby Heights, Trimble PD, and Bornstedt Views. The projected site trips for these residential developments are shown in Figure 6 in the attached technical appendix.

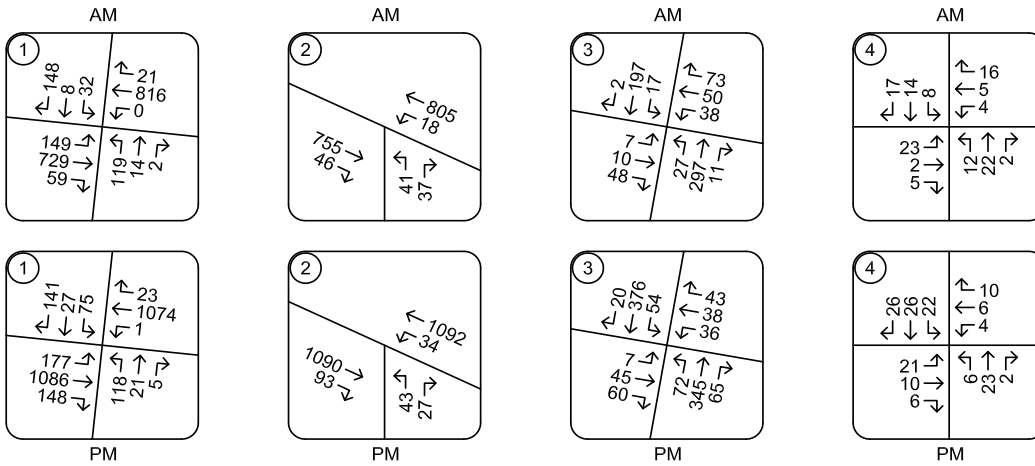
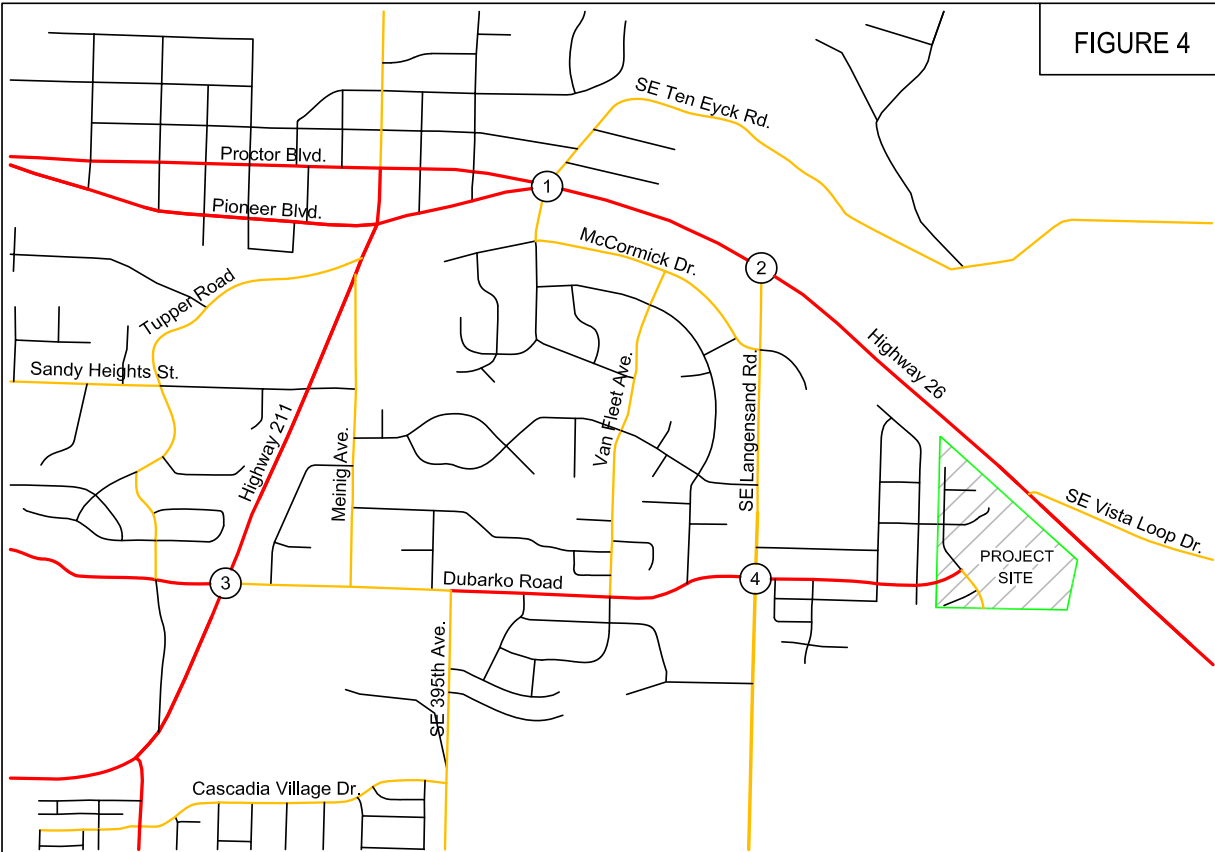
Figure 4 on page 16 shows the projected year 2023 background traffic volumes at the study intersections during the morning and evening peak hours.

### ***BACKGROUND VOLUMES PLUS SITE TRIPS***

Peak hour trips calculated to be generated by the proposed development were added to the projected year 2023 background traffic volumes to obtain the year 2023 total traffic volumes following completion of the proposed residential development.

Figure 5 on page 17 shows the projected year 2023 peak hour volumes including background growth, and site trips from the proposed development for the morning and evening peak hours.

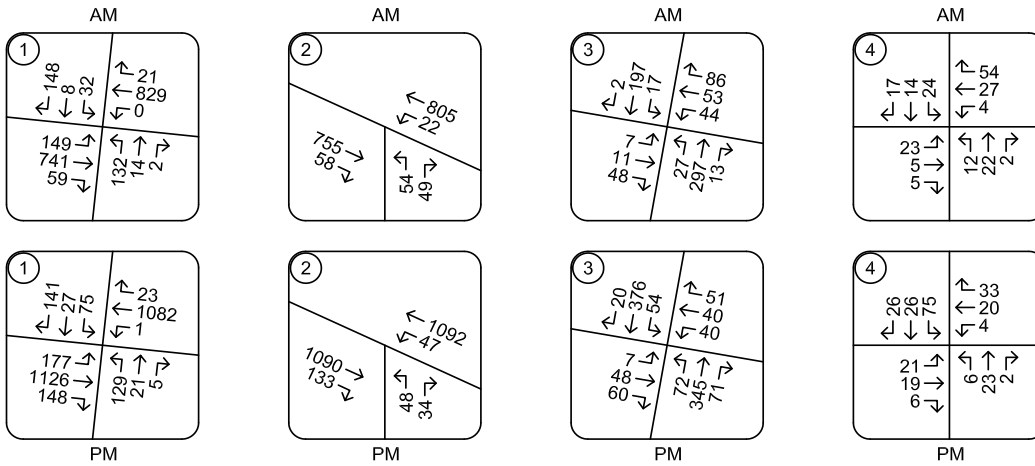
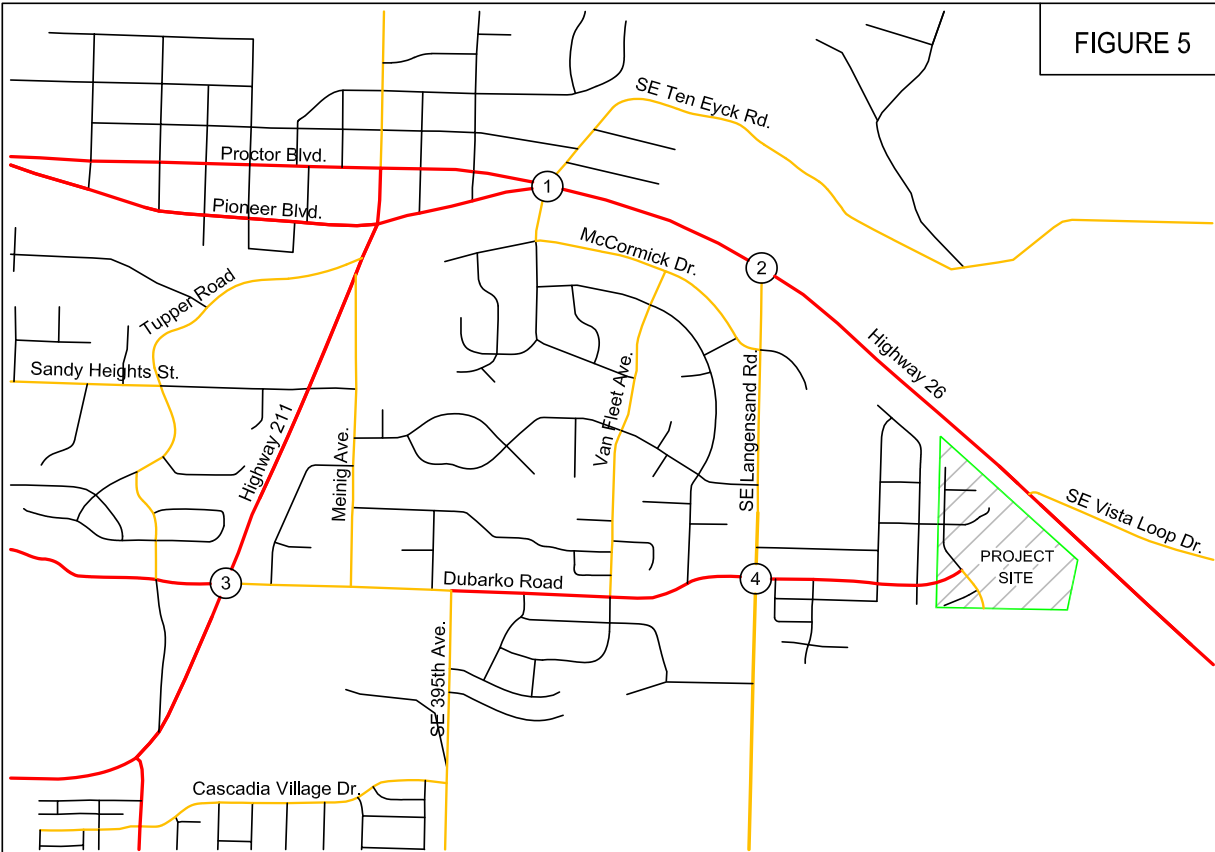
FIGURE 4



TRAFFIC VOLUMES  
2023 Background Conditions  
Morning and Evening Peak Hours



FIGURE 5



**TRAFFIC VOLUMES**  
 2023 Background Plus Site Trips  
 Morning and Evening Peak Hours



**OPERATIONAL ANALYSIS**

The operational analysis for future traffic conditions was again conducted using Synchro analysis software, with outputs based on the analysis methodologies contained in the *HIGHWAY CAPACITY MANUAL*. The analysis was prepared for the intersections’ morning and evening peak hours.

The results of the operational analysis are summarized in Table 4 below. Detailed analysis worksheets are also included in the technical appendix.

**Table 4 - Operational Analysis Summary: Year 2023 Future Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c*	Delay	LOS	v/c*
<b>Highway 26 at Ten Eyck Road</b>						
2023 Background Conditions	25.2	C	0.62	26.7	C	0.70
2023 Background plus Site	25.4	C	0.64	26.9	C	0.72
<b>Highway 26 at Langensand Road</b>						
2023 Background Conditions	41.9	E	0.26 / 0.32	136.6	F	0.36 / 0.69
2023 Background plus Site	48.7	E	0.26 / 0.43	173.2	F	0.38 / 0.82
<b>Highway 211 at Dubarko Road</b>						
2023 Background Conditions	25.6	D	0.39	51.0	F	0.51
2023 Background plus Site	27.5	D	0.44	56.3	F	0.56
2023 Background plus Site AWSC	23.8	C	0.73	36.3	E	0.86
<b>Dubarko Road at Langensand Road</b>						
2023 Background Conditions	9.8	A	0.04	9.7	A	0.04
2023 Background plus Site	11.3	B	0.15	11.4	B	0.08

\*(major street v/c) / (minor-street v/c) is shown for the unsignalized ODOT intersection.

AWSC = Mitigated conditions analysis with conversion to all-way stop control

The intersection of Oregon Highway 211 at Dubarko Road was previously under the jurisdiction of the Oregon Department of Transportation and subject to a volume-to-capacity ratio standard rather than level of service. The intersection would have met ODOT’s volume-to-capacity based standards for operation, but with conversion to a city intersection it is subject to the city’s level-of-service standards. This intersection is projected to operate at level of service “F” under year 2023 background conditions during the evening peak hour.

Upon completion of the proposed development, the intersection is projected to continue to operate at level of service F during the evening peak hour, with average delays for the highest-delay movement increasing from 51.0 seconds to 56.3 seconds if no mitigation is provided. However, if the intersection is converted to all-way stop control (as recommended in the Traffic Signal and All-Way Stop Control Analysis section of this report on page 20), the intersection is projected to operate at level of service E, with average delays for the highest-delay movement reduced to 36.3 seconds. Since intersection operation is better than under background conditions, this proposed mitigation is sufficient to fully



offset the transportation impacts of the Deer Meadows Subdivision site trips. As such, any requirement for additional mitigation would be disproportionate to the impact of the proposed development.

All other intersections are projected to operate acceptably per the appropriate jurisdictional standards. No other operational mitigations are recommended in conjunction with the proposed development.

#### ***LOCAL STREET TRAFFIC VOLUMES***

Traffic volumes on local streets in the site vicinity may also be impacted by the proposed development. In particular, the proposed street network includes an extension of Fawn Street, which provides connections to Meadow Avenue, Antler Avenue, and Therese Street.

Section 17.10.30 “Street”, Sub-section E “Local Streets”, the City of Sandy’s Development Code requires that:

“Average daily traffic (ADT) shall not exceed 1,000 vehicles/day. Proposed projects that result in more than 1,000 ADT on an existing or proposed local street shall be modified to not exceed the 1,000 ADT threshold on the local street or the proposal may be processed through the procedures in Chapter 17.66 of the Sandy Development Code.”

It should be noted that Dubarko Road and Langensand Road are classified as Minor Arterial roadways, are intended to carry higher volumes of traffic, and are not subject to the traffic limitations described in this code section. However, an assessment of daily traffic volumes is necessary to determine whether the Local streets will comply with this requirement.

Existing daily traffic volumes on these streets were estimated by determining the fastest travel paths for the homes within the existing and proposed developments. Since all affected streets in the site vicinity have 25 mph statutory speed limits, the distribution was estimated based on the shortest travel paths. Based on the analysis, Meadow Avenue currently carries 200 daily trips immediately north of Dubarko Road. Antler Avenue currently carries 250 daily trips immediately north of Dubarko Road. Fawn Street currently carries 20 daily trips immediately east of Meadow Avenue and 100 daily trips immediately east of Antler Avenue. Therese Street currently carries 600 average daily trips immediately east of Langensand Road.

The proposed development will add trips to these existing local streets, since the site will connect to the exiting local street system via the extension of Fawn Street into the site. Based on the proposed development plan, it is projected that lots 5 through 26 (22 single-family homes) may utilize Fawn Street. The multifamily development, lots 1-4, and lost 27-30 would not be projected to utilize Fawn Street since Dubarko Road provides a more direct connection to all potential destinations. Accordingly, the proposed development cannot add more than 210 daily trips to any of the existing local streets. Since none of the existing local streets that will be impacted by the proposed development are within 210 daily trips of the 1,000 daily trip maximum threshold established by the City of Sandy, the proposed development cannot result in traffic volumes exceeding 1,000 daily trips on any local streets in the site vicinity. Based on the analysis, no traffic calming or traffic diverting mitigations are necessary or recommended for the existing and proposed local streets in conjunction with development within the Deer Meadows subdivision.



## **SAFETY ANALYSIS**

### ***CRASH DATA ANALYSIS***

Using data obtained from the Oregon Department of Transportation, a review of the five most recent years of available crash history (from January 2015 through December 2019) was performed for the study intersections. The crash data was evaluated based on the number, type, and severity of collisions, as well as the intersection crash rate. Crash rates allow comparison of relative safety risks at intersections with different lane configurations, volumes, and traffic control devices by accounting for both the number of crashes that occur during the study period and the number of vehicles that traveled through the intersection during that period. Crash rates are calculated using the standard assumption that evening peak hour volumes are approximately 10 percent of the average daily traffic volume at an intersection. The crash rates were compared to statewide crash rates for similar intersection types to identify any locations with crash rates in excess of the 90<sup>th</sup> percentile.

The intersection of Highway 26 at SE Ten Eyck Road had eight reported collisions during the five-year analysis period. These included four rear-end collisions, three turning movement collisions, and one angle collision. The crashes resulted in no serious injuries or fatalities and six reports of a “possible injury/complaint of pain”. The crash rate for the intersection was calculated to be 0.15 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.86 crashes per million entering vehicles for signalized, four-way urban intersections in Oregon.

The intersection of Highway 26 at SE Langensand Road had seven reported collisions during the five-year analysis period. These included five turning-movement collisions, one backing collision and one pedestrian collision. The pedestrian collision occurred when a pedestrian walking along the south side of Highway 26 crossing Langensand Road was struck by a driver making an eastbound right turn from the highway onto Langensand Road. The collision resulted in a report of a “possible injury/complaint of pain” by the pedestrian. Overall, the crashes resulted in one non-incapacitating injury and five reports of a “possible injury/complaint of pain”. The crash rate for the intersection was calculated to be 0.16 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.29 crashes per million entering vehicles for stop-controlled, three-way urban intersections in Oregon.

The intersection of Highway 211 at Dubarko Road had 27 reported crashes during the five-year analysis period. These included 16 angle collisions, 4 turning-movement collisions, 4 rear-end collisions, 1 backing collision, 1 sideswipe-overtaking collision, and 1 pedestrian collision. The crashes resulted in one incapacitating injury and no fatalities. There were 10 “non-incapacitating” injuries reported and 19 reports of a “possible injury/complaint of pain”. The incapacitating injury occurred when a westbound driver failed to yield to a southbound vehicle and was struck in the intersection. The pedestrian collision occurred when a southbound pedestrian was struck by a westbound driver that failed to yield right-of-way to the pedestrian crossing, resulting in a report of a possible injury/complaint of pain by the pedestrian. The crash rate for the intersection was calculated to be 1.56 crashes per million entering vehicles. This is above the 90<sup>th</sup> percentile crash rate of 1.08 crashes per million entering vehicles for rural unsignalized four-way intersections in the state of Oregon.

The Oregon Department of Transportation recently undertook safety improvements at this intersection, including re-alignment of the minor-street approaches to intersect at a 90-degree angle and the addition



of some striping and speed feedback signs along the major-street to increase driver awareness of speed. However, the crash data for subsequent years has shown no significant improvement in the crash frequency at this intersection. An examination of the current intersection configuration revealed no significant apparent hazards and adequate sight distance from the minor-street approaches, allowing drivers approaching the highway to select safe gaps when turning onto or crossing the highway.

As described in the Warrant Analysis section of this report below, the intersection currently meets all-way stop control warrants based on crash history. Accordingly, it is recommended that all-way stop control be installed at this intersection. No other safety mitigations are recommended at this time.

The intersection of Dubarko Road at SE Langensand Road had one reported collision during the five-year analysis period. It was an angle collision that resulted in property damage only. The crash rate for the intersection was calculated to be 0.34 crashes per million entering vehicles. This is well below the 90<sup>th</sup> percentile crash rate of 0.408 crashes per million entering vehicles for stop-controlled, four-way urban intersections in Oregon.

Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. It is recommended that consideration be given to installing all-way stop control at this intersection. No other safety improvements are recommended for the study area intersections at this time.

#### ***TRAFFIC SIGNAL AND ALL-WAY STOP CONTROL WARRANT ANALYSIS***

Traffic signal warrants were examined for the unsignalized study intersections. Based on the projected traffic volumes, traffic signal warrants are not projected to be met for any of the unsignalized study intersections under any of the analysis scenarios.

All-way stop control can be installed where there are “Five or more crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.” Examination of the crash data shows that there were six angle collisions at the intersection in the most recent year for which complete data is available (2019). Accordingly, installation of all-way stop control is warranted based on crash history.

Consideration was also given to installing a roundabout at the intersection of Highway 211 and Dubarko Road. Installation of a roundabout would result in operation well within capacity and at level of service A. However, according to *Roundabouts: An Informational Guide*, published by the Federal Highway Administration, “It is generally not desirable to locate roundabouts in locations where grades through the intersection are greater than four percent. The installation of roundabouts on roadways with grades lower than three percent is generally not problematic.” In this instance, Highway 211 has a constant grade of approximately 6 percent through its intersection with Dubarko Road. Accordingly, installation of a roundabout would not be recommended absent significant re-grading of the approach roadways. The potential for snow and ice at the intersection compound this concern.



### ***TURN LANE WARRANT ANALYSIS***

Turn lane warrants were also examined for the major-street approaches to the unsignalized study intersections. Left-turn lane warrants are intended to evaluate whether a meaningful safety benefit may be expected if the turning vehicles are provided with turn lane within the street, allowing left-turning drivers to move out of the through travel lane so that following vehicles may pass without conflicts.

The intersection of Highway 26 at Langensand Road already has left and right turn lanes in place.

The intersection of Highway 211 at Dubarko Road currently meets ODOT warrants for a northbound left-turn lane and a northbound right-turn lane. However, the need for these turn lanes is not meaningfully related to the proposed development. Further, if all-way stop control is installed at the intersection as recommended based on the safety analysis, additional turn lanes will not be required for either safety or operations.

The intersection of Dubarko Road at Langensand Road is not projected to meet turn lane warrants under any analysis scenarios.



## CONCLUSIONS

With conversion to all-way stop control, the intersection of Highway 211 at Dubarko Road is projected to operate better under year 2023 traffic conditions with construction of the proposed development than without the development and the all-way stop control conversion. Accordingly, installation of all-way stop control is sufficient to offset the impacts of the proposed development and any additional mitigation would be disproportionate to the actual impact of the proposed development. All other study intersections are projected to operate acceptably through year 2023 either with or without the addition of site trips from the proposed development. No other operational mitigations are necessary or recommended in conjunction with the proposed subdivision.

Based on the examination of existing and future local street volumes, the local streets in the site vicinity currently carry fewer than 1,000 daily trips and will continue to carry fewer than 1,000 daily trips upon completion of the proposed development. No mitigations are necessary or recommended for the local streets in the site vicinity in conjunction with the proposed development.

Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. This intersection meets all-way stop control warrants based on crash history, and conversion to all-way stop control would be expected to reduce the frequency and severity of right-angle and turning-movement collisions. It is therefore recommended that all-way stop control be installed at the intersection of Highway 211 and Dubarko Road. No other safety improvements are recommended.

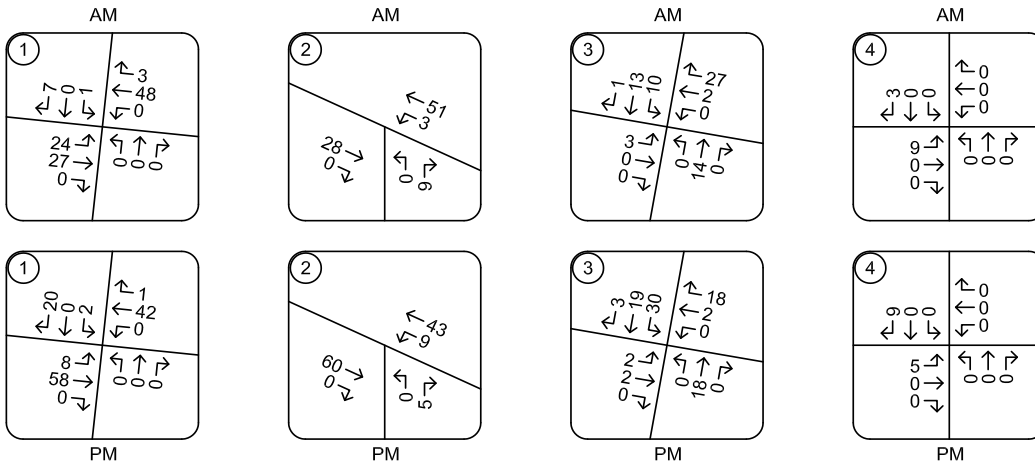
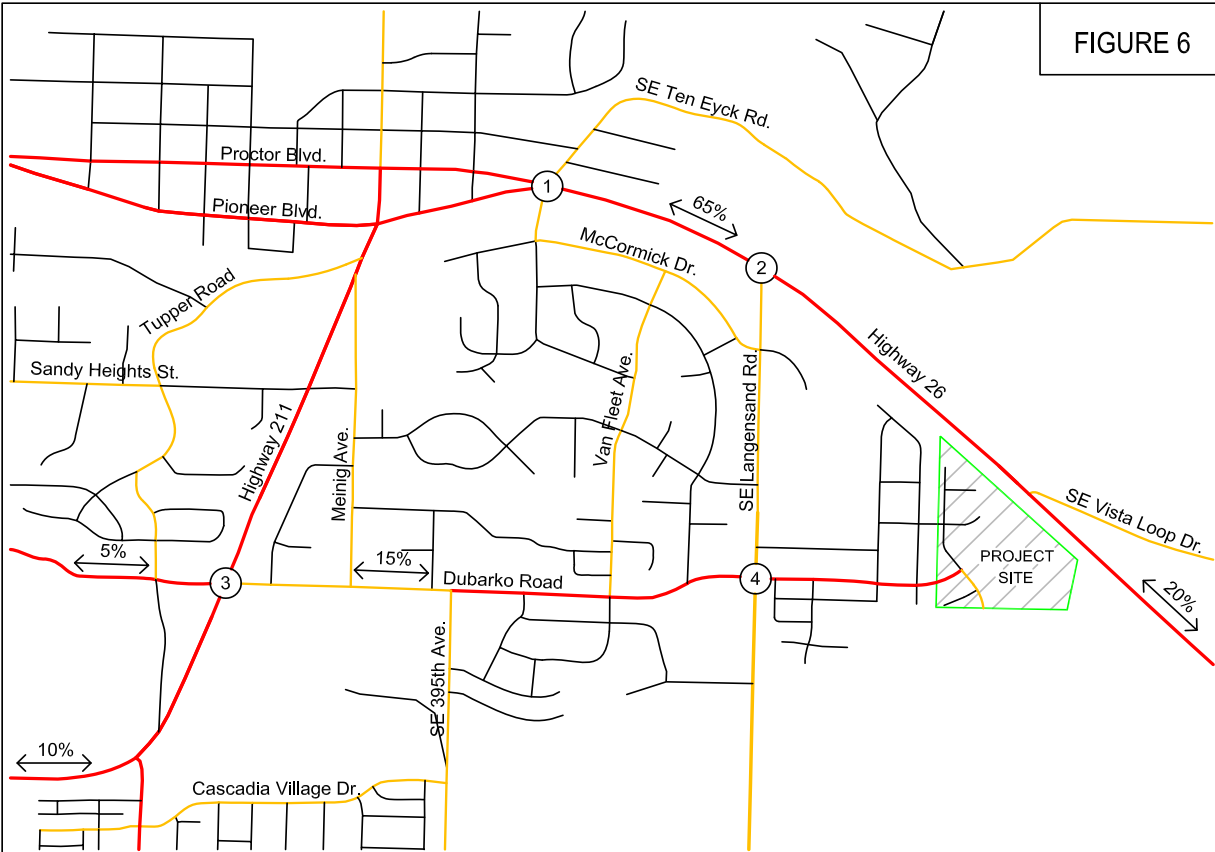
Based on the warrant analysis, no new turn lanes or traffic signals are recommended in conjunction with the proposed subdivision.



## APPENDIX



FIGURE 6



**TRAFFIC VOLUMES**  
 In-Process Development - Site Trips  
 Morning and Evening Peak Hours

PAGE  
 APP1

Location: 2 Ten Eyck Rd & Hwy 26 AM



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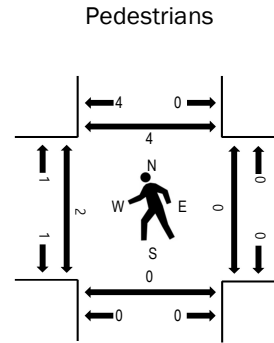
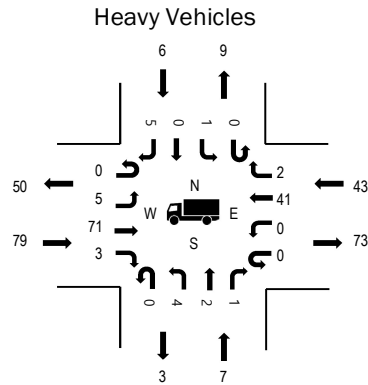
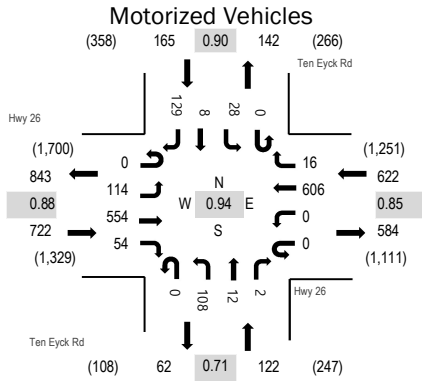
Location: 2 Ten Eyck Rd & Hwy 26 AM

Date: Tuesday, September 21, 2021

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	10.9%	0.88
WB	6.9%	0.85
NB	5.7%	0.71
SB	3.6%	0.90
All	8.3%	0.94

**Traffic Counts - Motorized Vehicles**

Interval Start Time	Hwy 26 Eastbound			Hwy 26 Westbound			Ten Eyck Rd Northbound			Ten Eyck Rd Southbound			Total	Rolling Hour				
	U-Turn	Left	Thru	U-Turn	Thru	Right	U-Turn	Left	Thru	U-Turn	Left	Thru			Right			
7:00 AM	0	7	15	1	0	0	36	0	0	10	0	0	0	2	1	15	87	1,559
7:05 AM	0	8	32	5	0	0	49	1	0	9	0	0	0	2	0	10	116	1,578
7:10 AM	0	2	35	2	0	1	60	1	0	7	1	0	0	2	1	12	124	1,586
7:15 AM	0	4	34	1	0	0	54	2	0	13	3	0	0	3	0	12	126	1,593
7:20 AM	0	3	29	2	0	0	56	3	0	8	2	1	0	1	0	17	122	1,600
7:25 AM	0	3	38	1	0	0	55	3	0	18	4	0	0	2	0	17	141	1,610
7:30 AM	0	10	40	1	0	0	67	3	0	9	2	0	0	1	2	12	147	1,631
7:35 AM	0	14	42	4	0	0	47	1	0	8	0	0	0	3	1	11	131	1,610
7:40 AM	0	11	41	9	0	0	67	2	0	8	1	0	0	4	0	14	157	1,609
7:45 AM	0	16	53	1	0	0	35	1	0	9	0	1	0	1	1	11	129	1,597
7:50 AM	0	8	48	8	0	0	50	0	0	10	1	0	0	6	0	15	146	1,624
7:55 AM	0	8	60	7	0	0	41	2	0	3	3	0	0	1	0	8	133	1,620
8:00 AM	0	8	43	3	0	0	35	1	0	8	2	0	0	0	0	6	106	1,626
8:05 AM	0	3	38	5	0	0	46	3	0	17	1	0	0	2	2	7	124	
8:10 AM	0	11	47	3	0	0	52	1	0	6	1	0	0	2	1	7	131	
8:15 AM	0	6	39	5	0	0	55	0	0	13	0	0	0	3	0	12	133	
8:20 AM	0	7	44	1	0	0	47	0	0	15	0	0	0	3	1	14	132	
8:25 AM	0	12	59	7	0	0	64	2	0	2	1	1	0	2	0	12	162	
8:30 AM	0	10	37	4	0	0	48	2	0	8	0	0	0	5	0	12	126	
8:35 AM	0	10	45	4	0	0	49	0	0	9	1	0	0	2	1	9	130	
8:40 AM	0	15	57	5	0	0	47	0	0	8	0	1	0	3	0	9	145	
8:45 AM	0	3	58	5	0	0	56	3	0	8	1	1	0	10	0	11	156	
8:50 AM	0	11	52	2	0	0	47	4	0	5	2	0	0	5	3	11	142	
8:55 AM	0	11	49	7	0	0	48	4	0	4	0	1	0	5	0	10	139	
Count Total	0	201	1,035	93	0	1	1,211	39	0	215	26	6	0	70	14	274	3,185	
Peak Hour	0	114	554	54	0	0	606	16	0	108	12	2	0	28	8	129	1,631	

Location: 2 Ten Eyck Rd & Hwy 26 AM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	4	0	5	1	10	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	8	0	4	0	12	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	3	1	1	1	6	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	7	1	1	0	9	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	2	0	3	0	5	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	4	0	3	0	7	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	2	1	3	0	6	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	10	0	6	1	17	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	11	1	3	1	16	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	1	1
7:45 AM	5	1	4	0	10	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	3	0	5	0	8	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	9	1	4	0	14	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	1	1
8:00 AM	8	0	1	0	9	8:00 AM	0	0	0	0	0	8:00 AM	1	0	0	2	3
8:05 AM	5	0	4	0	9	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	6	2	6	0	14	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	8	0	3	2	13	8:15 AM	0	0	0	0	0	8:15 AM	1	0	0	0	1
8:20 AM	7	0	1	1	9	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	5	1	3	1	10	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	6	0	2	0	8	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	8	0	2	0	10	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	13	0	7	0	20	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	8	0	4	0	12	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	9	0	3	1	13	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	1	1
8:55 AM	6	0	3	0	9	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	157	9	81	9	256	Count Total	0	0	0	0	0	Count Total	2	0	0	5	7
Peak Hour	79	7	43	6	135	Peak Hour	0	0	0	0	0	Peak Hour	2	0	0	4	6

Location: 3 SE Langensand Rd & Hwy 26 AM



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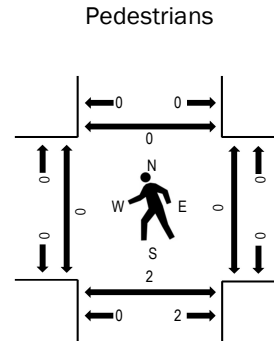
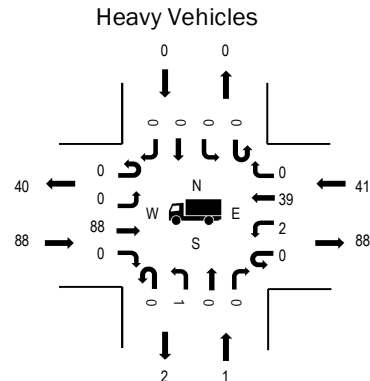
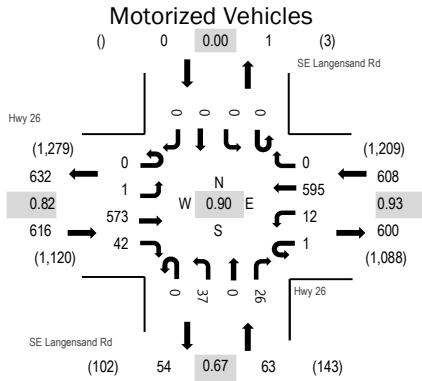
Location: 3 SE Langensand Rd & Hwy 26 AM

Date: Tuesday, September 21, 2021

Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:45 AM - 09:00 AM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	14.3%	0.82
WB	6.7%	0.93
NB	1.6%	0.67
SB	0.0%	0.00
All	10.1%	0.90

**Traffic Counts - Motorized Vehicles**

Interval Start Time	Hwy 26 Eastbound				Hwy 26 Westbound			SE Langensand Rd Northbound				SE Langensand Rd Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
7:00 AM	0	0	17	3	0	0	47	0	0	6	0	0	0	0	0	0	73	1,185
7:05 AM	0	0	33	4	0	0	47	0	0	5	0	1	0	0	0	0	90	1,198
7:10 AM	0	0	32	1	0	0	46	0	0	6	0	1	0	0	0	0	86	1,203
7:15 AM	0	0	31	4	0	1	54	0	0	8	1	4	0	0	0	0	103	1,221
7:20 AM	0	0	30	4	0	3	56	0	0	4	0	2	0	0	0	0	99	1,225
7:25 AM	0	0	42	3	0	1	52	1	0	11	0	0	0	0	0	0	110	1,238
7:30 AM	0	0	30	2	0	1	55	0	0	5	0	1	0	0	0	0	94	1,248
7:35 AM	0	0	47	2	0	2	57	0	0	4	0	1	0	0	0	0	113	1,241
7:40 AM	0	0	47	3	0	1	54	0	0	3	0	2	0	0	0	0	110	1,237
7:45 AM	0	0	45	4	0	1	35	0	0	2	0	2	0	0	0	0	89	1,238
7:50 AM	0	0	53	4	0	2	49	0	0	3	0	3	0	0	0	0	114	1,271
7:55 AM	0	0	62	1	0	1	35	0	0	3	0	2	0	0	0	0	104	1,273
8:00 AM	0	0	33	2	0	3	44	0	0	4	0	0	0	0	0	0	86	1,287
8:05 AM	0	0	41	2	0	0	46	0	0	1	0	5	0	0	0	0	95	
8:10 AM	0	0	45	2	0	2	51	0	0	3	0	1	0	0	0	0	104	
8:15 AM	0	0	43	4	0	2	53	0	0	4	0	1	0	0	0	0	107	
8:20 AM	0	0	45	5	1	0	52	0	0	4	0	5	0	0	0	0	112	
8:25 AM	0	0	47	7	0	1	53	0	0	7	0	5	0	0	0	0	120	
8:30 AM	0	0	35	1	0	0	45	0	0	6	0	0	0	0	0	0	87	
8:35 AM	0	0	59	3	0	1	42	0	0	3	0	1	0	0	0	0	109	
8:40 AM	0	0	54	5	0	0	49	0	0	1	0	2	0	0	0	0	111	
8:45 AM	0	0	63	4	0	1	52	0	0	1	0	1	0	0	0	0	122	
8:50 AM	0	1	46	3	0	0	60	0	0	1	0	5	0	0	0	0	116	
8:55 AM	0	0	62	4	0	2	48	0	0	2	0	0	0	0	0	0	118	
Count Total	0	1	1,042	77	1	25	1,182	1	0	97	1	45	0	0	0	0	2,472	
Peak Hour	0	1	573	42	1	12	595	0	0	37	0	26	0	0	0	0	1,287	

Location: 3 SE Langensand Rd & Hwy 26 AM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	3	0	5	0	8	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	7	1	2	0	10	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	4	0	0	0	4	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	3	3	3	0	9	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	2	1	4	0	7	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	6	0	3	0	9	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	0	3	0	4	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	13	0	6	0	19	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	5	0	4	0	9	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	5	1	4	0	10	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	5	0	5	0	10	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	7	0	1	0	8	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	5	0	1	0	6	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	3	0	8	0	11	8:05 AM	0	0	0	0	0	8:05 AM	0	1	0	0	1
8:10 AM	7	0	5	0	12	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	10	0	1	0	11	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	6	0	2	0	8	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	7	0	4	0	11	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	5	1	1	0	7	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	11	0	3	0	14	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	9	0	4	0	13	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	9	0	4	0	13	8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	0	1
8:50 AM	7	0	3	0	10	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	9	0	5	0	14	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	149	7	81	0	237	Count Total	0	0	0	0	0	Count Total	0	2	0	0	2
Peak Hour	88	1	41	0	130	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	0	2

Location: HWY 211 & DUBARKO RD AM



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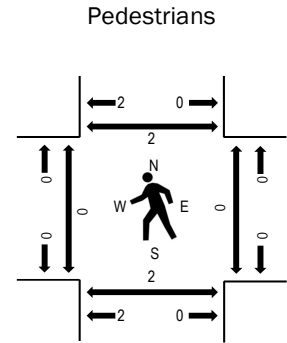
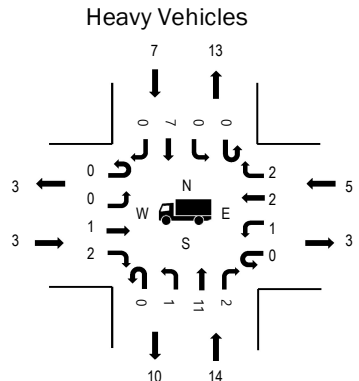
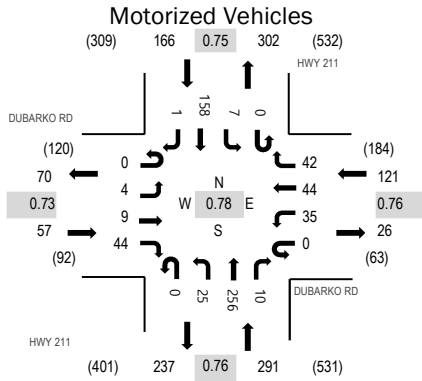
Location: HWY 211 & DUBARKO RD AM

Date: Wednesday, June 9, 2021

Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:25 AM - 07:40 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.3%	0.73
WB	4.1%	0.76
NB	4.8%	0.76
SB	4.2%	0.75
All	4.6%	0.78

Traffic Counts - Motorized Vehicles

Interval Start Time	DUBARKO RD Eastbound			U-Turn	DUBARKO RD Westbound			U-Turn	HWY 211 Northbound			U-Turn	HWY 211 Southbound			Total	Rolling Hour	
	U-Turn	Left	Thru		Right	U-Turn	Left		Thru	Right	U-Turn		Left	Thru	Right			U-Turn
7:00 AM	0	1	1	0	0	2	1	2	0	2	19	1	0	0	20	0	49	635
7:05 AM	0	0	1	3	0	2	5	2	0	1	19	0	0	0	4	0	37	617
7:10 AM	0	0	0	4	0	3	4	5	0	4	16	0	0	1	8	0	45	613
7:15 AM	0	0	1	6	0	2	5	4	0	1	22	0	0	0	15	0	56	612
7:20 AM	0	0	1	4	0	6	4	2	0	1	26	0	0	0	13	0	57	596
7:25 AM	0	0	1	3	0	1	6	9	0	2	33	1	0	0	14	0	70	564
7:30 AM	0	1	1	9	0	2	2	3	0	2	22	2	0	0	15	0	59	536
7:35 AM	0	0	0	3	0	4	6	7	0	4	26	4	0	2	19	0	75	514
7:40 AM	0	0	0	2	0	6	3	3	0	1	19	2	0	1	17	1	55	483
7:45 AM	0	2	1	2	0	0	3	1	0	5	22	0	0	1	10	0	47	465
7:50 AM	0	0	0	4	0	3	2	0	0	2	13	0	0	1	9	0	34	485
7:55 AM	0	0	2	4	0	4	3	4	0	0	19	0	0	1	14	0	51	491
8:00 AM	0	2	0	1	0	2	0	3	0	1	15	1	0	0	6	0	31	481
8:05 AM	0	0	2	2	0	0	1	3	0	2	14	1	0	1	7	0	33	
8:10 AM	0	0	0	0	0	3	1	1	0	1	20	1	0	2	15	0	44	
8:15 AM	0	1	2	1	0	3	4	0	0	2	13	2	0	1	11	0	40	
8:20 AM	1	0	0	0	0	1	3	1	0	3	9	0	0	1	5	1	25	
8:25 AM	0	1	1	1	0	1	1	3	0	3	12	1	0	0	18	0	42	
8:30 AM	0	2	2	1	0	3	1	2	0	0	14	0	0	0	12	0	37	
8:35 AM	0	0	2	1	0	0	2	3	0	2	20	1	0	0	12	1	44	
8:40 AM	0	1	0	3	0	2	1	2	0	2	15	3	0	1	6	1	37	
8:45 AM	0	0	2	0	0	1	5	2	0	5	34	4	0	0	14	0	67	
8:50 AM	0	0	1	1	0	1	0	2	0	5	13	0	0	1	16	0	40	
8:55 AM	0	1	3	0	0	3	1	1	0	0	20	1	0	0	11	0	41	
Count Total	1	12	24	55	0	55	64	65	0	51	455	25	0	14	291	4	1,116	
Peak Hour	0	4	9	44	0	35	44	42	0	25	256	10	0	7	158	1	635	

Location: HWY 211 & DUBARKO RD AM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	2	0	0	3	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	1	0	1	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	2	2	1	5	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	2	0	0	2	4	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	2	0	0	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	1	0	0	1	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	2	1	1	4	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	1	0	1	2	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	1	1	2	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	3	0	1	4	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	2	2
7:50 AM	0	1	0	0	1	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0	7:55 AM	0	2	0	0	2
8:00 AM	0	0	0	1	1	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	1	0	1	2	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	1	0	0	1	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	1	0	1	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	3	0	1	4	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	1	1	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	1	1	2	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	1	1	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	4	1	3	8	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	0	1	2	3	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	3	23	9	19	54	Count Total	0	0	0	0	0	Count Total	0	2	0	2	4
Peak Hour	3	14	5	7	29	Peak Hour	0	0	0	0	0	Peak Hour	0	2	0	2	4





Location: 4 SE Langensand Rd & Dubarko Rd AM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	1	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	1	1
7:10 AM	1	0	0	0	1	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	0	1	1	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	1	0	0	0	1
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	1	0	0	0	1	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	1	1	0	0	2	7:50 AM	0	0	0	0	0	7:50 AM	0	0	1	0	1
7:55 AM	0	0	1	0	1	7:55 AM	0	1	0	0	1	7:55 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	0	2	2	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	0	1
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0	8:40 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	4	1	2	4	11	Count Total	0	1	0	0	1	Count Total	1	3	1	1	6
Peak Hour	1	0	0	2	3	Peak Hour	0	0	0	0	0	Peak Hour	0	3	0	0	3

Location: 2 Ten Eyck Rd & Hwy 26 PM



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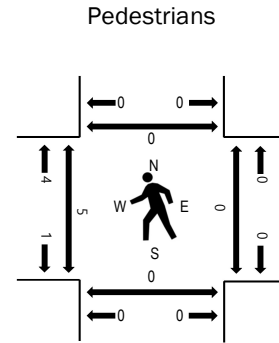
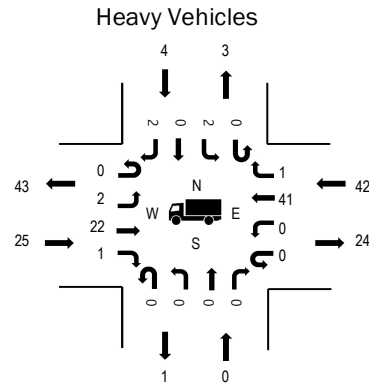
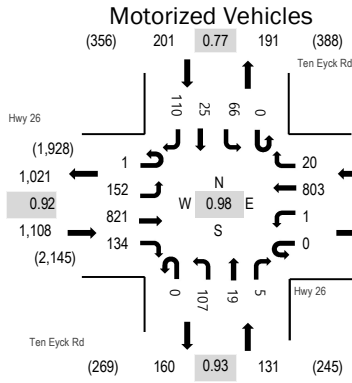
Location: 2 Ten Eyck Rd & Hwy 26 PM

Date: Tuesday, September 21, 2021

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.3%	0.92
WB	5.1%	0.92
NB	0.0%	0.93
SB	2.0%	0.77
All	3.1%	0.98

**Traffic Counts - Motorized Vehicles**

Interval Start Time	Hwy 26 Eastbound				Hwy 26 Westbound				Ten Eyck Rd Northbound				Ten Eyck Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	10	63	7	0	0	61	1	0	8	2	0	0	2	2	6	162	2,156
4:05 PM	0	7	80	10	0	0	51	3	0	10	1	1	0	3	3	9	178	2,166
4:10 PM	0	18	58	9	0	0	67	4	0	6	1	0	0	2	1	10	176	2,182
4:15 PM	0	13	54	11	0	0	69	1	0	8	0	0	0	1	0	16	173	2,187
4:20 PM	1	13	56	7	0	0	53	1	0	5	1	0	0	1	1	8	147	2,207
4:25 PM	0	7	62	5	0	0	77	7	0	10	3	0	0	2	1	8	182	2,253
4:30 PM	0	17	64	14	0	0	64	2	0	9	0	0	0	1	1	8	180	2,264
4:35 PM	0	7	73	7	0	0	77	2	0	8	2	1	0	2	0	10	189	2,264
4:40 PM	1	10	87	12	0	0	71	1	0	7	0	0	0	2	1	7	199	2,262
4:45 PM	0	15	68	8	0	1	56	5	0	14	3	2	0	5	2	11	190	2,238
4:50 PM	0	8	72	19	0	0	50	1	0	9	0	0	0	12	4	14	189	2,220
4:55 PM	0	11	68	17	0	0	64	3	0	5	4	0	0	7	3	9	191	2,200
5:00 PM	0	8	53	10	0	0	73	1	0	12	0	1	0	6	2	6	172	2,133
5:05 PM	0	14	63	5	0	0	85	2	0	11	2	0	0	5	1	6	194	
5:10 PM	0	13	59	8	0	0	63	0	0	9	2	0	0	12	3	12	181	
5:15 PM	0	15	68	6	0	0	76	1	0	8	2	0	0	7	2	8	193	
5:20 PM	0	14	70	14	0	0	60	1	0	11	2	0	0	2	4	15	193	
5:25 PM	0	20	76	14	0	0	64	1	0	4	2	1	0	5	2	4	193	
5:30 PM	0	22	65	6	0	0	62	2	0	7	1	0	0	3	0	12	180	
5:35 PM	0	10	70	11	0	0	74	2	0	8	0	0	0	2	0	10	187	
5:40 PM	0	16	72	15	0	1	46	2	0	10	1	1	0	2	0	9	175	
5:45 PM	0	10	74	9	0	0	54	1	0	9	2	0	0	5	0	8	172	
5:50 PM	0	21	78	3	0	0	38	2	0	9	1	0	0	2	0	15	169	
5:55 PM	0	10	49	5	0	0	40	0	0	6	1	2	0	2	2	7	124	
Count Total	2	309	1,602	232	0	2	1,495	46	0	203	33	9	0	93	35	228	4,289	
Peak Hour	1	152	821	134	0	1	803	20	0	107	19	5	0	66	25	110	2,264	

Location: 2 Ten Eyck Rd & Hwy 26 PM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	2	6	0	12	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:05 PM	2	1	4	0	7	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	7	0	9	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	3	0	3	3	9	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	0	2	2	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	2	0	4	0	6	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	6	0	7	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	3	0	3	0	6	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	4	0	5	0	9	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	2	0	1	1	4	4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0
4:50 PM	0	0	2	1	3	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	0	10	0	12	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	3	0	3	1	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	6	1	9	5:05 PM	0	0	0	0	0	5:05 PM	4	0	0	0	4
5:10 PM	1	0	2	0	3	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	4	0	1	0	5	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	1	0	2	5:20 PM	0	0	0	0	0	5:20 PM	1	0	0	0	1
5:25 PM	2	0	2	0	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	3	0	1	0	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	5	0	5	5:35 PM	0	0	0	0	0	5:35 PM	2	0	0	0	2
5:40 PM	5	0	2	0	7	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	2	0	3	0	5	5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	0	1
5:50 PM	2	0	1	1	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	2	1	2	1	6	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	55	4	82	11	152	Count Total	0	0	0	1	1	Count Total	8	0	1	0	9
Peak Hour	25	0	42	4	71	Peak Hour	0	0	0	1	1	Peak Hour	5	0	0	0	5

Location: 3 SE Langensand Rd & Hwy 26 PM



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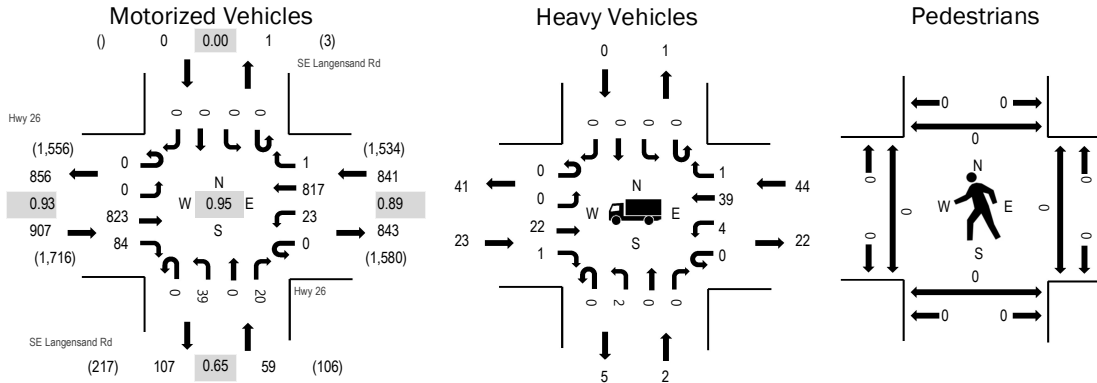
Location: 3 SE Langensand Rd & Hwy 26 PM

Date: Tuesday, September 21, 2021

Peak Hour: 04:25 PM - 05:25 PM

Peak 15-Minutes: 04:25 PM - 04:40 PM

**Peak Hour**



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.5%	0.93
WB	5.2%	0.89
NB	3.4%	0.65
SB	0.0%	0.00
All	3.8%	0.95

**Traffic Counts - Motorized Vehicles**

Interval Start Time	Hwy 26 Eastbound				Hwy 26 Westbound				SE Langensand Rd Northbound				SE Langensand Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	69	9	0	3	51	0	0	2	0	3	0	0	0	0	137	1,696
4:05 PM	0	0	50	6	0	2	56	0	0	1	0	3	0	0	0	0	118	1,708
4:10 PM	0	0	66	9	0	1	78	0	0	2	0	2	0	0	0	0	158	1,754
4:15 PM	0	0	45	7	0	2	61	0	0	2	0	4	0	0	0	0	121	1,734
4:20 PM	0	0	40	5	0	0	59	0	0	1	0	0	0	0	0	0	105	1,746
4:25 PM	0	0	65	8	0	0	74	0	0	8	0	1	0	0	0	0	156	1,807
4:30 PM	0	0	62	7	0	0	65	0	0	7	0	2	0	0	0	0	143	1,788
4:35 PM	0	0	80	7	0	2	81	0	0	3	0	3	0	0	0	0	176	1,796
4:40 PM	0	0	72	9	0	3	61	1	0	3	0	2	0	0	0	0	151	1,755
4:45 PM	0	0	73	6	0	1	53	0	0	0	0	2	0	0	0	0	135	1,733
4:50 PM	0	0	72	4	0	2	65	0	0	5	0	2	0	0	0	0	150	1,732
4:55 PM	0	0	76	7	0	4	55	0	0	2	0	2	0	0	0	0	146	1,705
5:00 PM	0	0	57	6	0	2	82	0	0	1	0	1	0	0	0	0	149	1,660
5:05 PM	0	0	69	8	0	3	82	0	0	2	0	0	0	0	0	0	164	
5:10 PM	0	0	55	11	0	1	66	0	0	2	0	3	0	0	0	0	138	
5:15 PM	0	0	60	9	0	3	56	0	0	4	0	1	0	0	0	0	133	
5:20 PM	0	0	82	2	0	2	77	0	0	2	0	1	0	0	0	0	166	
5:25 PM	0	0	62	9	0	1	62	0	0	2	0	1	0	0	0	0	137	
5:30 PM	0	0	72	10	0	0	65	0	0	0	0	4	0	0	0	0	151	
5:35 PM	0	0	68	8	0	0	55	2	0	0	0	2	0	0	0	0	135	
5:40 PM	0	0	57	12	0	0	54	0	0	3	0	3	0	0	0	0	129	
5:45 PM	0	0	75	6	0	0	51	0	0	0	0	2	0	0	0	0	134	
5:50 PM	0	0	69	12	0	0	40	0	0	1	0	1	0	0	0	0	123	
5:55 PM	0	0	37	6	0	2	48	0	0	6	0	2	0	0	0	0	101	
Count Total	0	0	1,533	183	0	34	1,497	3	0	59	0	47	0	0	0	0	3,356	
Peak Hour	0	0	823	84	0	23	817	1	0	39	0	20	0	0	0	0	1,807	

Location: 3 SE Langensand Rd & Hwy 26 PM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	1	3	0	7	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	1	4	0	6	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	8	0	10	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	2	1	1	0	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	0	4	0	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	5	0	5	4:25 PM	2	0	0	0	2	4:25 PM	0	0	0	0	0
4:30 PM	1	0	1	0	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	0	5	0	7	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	5	0	5	0	10	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	2	0	1	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	2	4	0	7	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	0	10	0	12	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	2	0	6	0	8	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	3	0	5	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	0	1	0	3	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	2	0	1	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	2	0	2	0	4	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	4	0	1	0	5	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	0	5	0	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	2	0	3	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	0	3	0	5	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	3	0	3	0	6	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	2	0	1	0	3	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	0	3	0	4	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	48	5	82	0	135	Count Total	2	0	0	0	2	Count Total	0	0	0	0	0
Peak Hour	23	2	44	0	69	Peak Hour	2	0	0	0	2	Peak Hour	0	0	0	0	0

Location: HWY 211 & DUBARKO RD PM



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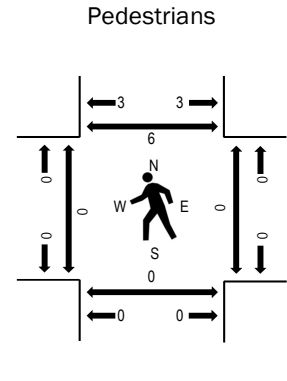
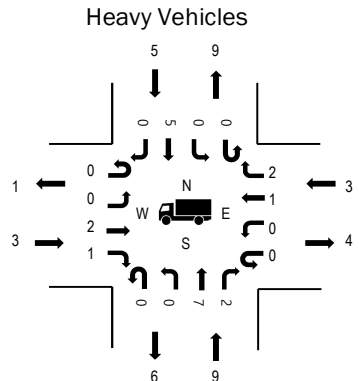
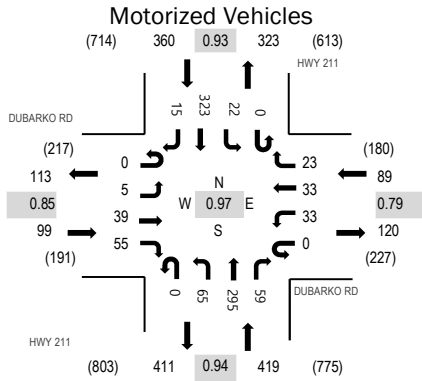
Location: HWY 211 & DUBARKO RD PM

Date: Wednesday, June 9, 2021

Peak Hour: 04:20 PM - 05:20 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.0%	0.85
WB	3.4%	0.79
NB	2.1%	0.94
SB	1.4%	0.93
All	2.1%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	DUBARKO RD Eastbound				DUBARKO RD Westbound				HWY 211 Northbound			HWY 211 Southbound			Total	Rolling Hour		
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left			Thru	Right
4:00 PM	0	0	2	2	0	3	1	0	0	4	22	2	0	0	16	0	52	933
4:05 PM	0	0	5	6	0	1	5	2	0	3	15	3	0	1	38	0	79	949
4:10 PM	0	0	2	6	0	2	3	0	0	3	18	3	0	2	41	2	82	965
4:15 PM	0	1	4	3	0	1	2	8	0	1	23	7	0	1	17	2	70	961
4:20 PM	0	1	4	5	0	5	4	4	0	5	31	4	0	0	23	0	86	967
4:25 PM	0	0	2	4	0	1	3	2	0	5	30	7	0	4	28	1	87	954
4:30 PM	0	1	1	4	0	3	2	1	0	6	17	6	0	1	24	1	67	947
4:35 PM	0	0	5	6	0	3	2	2	0	5	28	8	0	1	31	0	91	961
4:40 PM	0	0	4	2	0	3	7	1	0	7	20	1	0	2	29	3	79	934
4:45 PM	0	0	5	4	0	0	4	2	0	3	19	6	0	1	31	0	75	950
4:50 PM	0	0	3	5	0	4	3	2	0	4	31	4	0	0	26	1	83	937
4:55 PM	0	1	2	2	0	4	1	2	0	5	31	7	0	3	22	2	82	933
5:00 PM	0	0	2	7	0	1	1	1	0	4	21	2	0	2	25	2	68	927
5:05 PM	0	0	5	6	0	1	1	3	0	10	27	3	0	4	33	2	95	967
5:10 PM	0	0	1	7	0	6	4	1	0	4	16	8	0	3	27	1	78	967
5:15 PM	0	2	5	3	0	2	1	2	0	7	24	3	0	1	24	2	76	967
5:20 PM	0	0	4	2	0	4	2	2	0	2	19	7	0	1	30	0	73	967
5:25 PM	0	1	4	4	0	1	3	1	0	11	29	5	0	1	20	0	80	967
5:30 PM	0	2	1	2	0	0	4	6	0	4	19	7	0	2	33	1	81	967
5:35 PM	0	0	1	1	0	1	3	2	0	5	22	3	0	1	24	1	64	967
5:40 PM	0	0	4	8	0	3	6	3	0	4	23	5	0	1	34	4	95	967
5:45 PM	0	1	3	6	0	3	1	3	0	2	15	2	0	1	24	1	62	967
5:50 PM	0	0	2	5	0	0	5	1	0	8	28	3	0	4	23	0	79	967
5:55 PM	0	1	4	5	0	0	5	4	0	4	19	6	0	3	23	2	76	967
Count Total	0	11	75	105	0	52	73	55	0	116	547	112	0	40	646	28	1,860	
Peak Hour	0	5	39	55	0	33	33	23	0	65	295	59	0	22	323	15	967	

Location: HWY 211 & DUBARKO RD PM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	3	3	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	1	1	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	1	2	0	0	3	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	1	0	3	4
4:30 PM	0	1	1	0	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	0	0	1	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	1	1	0	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	2	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	2	0	1	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	3	3
5:20 PM	0	1	0	1	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	3	3
5:30 PM	0	2	0	2	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	1	0	0	1	5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	1	1
5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	1	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	1	1	0	3	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	4	16	5	15	40	Count Total	1	0	0	1	2	Count Total	0	1	0	10	11
Peak Hour	3	9	3	5	20	Peak Hour	1	0	0	0	1	Peak Hour	0	1	0	6	7

Location: 4 SE Langensand Rd & Dubarko Rd PM



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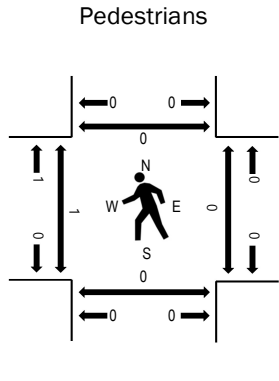
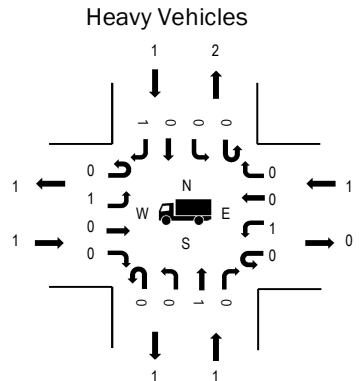
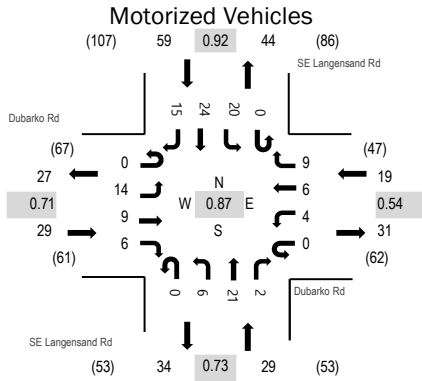
Location: 4 SE Langensand Rd & Dubarko Rd PM

Date: Tuesday, September 21, 2021

Peak Hour: 05:00 PM - 06:00 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.4%	0.71
WB	5.3%	0.54
NB	3.4%	0.73
SB	1.7%	0.92
All	2.9%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	Dubarko Rd Eastbound				Dubarko Rd Westbound				SE Langensand Rd Northbound				SE Langensand Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	3	1	0	0	0	0	1	0	2	1	1	0	2	5	1	17	132
4:05 PM	0	1	0	0	0	0	1	0	0	3	1	0	0	2	1	2	11	125
4:10 PM	0	2	1	1	0	0	0	2	0	1	0	1	0	1	1	1	11	126
4:15 PM	0	1	0	1	0	1	0	1	0	2	0	1	0	0	0	2	9	125
4:20 PM	0	0	0	0	0	0	2	2	0	0	1	0	0	5	1	1	12	133
4:25 PM	0	1	0	0	0	0	4	2	0	1	4	0	0	1	1	0	14	127
4:30 PM	0	2	1	0	0	0	1	3	0	0	0	0	0	1	1	0	9	121
4:35 PM	0	3	1	0	0	0	1	2	0	2	0	1	0	1	0	4	15	119
4:40 PM	0	1	1	0	0	0	3	0	0	0	0	0	0	1	1	1	8	119
4:45 PM	0	1	1	0	0	0	1	0	0	0	2	0	0	1	2	1	9	123
4:50 PM	0	4	1	0	0	0	0	0	0	0	0	0	0	1	0	1	7	126
4:55 PM	0	1	2	1	0	0	1	0	0	0	0	0	0	2	2	1	10	133
5:00 PM	0	2	1	0	0	0	0	0	0	0	0	1	0	2	2	2	10	136
5:05 PM	0	1	0	0	0	0	2	2	0	0	2	0	0	0	1	4	12	
5:10 PM	0	0	2	1	0	0	1	0	0	1	0	0	0	2	3	0	10	
5:15 PM	0	2	1	1	0	2	0	1	0	0	5	0	0	2	1	2	17	
5:20 PM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	3	0	6	
5:25 PM	0	0	1	0	0	1	0	0	0	1	1	0	0	1	2	1	8	
5:30 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	2	3	0	7	
5:35 PM	0	2	1	0	0	1	0	0	0	3	3	1	0	0	2	2	15	
5:40 PM	0	1	0	0	0	0	1	2	0	0	2	0	0	3	3	0	12	
5:45 PM	0	2	3	2	0	0	0	1	0	0	1	0	0	1	2	0	12	
5:50 PM	0	1	0	1	0	0	1	1	0	0	3	0	0	5	0	2	14	
5:55 PM	0	1	0	1	0	0	1	0	0	1	3	0	0	2	2	2	13	
Count Total	0	34	18	9	0	5	20	22	0	17	30	6	0	38	39	30	268	
Peak Hour	0	14	9	6	0	4	6	9	0	6	21	2	0	20	24	15	136	



Location: 4 SE Langensand Rd & Dubarko Rd PM

**Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk**

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	0	1	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	0	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	1	1	2
4:40 PM	0	0	1	1	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	1	0	0	0	1
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	0	0	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	3	2	3	3	11	Count Total	0	0	0	0	0	Count Total	1	0	1	1	3
Peak Hour	1	1	1	1	4	Peak Hour	0	0	0	0	0	Peak Hour	1	0	0	0	1

<b>Location</b>	US26; MP 46.38; MT. HOOD HIGHWAY NO. 26; 0.30 mile east of Camp Creek Rd (USFS 28)	<b>Site Name</b>	Rhododendron (03-006)
		<b>Installed</b>	August, 1995

<b>HISTORICAL ANNUAL TRAFFIC DATA</b>						
<b>Year</b>	<b>Annual Average Daily Traffic (AADT)</b>	<b>Critical Values as percent of Annual Average Daily Traffic (AADT)</b>				
		<b>Max Day</b>	<b>Max Hour</b>	<b>10th Hour</b>	<b>20th Hour</b>	<b>30th Hour</b>
		2010	8714	207	21.6	19.8
2011	8330	214	24.7	20.0	18.6	18.1
2012	8480	227	24.0	21.0	20.2	19.4
2013	8527	213	23.4	21.1	20.3	19.1
2014	8652	216	23.2	21.1	20.3	19.2
2015	8861	242	21.4	20.3	19.4	18.7
2016	10071	208	22.9	19.6	18.8	17.9
2017	10223	200	19.9	19.1	18.1	17.5
2018	10291	199	20.4	19.5	19.0	18.5
2019	10218	204	20.5	19.5	19.1	18.6

<b>2019 SEASONAL TRAFFIC DATA</b>				
<b>Month</b>	<b>Weekday</b>		<b>Daily</b>	
	<b>Average</b>	<b>% AADT</b>	<b>Average</b>	<b>% AADT</b>
January	8537	84	11650	114
February	7637	75	9937	97
March	7393	72	10238	100
April	6402	63	8476	83
May	7666	75	9670	95
June	8771	86	11100	109
July	10810	106	13605	133
August	10610	104	13497	132
September	8391	82	9937	97
October	6484	63	7998	78
November	5653	55	6971	68
December	7878	77	9535	93

Location	26/Camp Creek Road (USFS 28), MT, HOOD HIGHWAY NO. 26; 0.30 miles east of Camp Creek Road (USFS 28)	Site Name Installed	Rhodiendron (03-006) August, 1995
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Year	HISTORICAL ANNUAL TRAFFIC DATA									
	Annual Average Daily Traffic (AADT)	Critical Values as percent of Annual Average Daily Traffic (AADT)								
		Max Day	Max Hour	10th Hour	20th Hour	30th Hour	10th Hour	20th Hour	30th Hour	10th Hour
2011	8330	214.3	24.7	20.0	18.6	18.1				
2012	8480	227.4	24.0	21.0	20.2	19.4				
2013	8527	213.0	23.4	21.1	20.3	19.1				
2014	8652	215.7	23.2	21.1	20.3	19.2				
2015	8861	242.4	21.4	20.3	19.4	18.7				
2016	10100	208.0	22.8	19.5	18.7	17.8				
2017	10223	200.1	19.9	19.1	18.1	17.5				
2018	10291	198.7	20.4	19.5	19.0	18.5				
2019	10218	204.5	20.5	19.5	19.1	18.6				
2020	9424	243.8	25.1	23.2	22.5	21.7				

Month	2020 SEASONAL TRAFFIC DATA										
	Average	Weekday					Daily				
		% AADT	Average	% AADT	Average	% AADT	Average	% AADT			
January	8614	91	10821	115							
February	9017	96	10856	115							
March	5718	61	6931	74							
April	4035	43	4233	45							
May	6874	73	7385	78							
June	9094	96	10055	107							
July	12427	132	14166	150							
August	11697	124	13411	142							
September	4654	49	4799	51							
October	8486	90	9334	99							
November	6838	73	8021	85							
December	11615	123	13083	139							

Date	Highest Hour				
	Day	Hours of Day	Rank	Volume	%AADT
07/26/2020	Sunday	1:00 - 2:00 pm	1	2368	25.1
12/26/2020	Saturday	2:00 - 3:00 pm	10	2187	23.2
07/26/2020	Sunday	11:00 - 12:00 am	20	2123	22.5
12/31/2020	Thursday	2:00 - 3:00 pm	30	2044	21.7
12/31/2020	Thursday	1:00 - 2:00 pm	40	1966	20.9
07/19/2020	Sunday	11:00 - 12:00 am	50	1915	20.3

Date	Highest Day	
	Day	Volume
12/27/2020	Sunday	22974
		AADT 243.8

Comments:  
2020 - COVID-19

**Table 1** provides traffic volumes by corridor for weekdays and weekends for the last five weeks of available data, May 31 to July 4, 2021<sup>5</sup>. Corridor volumes are prepared by summing traffic volumes from ATRs across 13 corridors for years 2019, 2020 and 2021<sup>6</sup>.

*Overall statewide traffic volumes are close to pre-COVID traffic volumes. For the month of June, statewide average weekday traffic volumes ranged between 5% below and 5% above 2019 pre-COVID conditions, while weekend volumes ranged between 9% below and equal to 2019 levels. Recent forecast news from the Oregon DAS Office of Economic Analysis indicates economic recovery is expected to move faster than past recessions<sup>7</sup>*

**Table 1. Observed Year-Over-Year Difference in Traffic Volumes by Corridor 2019-2021**

Date	Corridor	2021 Volumes		2020 Volumes		2019 Volumes		2021 as % of 2020	
		Average Weekday	Average Weekend	Average Weekday	Average Weekend	Average Weekday	Average Weekend	Weekday Diff	Weekend Diff
Week 23 May 31- June 6, 2021	I-5	558,510	483,914	466,638	356,866	588,873	519,086	20%	36%
	I-205	244,436	204,969	210,138	158,028	269,797	235,467	16%	30%
	I-405	121,681	101,902	103,291	66,692	143,769	119,357	18%	53%
	I-84	367,455	323,293	308,732	238,313	371,031	343,419	19%	36%
	US 97	158,986	135,404	146,823	118,339	168,151	143,367	8%	14%
	US197	3,578	3,120	2,959	2,583	3,325	2,777	21%	21%
	US20	28,808	24,285	23,669	19,012	25,683	24,331	22%	28%
	US26	54,746	48,449	45,634	41,742	52,260	55,722	20%	16%
	US30	13,271	11,148	10,584	9,625	11,896	11,960	25%	16%
	US395	27,000	22,600	25,703	19,130	29,165	21,212	5%	18%
	OR18	20,746	20,537	17,111	19,026	16,663	21,557	21%	8%
	OR22	31,732	25,749	28,307	20,870	31,838	27,314	12%	23%
US101	89,221	76,993	69,722	62,523	85,138	78,636	28%	23%	
<b>Statewide Average</b>		341,488	295,401	287,606	220,203	359,073	318,941	19%	34%
Week 24 June 7-13, 2021	I-5	563,778	506,995	482,153	403,769	604,078	557,050	17%	26%
	I-205	254,111	216,643	217,082	173,873	274,976	241,338	17%	25%
	I-405	130,579	103,765	106,251	67,900	138,162	111,721	23%	53%
	I-84	373,222	336,902	317,742	265,804	371,513	350,983	17%	27%
	US 97	162,982	143,270	151,426	128,987	167,322	144,049	8%	11%
	US197	3,279	3,081	2,875	2,874	3,300	2,984	14%	7%
	US20	26,872	24,396	23,035	21,125	27,478	26,848	17%	15%
	US26	49,816	50,297	44,922	46,867	54,733	59,844	11%	7%
	US30	11,968	11,572	10,544	10,341	12,629	12,870	14%	12%
	US395	28,230	24,050	25,522	19,638	27,868	21,759	11%	22%
	OR18	17,979	20,422	15,673	20,177	18,915	25,441	15%	1%
	OR22	32,004	25,896	27,696	23,442	32,686	29,214	16%	10%
US101	90,358	75,148	68,825	67,046	90,295	84,241	31%	12%	
<b>Statewide Average</b>		346,835	308,995	296,567	246,468	365,312	335,096	17%	25%

<sup>5</sup> Table 1 was revised to add Week 25, which was missing in the original publication, and correct 2021 volumes for I-5 Week 27.

<sup>6</sup> Statewide average values are weighted by pre-COVID traffic volumes in order to monitor relative change in traffic volumes. Without weighting, the higher volume corridors would dominate the results.

<sup>7</sup> See latest post by OEA: <https://oregoneconomicanalysis.com/2021/07/09/no-permanent-damage-expected/>

**Table 1. Continued**

Date	Corridor	2021 Volumes		2020 Volumes		2019 Volumes		2021 as % of 2020	
		Average Weekday	Average Weekend	Average Weekday	Average Weekend	Average Weekday	Average Weekend	Weekday Diff	Weekend Diff
Week 25 June 14-20, 2021	I-5	648,473	609,942	554,470	494,751	673,765	610,103	17%	23%
	I-205	256,067	232,607	224,414	185,383	274,694	234,369	14%	25%
	I-405	128,869	109,810	109,806	79,495	141,311	114,910	17%	38%
	I-84	378,980	359,454	331,515	287,292	376,594	352,837	14%	25%
	US 97	169,034	146,588	160,280	132,946	171,174	147,726	5%	10%
	US197	3,395	3,341	3,015	3,036	3,166	2,731	13%	10%
	US20	28,539	30,030	24,947	23,959	27,406	24,966	14%	25%
	US26	53,933	60,981	50,366	54,846	54,979	55,720	7%	11%
	US30	12,818	14,357	11,269	11,966	12,460	11,980	14%	20%
	US395	27,073	23,257	25,763	20,327	27,402	20,930	5%	14%
	OR18	19,698	26,584	17,126	22,632	19,082	24,222	15%	17%
	OR22	32,931	28,974	29,588	26,529	32,314	27,944	11%	9%
	US101	94,349	89,564	76,662	73,846	90,133	83,432	23%	21%
<b>Statewide Average</b>		<b>379,839</b>	<b>355,209</b>	<b>328,305</b>	<b>287,463</b>	<b>392,232</b>	<b>354,110</b>	<b>16%</b>	<b>24%</b>
Week 26 June 21-27, 2021	I-5	672,022	581,232	582,499	504,375	681,564	637,628	15%	15%
	I-205	256,997	206,426	232,417	183,951	272,315	242,337	11%	12%
	I-405	128,555	97,279	114,923	82,361	141,796	114,097	12%	18%
	I-84	377,968	335,713	345,827	292,369	374,522	360,083	9%	15%
	US 97	170,495	145,017	158,539	138,318	175,540	153,776	8%	5%
	US197	3,489	2,961	2,983	2,838	3,225	2,773	17%	4%
	US20	29,800	34,010	26,999	23,481	26,630	26,566	10%	45%
	US26	55,717	61,416	54,904	52,928	53,689	60,187	1%	16%
	US30	13,693	15,809	12,405	11,676	12,311	13,294	10%	35%
	US395	28,460	22,779	25,976	20,373	27,715	22,494	10%	12%
	OR18	21,182	30,189	19,576	22,294	18,222	24,136	8%	35%
	OR22	33,385	26,101	31,422	26,587	31,992	28,362	6%	-2%
	US101	98,804	100,833	82,993	74,592	88,651	84,620	19%	35%
<b>Statewide Average</b>		<b>388,764</b>	<b>335,669</b>	<b>343,294</b>	<b>292,392</b>	<b>394,581</b>	<b>367,406</b>	<b>13%</b>	<b>15%</b>
Week 27 June 28-July 4, 2021	I-5	680,017	557,497	599,387	439,212	636,787	603,551	13%	27%
	I-205	255,230	201,890	230,486	160,365	264,679	233,850	11%	26%
	I-405	126,822	95,191	111,968	70,889	123,646	102,444	13%	34%
	I-84	380,689	323,545	348,858	267,641	361,921	355,128	9%	21%
	US 97	165,621	132,609	169,566	126,035	166,794	152,338	-2%	5%
	US197	3,272	3,267	3,408	3,325	3,231	3,371	-4%	-2%
	US20	29,660	25,853	26,266	22,930	27,245	26,959	13%	13%
	US26	55,721	54,020	53,748	53,855	57,856	59,219	4%	0%
	US30	14,587	13,656	12,567	12,890	13,743	13,935	16%	6%
	US395	28,260	25,150	25,480	17,543			11%	43%
	OR18	22,173	24,161	18,925	22,146	21,539	25,550	17%	9%
	OR22	32,802	25,515	31,403	24,722	31,276	29,115	4%	3%
	US101	101,435	91,215	81,079	72,810	94,911	88,308	25%	25%
<b>Statewide Average</b>		<b>391,562</b>	<b>321,992</b>	<b>350,290</b>	<b>258,291</b>	<b>372,567</b>	<b>351,591</b>	<b>12%</b>	<b>25%</b>

Figure 2 presents weekday and weekend average volumes by week for years 2019-2021 for each corridor, graphically representing current and past data provided in the Table 1 format.

Notable patterns observed for the month of June include:

TREND	SEASONAL TREND TABLE (Updated: 7/20/2021) <sup>1</sup>												Seasonal Trend Peak Period Factor		
	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov		1-Dec	15-Dec
INTERSTATE URBANIZED	0.9615	0.9463	0.9517	0.9571	0.9551	0.9531	0.9674	0.9816	0.9850	0.9884	1.0045	1.0206	1.0322	1.0438	0.9463
INTERSTATE NONURBANIZED	0.9005	0.8506	0.8322	0.8139	0.8221	0.8302	0.8719	0.9135	0.9441	0.9747	1.0178	1.0608	1.1123	1.1638	0.8139
COMMUTER	0.9503	0.9355	0.9470	0.9585	0.9509	0.9433	0.9528	0.9623	0.9614	0.9604	0.9938	1.0272	1.0474	1.0676	0.9355
COASTAL DESTINATION	0.8947	0.8972	0.8612	0.8252	0.8205	0.8159	0.8686	0.9214	0.9669	1.0164	1.0660	1.1156	1.1580	1.2005	0.8159
COASTAL DESTINATION ROUTE	0.8941	0.8409	0.7820	0.7231	0.7218	0.7205	0.8016	0.8827	0.9669	1.0511	1.1133	1.1754	1.2480	1.3206	0.7205
AGRICULTURE	0.8579	0.8146	0.8058	0.7970	0.7922	0.7873	0.7772	0.7670	0.8288	0.8905	0.9947	1.0989	1.2462	1.3934	0.7670
RECREATIONAL SUMMER	0.8256	0.7484	0.7018	0.6552	0.6706	0.6864	0.7393	0.7922	0.8698	0.9874	1.1242	1.2610	1.3965	1.5520	0.6552
RECREATIONAL SUMMER WINTER	0.9760	0.8821	0.8005	0.7190	0.7305	0.7420	0.8897	1.0374	1.2010	1.3645	1.5212	1.6778	1.3812	1.0847	0.7190
RECREATIONAL WINTER	1.2832	1.1625	0.9985	0.8344	0.8600	0.8857	1.0560	1.2262	1.4100	1.5937	1.8758	2.1580	1.5328	0.9076	0.8389
SUMMER	0.8976	0.8615	0.8457	0.8299	0.8354	0.8410	0.8743	0.9077	0.9357	0.9638	1.0273	1.0908	1.1322	1.1737	0.8299
SUMMER < 2500	0.8720	0.8387	0.8237	0.8086	0.8229	0.8373	0.8616	0.8859	0.9233	0.9607	1.0428	1.1249	1.2016	1.2783	0.8086

<sup>1</sup> Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.

\* Grey shading indicates months were seasonal factor is greater than or less than 30%.

\* February 2019 snow event causing lower seasonal factors

**1** Seasonal Trend Table: The 2020 table is based on 2019 values due to the irregularity caused by the Covid epidemic shutdown during the 2020 count year.

**Commuter Seasonal Adjustment Calculations:**

15-Sep	0.9623	1-Jun	0.9503
1-Oct	0.9614	15-Jun	0.9355
Difference	0.0009 (over 16 days)	Difference	0.0148
Daily	5.63E-05	Daily	0.001057
21-Sep	0.961963	9-Jun	0.941843
Peak Season	0.9355	Peak Season	0.9355
<b>September 21 Adjustment</b>	<b>2.8%</b>	<b>June 9 Adjustment</b>	<b>0.7%</b>

Site id	HWY	MP	DIR	HS	Description	2017	2018	2019	2039	RSQ
1778	026	22.72	1		0.02 mile northwest of SE 362nd Drive, west city limits of Sandy		33700		47300	MODEL
1779	026	23.85	1		0.02 mile west of Bluff Road		33300		47100	MODEL
1780	026	23.89	1		0.02 mile east of Bluff Road		15700		22400	MODEL
1781	026	24.02	1		0.02 mile west of Beers Avenue		16200		23100	MODEL
1782	026	24.35	1		0.05 mile west of Eagle Creek-Sandy Highway (OR211)		16000		23400	MODEL
1783	026	24.42	1		0.02 mile east of Eagle Creek-Sandy Highway (OR211)		12400		17700	MODEL
1784	026	24.59	1		0.02 mile west of Ten Eyck Road		12500		17800	MODEL
1785	026	23.89	2		0.02 mile east of Bluff Road		16600		23300	MODEL
1786	026	24.04	2		0.02 mile west of Beers Avenue		18300		25600	MODEL
1787	026	24.36	2		0.05 mile west of Eagle Creek-Sandy Highway (OR211)		15900		22700	MODEL
1788	026	24.40	2		0.02 mile east of Eagle Creek-Sandy Highway (OR211)		13700		19200	MODEL
1789	026	24.61	2		0.02 mile west of Ten Eyck Road		12600		17600	MODEL
1790	026	25.10	1		0.02 mile west of Langensand Road		20700		29200	MODEL
1791	026	25.66	1		0.10 mile east of Vista Loop Drive		23500		32900	MODEL

Site id	HWY	MP	DIR	HS	Description	2017	2018	2019	2039	RSQ
3563	172	-0.13	1		0.10 mile east of Clackamas Highway (OR224)			6000	9400	MODEL
3564	172	1.45	1		0.10 mile southwest of Judd Road			7100	11200	MODEL
3565	172	1.65	1		0.10 mile northeast of Judd Road			7400	11400	MODEL
3566	172	3.65	1		0.05 mile west of 362nd Drive			8000	12200	MODEL
3567	172	3.75	1		0.05 mile east of 362nd Drive			5900	8800	MODEL
3568	172	5.07	1		0.10 mile west of Bornstedt Road			4600	7600	MODEL
3569	172	5.29	1		0.10 mile south of Dubarko Road			6300	10300	MODEL
3570	172	5.50	1		0.11 mile north of Dubarko Road			5700	9200	MODEL
3571	172	5.83	1		0.05 mile south of Mt. Hood Highway (US26-EB)			7500	12100	MODEL
3572	172	5.92	1		0.02 mile south of Mt. Hood Highway (US26-WB)			4400	7100	MODEL



HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	676	57	0	739	17	114	13	2	30	8	136
Future Volume (vph)	120	676	57	0	739	17	114	13	2	30	8	136
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frft	1.00	0.99			1.00	0.85		1.00			0.89	
Flt Protected	0.95	1.00			1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1498	2955			3107	1343		1575			1474	
Flt Permitted	0.95	1.00			1.00	1.00		0.56			0.93	
Satd. Flow (perm)	1498	2955			3107	1343		914			1389	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	128	719	61	0	786	18	121	14	2	32	9	145
RTOR Reduction (vph)	0	4	0	0	0	10	0	1	0	0	101	0
Lane Group Flow (vph)	128	776	0	0	786	8	0	136	0	0	85	0
Confl. Peds. (#/hr)	4					4	2					2
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	15.5	74.5			54.5	54.5		36.5			36.5	
Effective Green, g (s)	15.5	74.5			54.5	54.5		36.5			36.5	
Actuated g/C Ratio	0.13	0.62			0.45	0.45		0.30			0.30	
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	193	1834			1411	609		278			422	
v/s Ratio Prot	c0.09	0.26			c0.25							
v/s Ratio Perm						0.01		c0.15			0.06	
v/c Ratio	0.66	0.42			0.56	0.01		0.49			0.20	
Uniform Delay, d1	49.8	11.7			23.9	18.0		34.1			30.9	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	8.3	0.7			1.6	0.0		6.1			0.2	
Delay (s)	58.1	12.4			25.5	18.0		40.2			31.2	
Level of Service	E	B			C	B		D			C	
Approach Delay (s)		18.8			25.4			40.2			31.2	
Approach LOS		B			C			D			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		24.0			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.55										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			13.5				
Intersection Capacity Utilization		63.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	676	57	0	739	17	114	13	2	30	8	136
Future Volume (veh/h)	120	676	57	0	739	17	114	13	2	30	8	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1600	1600	1654	1654	1654	1668	1668	1668	1695	1695	1695
Adj Flow Rate, veh/h	128	719	61	0	786	18	121	14	2	32	9	145
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	11	11	11	7	7	7	6	6	6	4	4	4
Cap, veh/h	152	1757	149	1	1521	661	323	34	4	93	42	351
Arrive On Green	0.10	0.62	0.62	0.00	0.48	0.48	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1524	2830	240	1576	3143	1367	877	113	15	189	137	1153
Grp Volume(v), veh/h	128	386	394	0	786	18	137	0	0	186	0	0
Grp Sat Flow(s),veh/h/ln	1524	1520	1550	1576	1572	1367	1005	0	0	1479	0	0
Q Serve(g_s), s	9.9	15.5	15.5	0.0	20.7	0.8	4.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.9	15.5	15.5	0.0	20.7	0.8	16.4	0.0	0.0	11.6	0.0	0.0
Prop In Lane	1.00		0.15	1.00		1.00	0.88		0.01	0.17		0.78
Lane Grp Cap(c), veh/h	152	944	962	1	1521	661	362	0	0	485	0	0
V/C Ratio(X)	0.84	0.41	0.41	0.00	0.52	0.03	0.38	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	273	944	962	66	1521	661	362	0	0	485	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.1	11.6	11.6	0.0	21.3	16.2	35.4	0.0	0.0	33.2	0.0	0.0
Incr Delay (d2), s/veh	11.8	1.3	1.3	0.0	1.3	0.1	3.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	5.5	5.6	0.0	7.9	0.3	3.7	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	12.9	12.9	0.0	22.6	16.3	38.4	0.0	0.0	33.7	0.0	0.0
LnGrp LOS	E	B	B	A	C	B	D	A	A	C	A	A
Approach Vol, veh/h		908			804			137			186	
Approach Delay, s/veh		20.2			22.4			38.4			33.7	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	79.0		41.0	16.4	62.6		41.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	65.0		36.5	21.5	48.5		36.5				
Max Q Clear Time (g_c+I1), s	0.0	17.5		18.4	11.9	22.7		13.6				
Green Ext Time (p_c), s	0.0	6.3		0.7	0.2	6.4		1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				23.5								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	700	44	14	726	39	27
Future Vol, veh/h	700	44	14	726	39	27
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	14	7	7	2	2
Mvmt Flow	778	49	16	807	43	30
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	829	0	1216	391
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	767	-	173	608
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	766	-	169	607
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	606	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	24.4			
HCM LOS						C
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	169	607	-	-	766	-
HCM Lane V/C Ratio	0.256	0.049	-	-	0.02	-
HCM Control Delay (s)	33.5	11.2	-	-	9.8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1	0.2	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	4	10	46	37	46	44	26	272	11	7	177	1
Future Vol, veh/h	4	10	46	37	46	44	26	272	11	7	177	1
Conflicting Peds, #/hr	2	0	2	2	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	4	4	4	5	5	5	4	4	4
Mvmt Flow	5	13	59	47	59	56	33	349	14	9	227	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	729	678	231	708	672	360	230	0	0	365	0	0
Stage 1	247	247	-	424	424	-	-	-	-	-	-	-
Stage 2	482	431	-	284	248	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.14	6.54	6.24	4.15	-	-	4.14	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.536	4.036	3.336	2.245	-	-	2.236	-	-
Pot Cap-1 Maneuver	335	370	801	347	375	680	1320	-	-	1183	-	-
Stage 1	750	696	-	604	584	-	-	-	-	-	-	-
Stage 2	560	578	-	719	698	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	259	354	798	302	359	677	1317	-	-	1181	-	-
Mov Cap-2 Maneuver	259	354	-	302	359	-	-	-	-	-	-	-
Stage 1	725	688	-	584	565	-	-	-	-	-	-	-
Stage 2	445	559	-	646	690	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	11.5		17.4			0.7			0.3			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1317	-	-	320	798	331	677	1181	-	-		
HCM Lane V/C Ratio	0.025	-	-	0.056	0.074	0.321	0.083	0.008	-	-		
HCM Control Delay (s)	7.8	0	-	16.9	9.9	20.9	10.8	8.1	0	-		
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	1.4	0.3	0	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	13	2	5	4	5	15	12	21	2	8	13	13
Future Vol, veh/h	13	2	5	4	5	15	12	21	2	8	13	13
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	6	6	6
Mvmt Flow	19	3	7	6	7	22	18	31	3	12	19	19
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	136	123	32	130	131	33	38	0	0	34	0	0
Stage 1	53	53	-	69	69	-	-	-	-	-	-	-
Stage 2	83	70	-	61	62	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.12	6.52	6.22	4.12	-	-	4.16	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.518	4.018	3.318	2.218	-	-	2.254	-	-
Pot Cap-1 Maneuver	828	762	1033	843	760	1041	1572	-	-	1552	-	-
Stage 1	952	845	-	941	837	-	-	-	-	-	-	-
Stage 2	918	831	-	950	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	792	747	1030	819	745	1041	1572	-	-	1552	-	-
Mov Cap-2 Maneuver	792	747	-	819	745	-	-	-	-	-	-	-
Stage 1	941	838	-	930	827	-	-	-	-	-	-	-
Stage 2	879	821	-	930	836	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.4		9.1			2.5			1.7			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1572	-	-	792	929	923	1552	-	-			
HCM Lane V/C Ratio	0.011	-	-	0.024	0.011	0.039	0.008	-	-			
HCM Control Delay (s)	7.3	0	-	9.7	8.9	9.1	7.3	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	-	-			

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	989	142	1	993	21	113	20	5	70	26	116
Future Volume (vph)	162	989	142	1	993	21	113	20	5	70	26	116
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00			0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.98	
Satd. Flow (prot)	1630	3190		1583	3167	1387		1633			1544	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.55			0.86	
Satd. Flow (perm)	1630	3190		1583	3167	1387		938			1357	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	165	1009	145	1	1013	21	115	20	5	71	27	118
RTOR Reduction (vph)	0	9	0	0	0	11	0	1	0	0	36	0
Lane Group Flow (vph)	165	1145	0	1	1013	10	0	139	0	0	180	0
Confl. Peds. (#/hr)							5					5
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	16.9	73.0		1.0	57.1	57.1		32.5			32.5	
Effective Green, g (s)	16.9	73.0		1.0	57.1	57.1		32.5			32.5	
Actuated g/C Ratio	0.14	0.61		0.01	0.48	0.48		0.27			0.27	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	229	1940		13	1506	659		254			367	
v/s Ratio Prot	c0.10	0.36		0.00	c0.32							
v/s Ratio Perm						0.01		c0.15			0.13	
v/c Ratio	0.72	0.59		0.08	0.67	0.02		0.55			0.49	
Uniform Delay, d1	49.3	14.4		59.0	24.2	16.6		37.4			36.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	10.6	1.3		2.5	2.4	0.0		8.2			1.0	
Delay (s)	59.9	15.7		61.6	26.7	16.6		45.6			37.8	
Level of Service	E	B		E	C	B		D			D	
Approach Delay (s)		21.2			26.5			45.6			37.8	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		25.8										C
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		120.0						13.5				
Intersection Capacity Utilization		68.8%										C
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	989	142	1	993	21	113	20	5	70	26	116
Future Volume (veh/h)	162	989	142	1	993	21	113	20	5	70	26	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1723	1682	1682	1682	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	165	1009	145	1	1013	21	115	20	5	71	27	118
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	5	5	5	2	2	2	2	2	2
Cap, veh/h	192	1762	253	2	1596	697	285	46	10	156	68	222
Arrive On Green	0.12	0.62	0.62	0.00	0.50	0.50	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1641	2864	411	1602	3195	1396	849	170	38	429	251	819
Grp Volume(v), veh/h	165	576	578	1	1013	21	140	0	0	216	0	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1638	1602	1598	1396	1057	0	0	1499	0	0
Q Serve(g_s), s	11.8	25.1	25.2	0.1	27.9	0.9	2.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.8	25.1	25.2	0.1	27.9	0.9	16.1	0.0	0.0	13.7	0.0	0.0
Prop In Lane	1.00		0.25	1.00		1.00	0.82		0.04	0.33		0.55
Lane Grp Cap(c), veh/h	192	1007	1008	2	1596	697	341	0	0	446	0	0
V/C Ratio(X)	0.86	0.57	0.57	0.46	0.63	0.03	0.41	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	297	1007	1008	68	1596	697	341	0	0	446	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.0	13.7	13.7	59.9	22.0	15.3	38.0	0.0	0.0	37.0	0.0	0.0
Incr Delay (d2), s/veh	14.2	2.4	2.4	104.7	1.9	0.1	3.6	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	9.7	9.7	0.1	10.8	0.3	3.9	0.0	0.0	5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	16.1	16.1	164.6	23.9	15.3	41.6	0.0	0.0	37.8	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1319			1035			140			216	
Approach Delay, s/veh		22.3			23.9			41.6			37.8	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	78.3		37.0	18.5	64.5		37.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	68.9		32.5	21.7	52.3		32.5				
Max Q Clear Time (g_c+I1), s	2.1	27.2		18.1	13.8	29.9		15.7				
Green Ext Time (p_c), s	0.0	11.0		0.6	0.3	8.3		1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.2								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	991	89	24	1009	41	21
Future Vol, veh/h	991	89	24	1009	41	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	5	5	3	3
Mvmt Flow	1043	94	25	1062	43	22
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1137	0	1624	522
Stage 1	-	-	-	-	1043	-
Stage 2	-	-	-	-	581	-
Critical Hdwy	-	-	4.2	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.25	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	593	-	92	497
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	593	-	88	497
Mov Cap-2 Maneuver	-	-	-	-	88	-
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	498	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.3	57.3			
HCM LOS						F
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	88	497	-	-	593	-
HCM Lane V/C Ratio	0.49	0.044	-	-	0.043	-
HCM Control Delay (s)	80.2	12.6	-	-	11.3	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0.1	-



HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	5	41	58	35	35	24	69	314	62	23	343	16
Future Vol, veh/h	5	41	58	35	35	24	69	314	62	23	343	16
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	5	42	60	36	36	25	71	324	64	24	354	16
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	937	932	354	959	916	362	370	0	0	388	0	0
Stage 1	402	402	-	498	498	-	-	-	-	-	-	-
Stage 2	535	530	-	461	418	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	244	265	688	236	271	680	1189	-	-	1170	-	-
Stage 1	623	599	-	552	543	-	-	-	-	-	-	-
Stage 2	527	525	-	579	589	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	192	238	688	172	244	676	1189	-	-	1170	-	-
Mov Cap-2 Maneuver	192	238	-	172	244	-	-	-	-	-	-	-
Stage 1	575	583	-	509	501	-	-	-	-	-	-	-
Stage 2	432	485	-	478	574	-	-	-	-	-	-	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	16.8	26.8			1.3			0.5				
HCM LOS	C	D										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1189	-	-	232	688	202	676	1170	-	-		
HCM Lane V/C Ratio	0.06	-	-	0.204	0.087	0.357	0.037	0.02	-	-		
HCM Control Delay (s)	8.2	0	-	24.5	10.7	32.4	10.5	8.1	0	-		
HCM Lane LOS	A	A	-	C	B	D	B	A	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0.3	1.5	0.1	0.1	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	15	10	6	4	6	10	6	22	2	21	25	16
Future Vol, veh/h	15	10	6	4	6	10	6	22	2	21	25	16
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	5	5	5	3	3	3	2	2	2
Mvmt Flow	17	11	7	5	7	11	7	25	2	24	29	18
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	136	128	39	135	136	26	48	0	0	27	0	0
Stage 1	87	87	-	40	40	-	-	-	-	-	-	-
Stage 2	49	41	-	95	96	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.15	6.55	6.25	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.545	4.045	3.345	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	833	761	1030	829	749	1041	1553	-	-	1587	-	-
Stage 1	918	821	-	967	856	-	-	-	-	-	-	-
Stage 2	962	859	-	904	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	804	744	1029	801	733	1041	1552	-	-	1587	-	-
Mov Cap-2 Maneuver	804	744	-	801	733	-	-	-	-	-	-	-
Stage 1	912	807	-	962	852	-	-	-	-	-	-	-
Stage 2	939	855	-	871	796	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.5		9.2			1.5			2.5			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1552	-	-	804	830	878	1587	-	-			
HCM Lane V/C Ratio	0.004	-	-	0.021	0.022	0.026	0.015	-	-			
HCM Control Delay (s)	7.3	0	-	9.6	9.4	9.2	7.3	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0	-	-			

# Trip Generation Calculation Worksheet



Land Use Description: Single-Family Detached Housing  
ITE Land Use Code: 210  
Independent Variable: Dwelling Units  
Quantity: 32 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.74 trips per dwelling unit  
Directional Distribution: 25% Entering 75% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.99 trips per dwelling unit  
Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 9.44 trips per dwelling unit  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

32 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	6	18	24
PM Peak Hour	20	12	32
Weekday	151	151	302

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017

# Trip Generation Calculation Worksheet



Land Use Description: Multi-Family Housing (Low-Rise)  
ITE Land Use Code: 220  
Independent Variable: Dwelling Units  
Quantity: 120 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.46 trips per dwelling unit  
Directional Distribution: 23% Entering 77% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.56 trips per dwelling unit  
Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 7.32 trips per dwelling unit  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

120 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	13	42	55
PM Peak Hour	42	25	67
Weekday	439	439	878

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	729	59	0	816	21	119	14	2	32	8	148
Future Volume (vph)	149	729	59	0	816	21	119	14	2	32	8	148
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frft	1.00	0.99			1.00	0.85		1.00			0.89	
Flt Protected	0.95	1.00			1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1498	2957			3107	1343		1575			1473	
Flt Permitted	0.95	1.00			1.00	1.00		0.53			0.93	
Satd. Flow (perm)	1498	2957			3107	1343		874			1385	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	159	776	63	0	868	22	127	15	2	34	9	157
RTOR Reduction (vph)	0	4	0	0	0	12	0	1	0	0	110	0
Lane Group Flow (vph)	159	835	0	0	868	10	0	143	0	0	90	0
Confl. Peds. (#/hr)	4					4	2					2
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	17.4	75.5			53.6	53.6		35.5			35.5	
Effective Green, g (s)	17.4	75.5			53.6	53.6		35.5			35.5	
Actuated g/C Ratio	0.14	0.63			0.45	0.45		0.30			0.30	
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	217	1860			1387	599		258			409	
v/s Ratio Prot	c0.11	0.28			c0.28							
v/s Ratio Perm						0.01		c0.16			0.07	
v/c Ratio	0.73	0.45			0.63	0.02		0.56			0.22	
Uniform Delay, d1	49.1	11.5			25.5	18.5		35.6			31.8	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	12.0	0.8			2.1	0.1		8.4			0.3	
Delay (s)	61.1	12.3			27.6	18.6		44.0			32.1	
Level of Service	E	B			C	B		D			C	
Approach Delay (s)		20.1			27.4			44.0			32.1	
Approach LOS		C			C			D			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		25.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.62										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)		13.5					
Intersection Capacity Utilization		69.2%			ICU Level of Service		C					
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	729	59	0	816	21	119	14	2	32	8	148
Future Volume (veh/h)	149	729	59	0	816	21	119	14	2	32	8	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1600	1600	1654	1654	1654	1668	1668	1668	1695	1695	1695
Adj Flow Rate, veh/h	159	776	63	0	868	22	127	15	2	34	9	157
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	11	11	11	7	7	7	6	6	6	4	4	4
Cap, veh/h	184	1787	145	1	1481	644	305	33	4	90	40	347
Arrive On Green	0.12	0.63	0.63	0.00	0.47	0.47	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1524	2841	231	1576	3143	1367	840	112	13	187	134	1172
Grp Volume(v), veh/h	159	415	424	0	868	22	144	0	0	200	0	0
Grp Sat Flow(s),veh/h/ln	1524	1520	1552	1576	1572	1367	965	0	0	1493	0	0
Q Serve(g_s), s	12.3	16.7	16.7	0.0	24.2	1.0	5.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.3	16.7	16.7	0.0	24.2	1.0	18.3	0.0	0.0	12.7	0.0	0.0
Prop In Lane	1.00		0.15	1.00		1.00	0.88		0.01	0.17		0.78
Lane Grp Cap(c), veh/h	184	956	976	1	1481	644	342	0	0	477	0	0
V/C Ratio(X)	0.86	0.43	0.43	0.00	0.59	0.03	0.42	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	286	956	976	66	1481	644	342	0	0	477	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.8	11.4	11.4	0.0	23.2	17.1	37.1	0.0	0.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	15.3	1.4	1.4	0.0	1.7	0.1	3.8	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.9	6.0	0.0	9.3	0.4	4.0	0.0	0.0	4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	12.8	12.8	0.0	24.9	17.2	40.8	0.0	0.0	34.9	0.0	0.0
LnGrp LOS	E	B	B	A	C	B	D	A	A	C	A	A
Approach Vol, veh/h		998			890			144			200	
Approach Delay, s/veh		21.4			24.7			40.8			34.9	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	80.0		40.0	19.0	61.0		40.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	66.0		35.5	22.5	48.5		35.5				
Max Q Clear Time (g_c+I1), s	0.0	18.7		20.3	14.3	26.2		14.7				
Green Ext Time (p_c), s	0.0	7.0		0.7	0.3	6.9		1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.2								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	755	46	18	805	41	37
Future Vol, veh/h	755	46	18	805	41	37
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	14	7	7	2	2
Mvmt Flow	839	51	20	894	46	41
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	892	0	1328	422
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	487	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	725	-	146	580
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	724	-	142	579
Mov Cap-2 Maneuver	-	-	-	-	142	-
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	567	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.2	27.6			
HCM LOS						D
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	142	579	-	-	724	-
HCM Lane V/C Ratio	0.321	0.071	-	-	0.028	-
HCM Control Delay (s)	41.9	11.7	-	-	10.1	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	1.3	0.2	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	10	48	38	50	73	27	297	11	17	197	2
Future Vol, veh/h	7	10	48	38	50	73	27	297	11	17	197	2
Conflicting Peds, #/hr	2	0	2	2	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	4	4	4	5	5	5	4	4	4
Mvmt Flow	9	13	62	49	64	94	35	381	14	22	253	3

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	838	766	257	798	762	392	258	0	0	397	0	0
Stage 1	299	299	-	460	460	-	-	-	-	-	-	-
Stage 2	539	467	-	338	302	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.14	6.54	6.24	4.15	-	-	4.14	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.536	4.036	3.336	2.245	-	-	2.236	-	-
Pot Cap-1 Maneuver	282	329	774	302	332	652	1289	-	-	1151	-	-
Stage 1	703	661	-	577	562	-	-	-	-	-	-	-
Stage 2	521	557	-	672	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	194	309	771	257	312	650	1287	-	-	1149	-	-
Mov Cap-2 Maneuver	194	309	-	257	312	-	-	-	-	-	-	-
Stage 1	677	645	-	556	541	-	-	-	-	-	-	-
Stage 2	379	536	-	592	645	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	19.2	0.6	0.6
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1287	-	-	248	771	286	650	1149	-	-
HCM Lane V/C Ratio	0.027	-	-	0.088	0.08	0.394	0.144	0.019	-	-
HCM Control Delay (s)	7.9	0	-	20.9	10.1	25.6	11.5	8.2	0	-
HCM Lane LOS	A	A	-	C	B	D	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	1.8	0.5	0.1	-	-



HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	23	2	5	4	5	16	12	22	2	8	14	17
Future Vol, veh/h	23	2	5	4	5	16	12	22	2	8	14	17
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	6	6	6
Mvmt Flow	34	3	7	6	7	24	18	33	3	12	21	25
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	144	130	37	137	141	35	46	0	0	36	0	0
Stage 1	58	58	-	71	71	-	-	-	-	-	-	-
Stage 2	86	72	-	66	70	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.12	6.52	6.22	4.12	-	-	4.16	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.518	4.018	3.318	2.218	-	-	2.254	-	-
Pot Cap-1 Maneuver	818	755	1027	834	750	1038	1562	-	-	1549	-	-
Stage 1	946	841	-	939	836	-	-	-	-	-	-	-
Stage 2	914	829	-	945	837	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	781	740	1024	811	735	1038	1562	-	-	1549	-	-
Mov Cap-2 Maneuver	781	740	-	811	735	-	-	-	-	-	-	-
Stage 1	935	834	-	928	826	-	-	-	-	-	-	-
Stage 2	874	819	-	925	830	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.6		9.1			2.4			1.5			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1562	-	-	781	923	921	1549	-	-			
HCM Lane V/C Ratio	0.011	-	-	0.044	0.011	0.041	0.008	-	-			
HCM Control Delay (s)	7.3	0	-	9.8	8.9	9.1	7.3	0	-			
HCM Lane LOS	A	A	-	A	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	-	-			

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1086	148	1	1074	23	118	21	5	75	27	141
Future Volume (vph)	177	1086	148	1	1074	23	118	21	5	75	27	141
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00			0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.98	
Satd. Flow (prot)	1630	3193		1583	3167	1387		1634			1537	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.51			0.87	
Satd. Flow (perm)	1630	3193		1583	3167	1387		870			1357	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	181	1108	151	1	1096	23	120	21	5	77	28	144
RTOR Reduction (vph)	0	8	0	0	0	12	0	1	0	0	41	0
Lane Group Flow (vph)	181	1251	0	1	1096	11	0	145	0	0	208	0
Confl. Peds. (#/hr)							5					5
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	17.4	74.0		1.0	57.6	57.6		31.5			31.5	
Effective Green, g (s)	17.4	74.0		1.0	57.6	57.6		31.5			31.5	
Actuated g/C Ratio	0.14	0.62		0.01	0.48	0.48		0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	236	1969		13	1520	665		228			356	
v/s Ratio Prot	c0.11	0.39		0.00	c0.35							
v/s Ratio Perm						0.01		c0.17			0.15	
v/c Ratio	0.77	0.64		0.08	0.72	0.02		0.64			0.58	
Uniform Delay, d1	49.3	14.5		59.0	24.8	16.4		39.2			38.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	13.8	1.6		2.5	3.0	0.0		12.8			2.4	
Delay (s)	63.2	16.1		61.6	27.8	16.4		52.0			41.0	
Level of Service	E	B		E	C	B		D			D	
Approach Delay (s)		22.0			27.6			52.0			41.0	
Approach LOS		C			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.2									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			120.0						13.5			
Intersection Capacity Utilization			73.9%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	1086	148	1	1074	23	118	21	5	75	27	141
Future Volume (veh/h)	177	1086	148	1	1074	23	118	21	5	75	27	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1723	1682	1682	1682	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	181	1108	151	1	1096	23	120	21	5	77	28	144
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	5	5	5	2	2	2	2	2	2
Cap, veh/h	208	1800	245	2	1593	696	259	42	9	145	63	231
Arrive On Green	0.13	0.62	0.62	0.00	0.50	0.50	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1641	2886	392	1602	3195	1396	777	159	33	403	239	880
Grp Volume(v), veh/h	181	627	632	1	1096	23	146	0	0	249	0	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1642	1602	1598	1396	969	0	0	1522	0	0
Q Serve(g_s), s	13.0	28.1	28.2	0.1	31.4	1.0	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	28.1	28.2	0.1	31.4	1.0	19.0	0.0	0.0	16.4	0.0	0.0
Prop In Lane	1.00		0.24	1.00		1.00	0.82		0.03	0.31		0.58
Lane Grp Cap(c), veh/h	208	1021	1024	2	1593	696	309	0	0	439	0	0
V/C Ratio(X)	0.87	0.61	0.62	0.46	0.69	0.03	0.47	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	280	1021	1024	68	1593	696	309	0	0	439	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.5	13.8	13.8	59.9	23.0	15.3	40.0	0.0	0.0	38.7	0.0	0.0
Incr Delay (d2), s/veh	19.6	2.8	2.8	104.7	2.5	0.1	5.1	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	10.8	10.9	0.1	12.3	0.3	4.4	0.0	0.0	6.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	16.5	16.6	164.6	25.4	15.4	45.1	0.0	0.0	40.5	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1440			1120			146			249	
Approach Delay, s/veh		23.4			25.3			45.1			40.5	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	79.3		36.0	19.7	64.3		36.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	69.9		31.5	20.5	54.5		31.5				
Max Q Clear Time (g_c+I1), s	2.1	30.2		21.0	15.0	33.4		18.4				
Green Ext Time (p_c), s	0.0	12.4		0.6	0.2	8.8		1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				26.7								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1090	93	34	1092	43	27
Future Vol, veh/h	1090	93	34	1092	43	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	5	5	3	3
Mvmt Flow	1147	98	36	1149	45	28
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1245	0	1794	574
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	647	-
Critical Hdwy	-	-	4.2	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.25	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	539	-	71	459
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	539	-	66	459
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	448	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.4	89.1			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	66	459	-	-	539	-
HCM Lane V/C Ratio	0.686	0.062	-	-	0.066	-
HCM Control Delay (s)	136.6	13.4	-	-	12.2	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	3	0.2	-	-	0.2	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	45	60	36	38	43	72	345	65	54	376	20
Future Vol, veh/h	7	45	60	36	38	43	72	345	65	54	376	20
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	7	46	62	37	39	44	74	356	67	56	388	21

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1085	1071	388	1103	1059	396	409	0	0	423	0	0
Stage 1	500	500	-	538	538	-	-	-	-	-	-	-
Stage 2	585	571	-	565	521	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	193	220	658	188	223	651	1150	-	-	1136	-	-
Stage 1	551	541	-	525	521	-	-	-	-	-	-	-
Stage 2	495	503	-	508	530	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	135	188	658	123	191	647	1150	-	-	1136	-	-
Mov Cap-2 Maneuver	135	188	-	123	191	-	-	-	-	-	-	-
Stage 1	504	506	-	480	477	-	-	-	-	-	-	-
Stage 2	385	460	-	391	496	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.4	36.3	1.2	1
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1150	-	-	179	658	151	647	1136	-	-
HCM Lane V/C Ratio	0.065	-	-	0.299	0.094	0.505	0.069	0.049	-	-
HCM Control Delay (s)	8.3	0	-	33.5	11	51	11	8.3	0	-
HCM Lane LOS	A	A	-	D	B	F	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.3	2.4	0.2	0.2	-	-

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	21	10	6	4	6	10	6	23	2	22	26	26
Future Vol, veh/h	21	10	6	4	6	10	6	23	2	22	26	26
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	5	5	5	3	3	3	2	2	2
Mvmt Flow	24	11	7	5	7	11	7	26	2	25	30	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	146	138	46	145	152	27	61	0	0	28	0	0
Stage 1	96	96	-	41	41	-	-	-	-	-	-	-
Stage 2	50	42	-	104	111	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.15	6.55	6.25	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.545	4.045	3.345	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	820	751	1021	817	734	1040	1536	-	-	1585	-	-
Stage 1	908	814	-	966	855	-	-	-	-	-	-	-
Stage 2	961	858	-	894	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	791	734	1020	789	718	1040	1535	-	-	1585	-	-
Mov Cap-2 Maneuver	791	734	-	789	718	-	-	-	-	-	-	-
Stage 1	903	800	-	961	851	-	-	-	-	-	-	-
Stage 2	938	854	-	861	784	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		9.3		1.4		2.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	791	820	868	1585	-	-
HCM Lane V/C Ratio	0.004	-	-	0.031	0.022	0.026	0.016	-	-
HCM Control Delay (s)	7.4	0	-	9.7	9.5	9.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0	-	-

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	741	59	0	829	21	132	14	2	32	8	148
Future Volume (vph)	149	741	59	0	829	21	132	14	2	32	8	148
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frft	1.00	0.99			1.00	0.85		1.00			0.89	
Flt Protected	0.95	1.00			1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1498	2958			3107	1343		1575			1473	
Flt Permitted	0.95	1.00			1.00	1.00		0.53			0.93	
Satd. Flow (perm)	1498	2958			3107	1343		870			1381	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	159	788	63	0	882	22	140	15	2	34	9	157
RTOR Reduction (vph)	0	4	0	0	0	12	0	1	0	0	110	0
Lane Group Flow (vph)	159	847	0	0	882	10	0	156	0	0	90	0
Confl. Peds. (#/hr)	4					4	2					2
Confl. Bikes (#/hr)			2			1						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	6%	6%	6%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	17.4	75.5			53.6	53.6		35.5			35.5	
Effective Green, g (s)	17.4	75.5			53.6	53.6		35.5			35.5	
Actuated g/C Ratio	0.14	0.63			0.45	0.45		0.30			0.30	
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	217	1861			1387	599		257			408	
v/s Ratio Prot	c0.11	0.29			c0.28							
v/s Ratio Perm						0.01		c0.18			0.07	
v/c Ratio	0.73	0.46			0.64	0.02		0.61			0.22	
Uniform Delay, d1	49.1	11.6			25.7	18.5		36.3			31.8	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	12.0	0.8			2.2	0.1		10.3			0.3	
Delay (s)	61.1	12.4			27.9	18.6		46.5			32.1	
Level of Service	E	B			C	B		D			C	
Approach Delay (s)		20.0			27.7			46.5			32.1	
Approach LOS		C			C			D			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		26.0										C
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		120.0						13.5				
Intersection Capacity Utilization		70.3%										C
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	741	59	0	829	21	132	14	2	32	8	148
Future Volume (veh/h)	149	741	59	0	829	21	132	14	2	32	8	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1600	1600	1654	1654	1654	1668	1668	1668	1695	1695	1695
Adj Flow Rate, veh/h	159	788	63	0	882	22	140	15	2	34	9	157
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	11	11	11	7	7	7	6	6	6	4	4	4
Cap, veh/h	184	1790	143	1	1481	644	307	30	4	91	40	349
Arrive On Green	0.12	0.63	0.63	0.00	0.47	0.47	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1524	2845	227	1576	3143	1367	846	102	12	189	134	1180
Grp Volume(v), veh/h	159	421	430	0	882	22	157	0	0	200	0	0
Grp Sat Flow(s),veh/h/ln	1524	1520	1552	1576	1572	1367	960	0	0	1504	0	0
Q Serve(g_s), s	12.3	17.0	17.1	0.0	24.8	1.0	7.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.3	17.0	17.1	0.0	24.8	1.0	19.8	0.0	0.0	12.7	0.0	0.0
Prop In Lane	1.00		0.15	1.00		1.00	0.89		0.01	0.17		0.78
Lane Grp Cap(c), veh/h	184	956	977	1	1481	644	341	0	0	480	0	0
V/C Ratio(X)	0.86	0.44	0.44	0.00	0.60	0.03	0.46	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	286	956	977	66	1481	644	341	0	0	480	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.8	11.4	11.4	0.0	23.3	17.1	37.8	0.0	0.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	15.3	1.5	1.4	0.0	1.8	0.1	4.4	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	6.0	6.1	0.0	9.5	0.4	4.5	0.0	0.0	4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	12.9	12.9	0.0	25.1	17.2	42.2	0.0	0.0	34.9	0.0	0.0
LnGrp LOS	E	B	B	A	C	B	D	A	A	C	A	A
Approach Vol, veh/h		1010			904			157			200	
Approach Delay, s/veh		21.4			24.9			42.2			34.9	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	80.0		40.0	19.0	61.0		40.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	66.0		35.5	22.5	48.5		35.5				
Max Q Clear Time (g_c+I1), s	0.0	19.1		21.8	14.3	26.8		14.7				
Green Ext Time (p_c), s	0.0	7.1		0.7	0.3	7.0		1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.4								
HCM 6th LOS				C								



HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	755	58	22	805	54	49
Future Vol, veh/h	755	58	22	805	54	49
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	14	7	7	2	2
Mvmt Flow	839	64	24	894	60	54
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	905	0	1336	422
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	-	-	4.24	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.27	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	717	-	145	580
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	716	-	140	579
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	558	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.3	31.2			
HCM LOS						D
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	140	579	-	-	716	-
HCM Lane V/C Ratio	0.429	0.094	-	-	0.034	-
HCM Control Delay (s)	48.7	11.9	-	-	10.2	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	1.9	0.3	-	-	0.1	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Future Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Conflicting Peds, #/hr	2	0	2	2	0	2	0	0	0	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	5	5	5	4	4	4	5	5	5	4	4	4
Mvmt Flow	9	14	62	56	68	110	35	381	17	22	253	3
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	850	769	257	801	764	394	258	0	0	400	0	0
Stage 1	299	299	-	462	462	-	-	-	-	-	-	-
Stage 2	551	470	-	339	302	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.14	6.54	6.24	4.15	-	-	4.14	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.536	4.036	3.336	2.245	-	-	2.236	-	-
Pot Cap-1 Maneuver	277	328	774	300	331	651	1289	-	-	1148	-	-
Stage 1	703	661	-	576	561	-	-	-	-	-	-	-
Stage 2	513	555	-	671	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	183	308	771	254	311	649	1287	-	-	1146	-	-
Mov Cap-2 Maneuver	183	308	-	254	311	-	-	-	-	-	-	-
Stage 1	677	645	-	555	540	-	-	-	-	-	-	-
Stage 2	359	534	-	590	645	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13.2		20.1			0.6			0.6			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1287	-	-	243	771	282	649	1146	-	-		
HCM Lane V/C Ratio	0.027	-	-	0.095	0.08	0.441	0.17	0.019	-	-		
HCM Control Delay (s)	7.9	0	-	21.4	10.1	27.5	11.7	8.2	0	-		
HCM Lane LOS	A	A	-	C	B	D	B	A	A	-		
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	2.1	0.6	0.1	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	23	5	5	4	27	54	12	22	2	24	14	17
Future Vol, veh/h	23	5	5	4	27	54	12	22	2	24	14	17
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	5	5	5	2	2	2	2	2	2	6	6	6
Mvmt Flow	34	7	7	6	40	81	18	33	3	36	21	25

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	237	178	37	187	189	35	46	0	0	36	0	0
Stage 1	106	106	-	71	71	-	-	-	-	-	-	-
Stage 2	131	72	-	116	118	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.55	6.25	7.12	6.52	6.22	4.12	-	-	4.16	-	-
Critical Hdwy Stg 1	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.55	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.045	3.345	3.518	4.018	3.318	2.218	-	-	2.254	-	-
Pot Cap-1 Maneuver	711	710	1027	774	706	1038	1562	-	-	1549	-	-
Stage 1	892	802	-	939	836	-	-	-	-	-	-	-
Stage 2	865	829	-	889	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	609	684	1024	739	681	1038	1562	-	-	1549	-	-
Mov Cap-2 Maneuver	609	684	-	739	681	-	-	-	-	-	-	-
Stage 1	881	783	-	928	826	-	-	-	-	-	-	-
Stage 2	750	819	-	851	779	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.8		9.8		2.4		3.2	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1562	-	-	609	820	876	1549	-	-
HCM Lane V/C Ratio	0.011	-	-	0.056	0.018	0.145	0.023	-	-
HCM Control Delay (s)	7.3	0	-	11.3	9.5	9.8	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.5	0.1	-	-

HCM Signalized Intersection Capacity Analysis  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	1126	148	1	1082	23	129	21	5	75	27	141
Future Volume (vph)	177	1126	148	1	1082	23	129	21	5	75	27	141
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00			0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96			0.98	
Satd. Flow (prot)	1630	3195		1583	3167	1387		1634			1537	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.51			0.87	
Satd. Flow (perm)	1630	3195		1583	3167	1387		864			1357	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	181	1149	151	1	1104	23	132	21	5	77	28	144
RTOR Reduction (vph)	0	8	0	0	0	12	0	1	0	0	41	0
Lane Group Flow (vph)	181	1292	0	1	1104	11	0	157	0	0	208	0
Confl. Peds. (#/hr)							5					5
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases						6	4			8		
Actuated Green, G (s)	17.4	74.0		1.0	57.6	57.6		31.5			31.5	
Effective Green, g (s)	17.4	74.0		1.0	57.6	57.6		31.5			31.5	
Actuated g/C Ratio	0.14	0.62		0.01	0.48	0.48		0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	236	1970		13	1520	665		226			356	
v/s Ratio Prot	c0.11	0.40		0.00	c0.35							
v/s Ratio Perm						0.01		c0.18			0.15	
v/c Ratio	0.77	0.66		0.08	0.73	0.02		0.70			0.58	
Uniform Delay, d1	49.3	14.8		59.0	24.9	16.4		39.9			38.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	13.8	1.7		2.5	3.1	0.0		16.3			2.4	
Delay (s)	63.2	16.5		61.6	28.0	16.4		56.2			41.0	
Level of Service	E	B		E	C	B		E			D	
Approach Delay (s)		22.2			27.8			56.2			41.0	
Approach LOS		C			C			E			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			27.6									C
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			120.0						13.5			
Intersection Capacity Utilization			76.0%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: Wolf Drive/Ten Eyck Road & Highway 26

09/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	1126	148	1	1082	23	129	21	5	75	27	141
Future Volume (veh/h)	177	1126	148	1	1082	23	129	21	5	75	27	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1723	1682	1682	1682	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	181	1149	151	1	1104	23	132	21	5	77	28	144
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	5	5	5	2	2	2	2	2	2
Cap, veh/h	208	1809	237	2	1593	696	262	38	8	146	63	233
Arrive On Green	0.13	0.62	0.62	0.00	0.50	0.50	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1641	2901	380	1602	3195	1396	787	146	30	407	240	888
Grp Volume(v), veh/h	181	647	653	1	1104	23	158	0	0	249	0	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1645	1602	1598	1396	963	0	0	1535	0	0
Q Serve(g_s), s	13.0	29.5	29.8	0.1	31.8	1.0	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	29.5	29.8	0.1	31.8	1.0	20.4	0.0	0.0	16.3	0.0	0.0
Prop In Lane	1.00		0.23	1.00		1.00	0.84		0.03	0.31		0.58
Lane Grp Cap(c), veh/h	208	1021	1026	2	1593	696	308	0	0	442	0	0
V/C Ratio(X)	0.87	0.63	0.64	0.46	0.69	0.03	0.51	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	280	1021	1026	68	1593	696	308	0	0	442	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.5	14.1	14.1	59.9	23.1	15.3	40.7	0.0	0.0	38.7	0.0	0.0
Incr Delay (d2), s/veh	19.6	3.0	3.0	104.7	2.5	0.1	6.0	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	11.4	11.6	0.1	12.4	0.3	4.8	0.0	0.0	6.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	17.0	17.1	164.6	25.6	15.4	46.7	0.0	0.0	40.3	0.0	0.0
LnGrp LOS	E	B	B	F	C	B	D	A	A	D	A	A
Approach Vol, veh/h		1481			1128			158			249	
Approach Delay, s/veh		23.7			25.5			46.7			40.3	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	79.3		36.0	19.7	64.3		36.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	69.9		31.5	20.5	54.5		31.5				
Max Q Clear Time (g_c+I1), s	2.1	31.8		22.4	15.0	33.8		18.3				
Green Ext Time (p_c), s	0.0	12.9		0.6	0.2	8.8		1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				26.9								
HCM 6th LOS				C								

HCM 6th TWSC  
2: Langensand Road & Highway 26

09/26/2021

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Vol, veh/h	1090	133	47	1092	48	34
Future Vol, veh/h	1090	133	47	1092	48	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	215	-	120	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	5	5	3	3
Mvmt Flow	1147	140	49	1149	51	36
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1287	0	1820	574
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	673	-
Critical Hdwy	-	-	4.2	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.25	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	519	-	68	459
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	519	-	62	459
Mov Cap-2 Maneuver	-	-	-	-	62	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	422	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.5	107			
HCM LOS			F			
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	62	459	-	-	519	-
HCM Lane V/C Ratio	0.815	0.078	-	-	0.095	-
HCM Control Delay (s)	173.2	13.5	-	-	12.7	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	3.7	0.3	-	-	0.3	-

HCM 6th TWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Future Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Conflicting Peds, #/hr	6	0	0	0	0	6	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	90	-	-	125	-	-	-	-	-	330
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	7	49	62	41	41	53	74	356	73	56	388	21
Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	1094	1077	388	1107	1062	399	409	0	0	429	0	0
Stage 1	500	500	-	541	541	-	-	-	-	-	-	-
Stage 2	594	577	-	566	521	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	191	218	658	187	223	649	1150	-	-	1130	-	-
Stage 1	551	541	-	523	519	-	-	-	-	-	-	-
Stage 2	490	500	-	507	530	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	130	187	658	121	191	645	1150	-	-	1130	-	-
Mov Cap-2 Maneuver	130	187	-	121	191	-	-	-	-	-	-	-
Stage 1	504	506	-	479	475	-	-	-	-	-	-	-
Stage 2	374	458	-	388	496	-	-	-	-	-	-	-
Approach	EB	WB		NB		SB						
HCM Control Delay, s	22.3	38.7		1.2		1						
HCM LOS	C	E										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1150	-	-	177	658	148	645	1130	-	-		
HCM Lane V/C Ratio	0.065	-	-	0.32	0.094	0.557	0.082	0.049	-	-		
HCM Control Delay (s)	8.3	0	-	34.6	11	56.3	11.1	8.4	0	-		
HCM Lane LOS	A	A	-	D	B	F	B	A	A	-		
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0.3	2.8	0.3	0.2	-	-		

HCM 6th TWSC  
4: Langensand Road & Dubarko Road

09/26/2021

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	21	19	6	4	20	33	6	23	2	75	26	26
Future Vol, veh/h	21	19	6	4	20	33	6	23	2	75	26	26
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	115	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	5	5	5	3	3	3	2	2	2
Mvmt Flow	24	22	7	5	23	38	7	26	2	86	30	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	290	260	46	273	274	27	61	0	0	28	0	0
Stage 1	218	218	-	41	41	-	-	-	-	-	-	-
Stage 2	72	42	-	232	233	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.15	6.55	6.25	4.13	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.545	4.045	3.345	2.227	-	-	2.218	-	-
Pot Cap-1 Maneuver	660	643	1021	673	628	1040	1536	-	-	1585	-	-
Stage 1	782	721	-	966	855	-	-	-	-	-	-	-
Stage 2	935	858	-	764	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	588	603	1020	620	589	1040	1535	-	-	1585	-	-
Mov Cap-2 Maneuver	588	603	-	620	589	-	-	-	-	-	-	-
Stage 1	777	680	-	961	851	-	-	-	-	-	-	-
Stage 2	872	854	-	693	666	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11		10		1.4		4.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	588	669	790	1585	-	-
HCM Lane V/C Ratio	0.004	-	-	0.041	0.043	0.083	0.054	-	-
HCM Control Delay (s)	7.4	0	-	11.4	10.6	10	7.4	0	-
HCM Lane LOS	A	A	-	B	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.3	0.2	-	-



HCM 6th AWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Future Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	5	5	5	4	4	4	5	5	5	4	4	4
Mvmt Flow	9	14	62	56	68	110	35	381	17	22	253	3
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	10.2	11.4	23.8	14.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	8%	39%	0%	45%	0%	8%	0%
Vol Thru, %	88%	61%	0%	55%	0%	92%	0%
Vol Right, %	4%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	337	18	48	97	86	214	2
LT Vol	27	7	0	44	0	17	0
Through Vol	297	11	0	53	0	197	0
RT Vol	13	0	48	0	86	0	2
Lane Flow Rate	432	23	62	124	110	274	3
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.729	0.048	0.111	0.245	0.188	0.477	0.004
Departure Headway (Hd)	6.071	7.425	6.507	7.092	6.144	6.262	5.511
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	592	479	546	504	580	573	646
Service Time	4.128	5.217	4.298	4.868	3.92	4.028	3.276
HCM Lane V/C Ratio	0.73	0.048	0.114	0.246	0.19	0.478	0.005
HCM Control Delay	23.8	10.6	10.1	12.2	10.4	14.7	8.3
HCM Lane LOS	C	B	B	B	B	B	A
HCM 95th-tile Q	6.2	0.2	0.4	1	0.7	2.6	0

HCM 6th AWSC  
3: Highway 211 & Dubarko Road

09/26/2021

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕			↕	↕
Traffic Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Future Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	7	49	62	41	41	53	74	356	73	56	388	21
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	11.2	11.7	36.3	26
HCM LOS	B	B	E	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	15%	13%	0%	50%	0%	13%	0%
Vol Thru, %	71%	87%	0%	50%	0%	87%	0%
Vol Right, %	15%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	488	55	60	80	51	430	20
LT Vol	72	7	0	40	0	54	0
Through Vol	345	48	0	40	0	376	0
RT Vol	71	0	60	0	51	0	20
Lane Flow Rate	503	57	62	82	53	443	21
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.861	0.124	0.122	0.183	0.103	0.767	0.031
Departure Headway (Hd)	6.164	7.882	7.093	8.006	7.024	6.226	5.451
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	584	457	508	450	513	576	649
Service Time	4.262	5.588	4.799	5.712	4.731	4.025	3.249
HCM Lane V/C Ratio	0.861	0.125	0.122	0.182	0.103	0.769	0.032
HCM Control Delay	36.3	11.7	10.8	12.5	10.5	26.8	8.4
HCM Lane LOS	E	B	B	B	B	D	A
HCM 95th-tile Q	9.5	0.4	0.4	0.7	0.3	7	0.1



OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING  
TEN BYCK RD at PROCTOR BLVD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

5 - 5 of 5 Crash records shown.

CDS380  
05/31/2021

CITY OF SANDY, CLACKAMAS COUNTY

SER#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	SPCL USE	MOVE	PH TYPE	SVRTY	E	X	RES	LOC	ACT EVENT	CAUSE	
RD DPT	E	L	G	N	H	R	TIME	FROM	FIRST STREET	DIRECT	(MEDIAN)	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	TO	PH TYPE	SVRTY	E	X	RES	LOC	ACT EVENT	CAUSE	
UNLOC?	D	C	S	V	L	K	LAT	LONG	LES	LOCIN	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	02 NONE	9	TURN-R	NE-NW	01	DRVR	NONE	00	UNK	UNK	00	00

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
**WOLF DR at PIONEER BLVD, Clackamas County, 01/01/2015 to 12/31/2019**  
 1 - 2 of 2 Crash records shown.

CDS380  
 05/31/2021

CITY OF SANDY, CLACKAMAS COUNTY

SR#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PH	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE						
INVEST	E	L	G	N	H	R	TIME	FROM	FIRST STREET	DIRECT	(MEDIAN)	TRAF-	RNDFT	SURF	COLL	TRLR	QTY	G	E	LIQNS	PED	PH	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE				
UNLOC?	D	C	S	V	L	K	LAT	LONG	LES	LOCIN	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	OWNER	FROM	TO	PH	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE					
01741	N	N	N	N	N	N	05/09/2015	14	PIONEER BLVD	INTER	5-LEG	N	N	DRY	ANGL-OTH	01	NONE	0	STRGHT														04		
NONE							SA		WOLF DR	CN	TRF SIGNAL	N	N	DAY	PDO	PRVTE	S -N															000	00		
N							6A			04	0		N	DAY	PDO	PSNGR CAR																026	04		
N							45 23 49.25	-122.15																									000	00	
								19.74																									000	00	
																																	000	00	
00512	N	N	N	N	N	N	02/07/2017	14	PIONEER BLVD	INTER	5-LEG	N	N	RAIN	ANGL-OTH	01	NONE	0	TURN-L															04	
CITY							TU		WOLF DR	CN	TRF SIGNAL	N	N	WET	TURN	PRVTE	S -W																000	00	
N							4P			04	0		N	DUSK	INJ	PSNGR CAR																	000	00	
N							45 23 49.25	-122.15																										000	00
								19.74																										000	04
																																	000	04	

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING

MT HOOD HY at LANGENGAND RD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

5 - 7 of 7 Crash records shown.

SER#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE	
INVEST	E	L	G	N	H	R	TIME	FROM	FIRST STREET	DIRECT	(MEDIAN)	TEAF-	RNDFT	SURF	COLL	TRLR QTY	FROM	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE	
UNLOC?	D	C	S	V	L	K	LAT	LONG	SECOND STREET	LOCIN	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE	
04571	N	N	N	N	N	N	10/05/2016	14	LANGENGAND RD	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01 NONE	TURN-L	01	DRVR	NONE	21 M	OR-Y	015	00
									MT HOOD HY	CN	STOP SIGN	N	N	WET	TURN	PSNGR CAR	S -W	01	DRVR	NONE	21 M	OR-Y	000	02
									002600100800	04	0			DUSK	INJ	PSNGR CAR						028	00	
																02 NONE	STRGHT					000	00	
																PRVTE	W -E					000	00	
																PSNGR CAR						000	00	
																03 NONE	STRGHT					022	00	
																PRVTE	E -W					000	00	
																PSNGR CAR						000	00	
																03 NONE	STRGHT					022	00	
																PRVTE	E -W					000	00	
																PSNGR CAR						000	00	
																02 NONE	STRGHT					022	00	
																PRVTE	E -W					000	00	
																PSNGR CAR						000	00	
03612	N	N	N	N	N	N	10/16/2019	14	LANGENGAND RD	INTER	3-LEG	N	N	RAIN	ANGL-OTH	01 NONE	TURN-L	01	DRVR	NONE	21 M	OR-Y	015	00
									MT HOOD HY	CN	STOP SIGN	N	N	WET	TURN	N/A	S -NW	01	DRVR	NONE	00	UNK	000	00
										02	0			DAY	PDO	PSNGR CAR						000	00	
																02 NONE	STRGHT					000	00	
																N/A	SE-NW					000	00	
																PSNGR CAR						000	00	
04040	N	N	N	N	N	N	11/14/2019	14	LANGENGAND RD	INTER	3-LEG	N	N	CLR	ANGL-OTH	01 NONE	STRGHT	01	DRVR	NONE	00	UNK	000	00
									MT HOOD HY	CN	STOP SIGN	N	N	DRY	TURN	N/A	E -W	01	DRVR	NONE	00	UNK	000	00
										02	0			DANN	PDO	SEMI TON						000	00	
																02 NONE	TURN-L					015	00	
																N/A	S -W					000	00	
																PSNGR CAR						000	00	

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CDS380  
 05/31/2021  
 OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019  
 1 - 4 of 27 Crash records shown.

SR#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PH	TYPE	SVTY	X	RES	LOC	ACT	EVENT	CAUSE
INVEST	E	A	I	C	O	DAY	DIST	FROM	FIRST STREET	(MEDIAN)	DIRECT	TEAF-	RNDFT	SURF	COLL	TRLR	QTY	G	E	LI	CS	RES	LOC	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LONG	FROM	LES	(LANES)	LOCIN	CONTL	DRVWY	LIGHT	SVTY	V#	TYPE	ONNR	INJ	INJ	SVTY	X	RES	LOC	ACT	EVENT	CAUSE	
02296	N	N	N	N	N	N	07/06/2019	16	DUBARKO RD	CROSS	INTER	N	N	N	CLR	S-1STOP	01	NONE	9	STRGHT								27,29,32
N	N	N	N	N	N	N	SA		EAGLE CRK-SANDY HY	NONE	N	NONE	N	DAY	DRY	REAR	N/A			01	DRVR	NONE	00	UNK	UNK			00
N	N	N	N	N	N	N	11A		017200100800	0	0	0	N	DAY	DRY	PDO	PSNGR	CAR									00	
N	N	N	N	N	N	N	45-23 22.65	-122.15																				00
N	N	N	N	N	N	N	48.74																					00
01165	N	N	N	N	N	N	03/10/2016	16	DUBARKO RD	CROSS	INTER	N	N	N	CLR	O-1STOP	01	NONE	0	BACK								1.0
NONE	N	N	N	N	N	N	TH		EAGLE CRK-SANDY HY	STOP SIGN	E	STOP SIGN	N	DAY	DRY	BACK	PRVTE		W	-	E						00	
N	N	N	N	N	N	N	6P		017200100800	0	0	0	N	DAY	DRY	INJ	PSNGR	CAR		01	DRVR	NONE	22	M	OR-Y	OR-25		1.0
N	N	N	N	N	N	N	45-23 22.76	-122.15																				00
N	N	N	N	N	N	N	48.39																					00
04008	N	N	N	N	N	N	11/02/2018	16	DUBARKO RD	CROSS	INTER	N	N	N	CLD	PED	01	NONE	0	STRGHT								02
NONE	N	N	N	N	N	N	FR		EAGLE CRK-SANDY HY	STOP SIGN	E	STOP SIGN	N	WET	PED	PED	PRVTE		E	-	W						00	
N	N	N	N	N	N	N	7P		017200100800	0	0	0	N	DLIT	INJ	INJ	PSNGR	CAR		01	DRVR	NONE	74	M	OR-Y	OR-25		02
N	N	N	N	N	N	N	45-23 22.54	-122.15																				00
N	N	N	N	N	N	N	48.5																					00
03026	N	N	N	N	N	N	07/27/2015	16	DUBARKO RD	CROSS	INTER	N	N	N	CLR	S-1STOP	01	NONE	0	STRGHT								07,29
NONE	N	N	N	N	N	N	NO		EAGLE CRK-SANDY HY	NONE	SW	NONE	N	DRY	REAR	REAR	PRVTE		SW	-	NE						00	
N	N	N	N	N	N	N	8P		017200100800	0	0	0	N	DUSEK	INJ	INJ	PSNGR	CAR		01	DRVR	INJC	19	M	OR-Y	OR-25		07,29
N	N	N	N	N	N	N	45-23 22.76	-122.15																				00
N	N	N	N	N	N	N	48.39																					00
01095	N	N	N	N	N	N	03/04/2016	16	DUBARKO RD	CROSS	INTER	N	N	N	CLD	S-1STOP	01	NONE	0	STRGHT								27,07,32
NONE	N	N	N	N	N	N	FR		EAGLE CRK-SANDY HY	STOP SIGN	SW	STOP SIGN	N	DRY	SS-O	SS-O	PRVTE		NE	-	SW						00	
N	N	N	N	N	N	N	4P		017200100800	0	0	0	N	DAY	INJ	INJ	PSNGR	CAR		01	DRVR	NONE	30	M	OR-Y	OR-25		27,07,32
N	N	N	N	N	N	N	45-23 22.76	-122.15																				00
N	N	N	N	N	N	N	48.39																					00

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

5 - 8 of 27 Crash records shown.

SER#	P R J S M DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	RD CHAR	INT-TYPE	SPCL USE	MOVE	FROM	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE	
INVEST	E A I C O DAY	DIST	FIRST STREET	(MEDIAN)	INT-REL	DIRRECT	LEGS	(MEDIAN)	TRLR QTY	OWNER	PRTC	INJ	G E LICNS	PED			
RD DPT	E L G N H R TIME	FROM	SECOND STREET	TEAF-	RNDFT	WTHR	COLL	CRASH	OFFRD	SURF	DRVWY	LIGHT	SVRTY	E X RES	LOC		
UNLOC?	D C S V L K LAT	LONG	LES	(LANES)	CONTL	DRVWY	SVRTY	CRASH	DRVWY	DRVWY	DRVWY	DRVWY	DRVWY	DRVWY	DRVWY	DRVWY	DRVWY
00763	N N N N 02/17/2016	16	DUBARKO RD	CROSS	N	N	S-1STOP	01 NONE	9	STRGHT	01 DRVR	NONE	18 F	OR-Y	000	012	00
	WE		EAGLE CRK-SANDY HY	NONE	N/A	WET	REAR	N/A		S -N	01 DRVR	NONE	00	Unk	Unk	000	00
N	5P	45 23 22.76 -122.15	017200100800	0	0	N	DLIT	PSNGR CAR		PSNGR CAR	01 DRVR	NONE	00	Unk	Unk	000	00
N	45 23 22.76 -122.15	48.39						02 NONE	9	STOP	01 DRVR	NONE	00	Unk	Unk	000	00
								N/A		S -N	01 DRVR	NONE	00	Unk	Unk	000	00
								PSNGR CAR		PSNGR CAR	01 DRVR	NONE	00	Unk	Unk	000	00
01324	N N N N 04/19/2018	16	DUBARKO RD	CROSS	N	N	S-1STOP	01 NONE	0	STRGHT	01 DRVR	NONE	19 M	OR-Y	000	000	00
	TH		EAGLE CRK-SANDY HY	UNKNOWN	N	DRY	REAR	PSNGR CAR		PSNGR CAR	01 DRVR	NONE	19 M	OR-Y	000	000	00
N	6P	45 23 22.55 -122.15	017200100800	0	0	N	DAY	INJ		INJ	01 DRVR	NONE	21 F	OR-Y	000	000	00
N	45 23 22.55 -122.15	48.5						02 NONE	0	STOP	01 DRVR	INJC	21 F	OR-Y	000	000	00
								PSNGR CAR		PSNGR CAR	01 DRVR	INJC	21 F	OR-Y	000	000	00
								02 NONE	0	STOP	01 DRVR	INJC	21 F	OR-Y	000	000	00
								PSNGR CAR		PSNGR CAR	02 PSNG	INJC	18 M		000	000	00
04952	N N N N 11/22/2015	16	DUBARKO RD	CROSS	N	N	CLD ANGL-OTH	01 NONE	0	TURN-L	01 DRVR	NONE	53 F	OTH-Y	021	000	00
	SU		EAGLE CRK-SANDY HY	STOP	SLIGN	N	TURN	PRVTE		W -NE	01 DRVR	INJB	53 F	OTH-Y	021	000	00
N	4P	45 23 22.76 -122.15	017200100800	0	0	N	DAY	INJ		INJ	01 DRVR	NONE	19 F	OR-Y	000	000	00
N	45 23 22.76 -122.15	48.39						02 NONE	0	STRGHT	01 DRVR	NONE	19 F	OR-Y	000	000	00
								PSNGR CAR		PSNGR CAR	01 DRVR	NONE	19 F	OR-Y	000	000	00
								03 NONE	0	STRGHT	01 DRVR	NONE	41 M	OR-Y	000	000	00
								PSNGR CAR		PSNGR CAR	01 DRVR	NONE	41 M	OR-Y	000	000	00

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CDS380  
 05/31/2021  
 OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019  
 9 - 12 of 27 Crash records shown.

SR#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTR	CRASH	SPCL USE	MOVE	PH TYPE	SVRTY	X RES	LOC	ACT EVENT	CAUSE	
INVEST	E	A	I	C	O	DAY	DIST	FIRST STREET	(MEDIAN)	LEGS	TEAF-	RNDFT	SURF	COLL	TRLR QTY	FROM	INJ	INJ	G E LICNS	PED			
UNLOC?	D	C	S	V	L	K	LONG	SECOND STREET	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	OWNER	TO	PH TYPE	SVRTY	X RES	LOC	ACT EVENT	CAUSE	
05614	N	N	N	N	N	12/25/2015	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01 NONE	0	STRGHT						02
	N					FR		EAGLE CRK-SANDY HY	CN						PRVTE	N -S							00
	N					6P	-122.15								PSNGR CAR	01 DRVR	NONE	58 M	OR-Y	OR-25			00
	N					45-23 22.76	48.39	017200100800															00
02172	N	N	N	N	N	06/05/2015	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01 NONE	0	STRGHT						02
	NONE					FR		EAGLE CRK-SANDY HY	CN						PRVTE	W -E							00
	N					7A									PSNGR CAR	01 DRVR	NONE	24 M	OR-Y	OR-25		00	
	N					45-23 22.76	-122.15	017200100800															028
	N					48.39																	00
03589	N	N	N	N	N	08/05/2016	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01 NONE	0	STRGHT						02
	NONE					FR		EAGLE CRK-SANDY HY	CN						PRVTE	E -W							00
	N					6P	-122.15								PSNGR CAR	01 DRVR	INJC	77 M	OTH-Y	N-RES		00	
	N					45-23 22.76	48.39	017200100800															028
	N					48.39																	00
03967	N	N	N	N	N	08/30/2016	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01 NONE	0	STRGHT						02
	NONE					TU		EAGLE CRK-SANDY HY	CN						PRVTE	W -E							00
	N					12P									PSNGR CAR	01 DRVR	INJC	61 F	OTH-Y	N-RES		00	
	N					45-23 22.76	-122.15	017200100800															028
	N					48.39																	00
02427	N	N	N	N	N	05/31/2016	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01 NONE	9	STRGHT						03, 32
	NONE					TU		EAGLE CRK-SANDY HY	CN						N/A	W -E							00
	N					11A									PSNGR CAR	01 DRVR	NONE	00	UNK	UNK		00	
	N					45-23 22.76	-122.15	017200100800															00
	N					48.39																	00

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OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

13 - 17 of 27 Crash records shown.

SER#	P R J S W DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	PH TYPE	SVRTY	E X RES	LOC	ERROR	ACT EVENT	CAUSE
INVEST	E A I C O DAY	DIST	FIRST STREET	(MEDIAN)	INT-REL	DIRRECT	DRY	COLL	TRLR QTY	FROM	PH TYPE	SVRTY	E X RES	LOC	ERROR	ACT EVENT	CAUSE
UNLOC?	D C S V L K LAT	LONG	SECOND STREET	LEGS	TEAF-	DRVWY	DRY	DRVWY	OWNER	TO	PH TYPE	SVRTY	E X RES	LOC	ERROR	ACT EVENT	CAUSE
			LES	(LANES)	CONTL	LOCIN	DRY	DRVWY	02 NONE	STRGHT	01 DRVR	NONE	00	Unk	Unk	000	00
									N/A	N - S	01 DRVR	NONE	00	Unk	Unk	000	00
									PSNGR CAR		01 DRVR	NONE	00	Unk	Unk	000	00
02031	N N N N 05/06/2016	16	DUBARKO RD	CROSS	N	INTER	N	CLD	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	DRY	ANGL	N/A		N - S					00
N	4P	45 23 22.76 -122.15	017200100800	0		01	N	DAY	PSNGR CAR	PSNGR CAR	01 DRVR	NONE	00	Unk	Unk	000	00
N		48.39							02 NONE	STRGHT	01 DRVR	NONE	00	Unk	Unk	000	00
									N/A	E - W	01 DRVR	NONE	00	Unk	Unk	000	00
									PSNGR CAR								00
00805	N N N N 03/01/2017	16	DUBARKO RD	CROSS	N	INTER	N	CLD	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	DRY	ANGL	PRVTE		W - E					00
N	3P	45 23 22.76 -122.15	017200100800	0		04	N	DAY	PSNGR CAR	PSNGR CAR	01 DRVR	INJC	17	F	OR-Y	015	00
N		48.39							02 NONE	STRGHT	01 DRVR	INJC	17	F	OR-Y	000	082
									03 NONE	STOP	01 DRVR	INJC	43	M	OR-Y	000	013
									PSNGR CAR								00
									03 NONE	STOP	01 DRVR	INJC	27	F	OR-Y	022	00
									PSNGR CAR								00
00846	N N N N 03/04/2017	16	DUBARKO RD	CROSS	N	INTER	N	RAIN	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	WET	WET	ANGL	PRVTE		W - E					00
N	6P	45 23 22.76 -122.15	017200100800	0		04	N	DLIT	INJ	PSNGR CAR	01 DRVR	NONE	21	M	OR-Y	015	00
N		48.39							02 NONE	STRGHT	01 DRVR	NONE	21	M	OR-Y	000	02
									PRVTE								028
									PSNGR CAR								028
									02 NONE	STRGHT	01 DRVR	INJC	21	F	OR-Y	000	00
									PSNGR CAR								000
02225	N N N N 06/07/2017	16	DUBARKO RD	CROSS	N	INTER	N	CLR	ANGL-OTH	01 NONE	0	STRGHT					02
CITY			EAGLE CRK-SANDY HY	STOP SIGN	N	CN	DRY	DRY	ANGL	PRVTE		S - N					00
N	4P	45 23 22.76 -122.15	017200100800	0		04	N	DAY	INJ	PSNGR CAR	01 DRVR	INJB	40	M	OR-Y	000	00
N		48.39							02 NONE	STRGHT	01 DRVR	INJB	38	M	OR-Y	015	00
									PRVTE								000
									PSNGR CAR								028

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CDS380 05/31/2021 OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
 DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019  
 18 - 21 of 27 Crash records shown.

SR#	P R J S W DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPLC USE	MOVE	A S	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE		
INVEST	E A I C O DAY	DIST	FIRST STREET	(MEDIAN)	LEGS	TRAF-	RNDFT	SURF COLL	TRLR QTY	FROM	G E LICNS	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE		
UNLOC?	D C S V L K LAT	LONG	SECOND STREET	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	OR-25	PH TYPE	SVRTY	E X RES	LOC	ACT EVENT	CAUSE		
02958	N N N N 07/21/2017	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	0-1 L-TURN	0	TURN-L	01	DRVR	NONE	28	M	OR-Y	02	
	FR		EAGLE CRK-SANDY HY	CN			DRY	TURN	PRVTE	S -W							000	00	
	8P	45 23 22.76 -122.15	017200100800	0			DAY	INJ	PSNGR CAR								028	000	02
		48.39							02 NONE	0	STRGHT							000	00
									PRVTE	N -S								000	00
									PSNGR CAR									000	00
00647	N N N N 02/18/2017	16	DUBARKO RD	CROSS	N	STOP SIGN	N	RAIN	ANGL-OTH	01	NONE	01	DRVR	NONE				000	00
	SA		EAGLE CRK-SANDY HY	CN			WET	ANGL	N/A	W -E								000	00
	7P	45 23 22.76 -122.15	017200100800	0			DLIT	PDO	PSNGR CAR									000	00
		48.39							02 NONE	9	STRGHT							000	00
									N/A	N -S								000	00
									PSNGR CAR									000	00
03467	N N N N 08/23/2017	16	DUBARKO RD	CROSS	N	STOP SIGN	N	CLR	ANGL-OTH	01	NONE	01	DRVR	NONE				000	00
	WE		EAGLE CRK-SANDY HY	CN			DRY	ANGL	N/A	NE-SW								000	00
	8A	45 23 22.76 -122.15	017200100800	0			DAY	PDO	PSNGR CAR									000	00
		48.39							02 NONE	9	STRGHT							015	00
									N/A	E -W								000	00
									PSNGR CAR									000	00
03265	N N N N 09/14/2018	16	DUBARKO RD	CROSS	N	FLASHCN-R	N	CLR	ANGL-OTH	01	NONE	01	DRVR	NONE				082	02
	FR		EAGLE CRK-SANDY HY	CN			DRY	TURN	PRVTE	W -N								015	00
	9P	45 23 22.52 -122.15	017200100800	0			DAEK	INJ	PSNGR CAR									000	00
		48.53							01 NONE	0	TURN-L							015	00
									PRVTE	W -N								000	00
									PSNGR CAR									015	00
									01 NONE	0	TURN-L							015	00
									PRVTE	W -N								000	00
									PSNGR CAR									000	00
									02 NONE	0	STRGHT							000	00
									PRVTE	N -S								000	00
									PSNGR CAR									000	00

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.



OREGON... DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 URBAN NON-SYSTEM CRASH LISTING  
**DUBARKO RD at EAGLE CRK-SANDY HY, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019**

25 - 27 of 27 Crash records shown.

SR#	P	R	J	S	M	D	DATE	CLASS	CITY STREET	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	PH	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE
INVEST	E	A	I	C	O	D	DAY	DIST	FIRST STREET	(MEDIAN)	INT-REL	RNDFT	SURF	COLL	OWNER	FROM	TO	PH	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	LEGS	TRAF-	DRVWY	LIGHT	SVRTY	V#	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE	CAUSE		
UNLOC?	D	C	S	V	L	K	LAT	LONG	LES	(LANES)	CONTL	DRVWY	LIGHT	SVRTY	0	TYPE	SVRTY	E	X	RES	LOC	ACT	EVENT	CAUSE	CAUSE		
03399	N	N	N	N	N	N	10/03/2019	16	DUBARKO RD	CROSS	N	N	RAIN	ANGL-OTH	01	NONE	STRGHT	01	DRVR	NONE	37	M	OR-Y	OR+25	015	000	00
CITY							TH		EAGLE CRK-SANDY HY	STOP SIGN	N	WET	ANGL		PRVTE	N-S											
N							7P		017200100800	2	N	DLIT	INJ		PSNGR CAR	01	DRVR	INJB	48	F	OR-Y	OR+25	000	000	00		
N							45:23:22.78	-122.15																			
							48.4																				
04270	N	N	N	N	N	N	11/29/2019	16	DUBARKO RD	CROSS	N	N	CLR	ANGL-OTH	01	NONE	STRGHT	01	DRVR	NONE	19	M	OTH-Y	N-RES	015	000	00
CITY							FR		EAGLE CRK-SANDY HY	STOP SIGN	N	DRY	ANGL		PRVTE	N-S											
N							5P		017200100800	0	N	DLIT	INJ		PSNGR CAR	01	DRVR	NONE	49	F	OR-Y	OR+25	000	000	00		
N							45:23:22.55	-122.15																			
							48.51																				

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submission of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.





## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Highway 26 at Langensand Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 2

PM Peak Hour Volume 2362 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 48 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: Yes

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
<b>Condition A - Minimum Vehicular Volume</b>			
Major Street Volume	1335	420	
Minor Street Volume	27	105	<b>No</b>
<b>Condition B - Interruption of Continuous Traffic</b>			
Major Street Volume	1335	630	
Minor Street Volume	27	53	<b>No</b>
<b>Combination Warrant<sup>c</sup></b>			
Major Street Volume	1335	504	
Minor Street Volume	27	84	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Highway 211 at Dubarko Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 1

PM Peak Hour Volume 918 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 80 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: Yes

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
<b>Condition A - Minimum Vehicular Volume</b>			
Major Street Volume	519	350	
Minor Street Volume	45	105	<b>No</b>
<b>Condition B - Interruption of Continuous Traffic</b>			
Major Street Volume	519	525	
Minor Street Volume	45	53	<b>No</b>
<b>Combination Warrant<sup>c</sup></b>			
Major Street Volume	519	420	
Minor Street Volume	45	84	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Preliminary Traffic Signal Warrant Analysis



Project Name: Deer Meadows Development

Intersection: Dubarko Road at Langensand Road

Scenario: 2023 Background Plus Site Trips

Number of Major Street Lanes: 1

PM Peak Hour Volume 158 (sum of both approaches)

Number of Minor Street Lanes 1

PM Peak Hour Volume 44 (highest-volume approach)<sup>a</sup>

Posted or 85th percentile speed > 40 mph: No

Isolated Population Less than 10,000: No

### Warrant 1, Eight-Hour Vehicular Volume

#### Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

#### Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

#### Warrant Analysis Calculations

	8th Highest Hour <sup>b</sup>	Minimum Volume	Warrant Satisfied?
<b>Condition A - Minimum Vehicular Volume</b>			
Major Street Volume	89	500	
Minor Street Volume	25	150	<b>No</b>
<b>Condition B - Interruption of Continuous Traffic</b>			
Major Street Volume	89	750	
Minor Street Volume	25	75	<b>No</b>
<b>Combination Warrant<sup>c</sup></b>			
Major Street Volume	89	600	
Minor Street Volume	25	120	<b>No</b>

<sup>a</sup> Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

<sup>b</sup> Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

<sup>c</sup> This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

## Left-Turn Lane Warrant Analysis (ODOT Methodology)

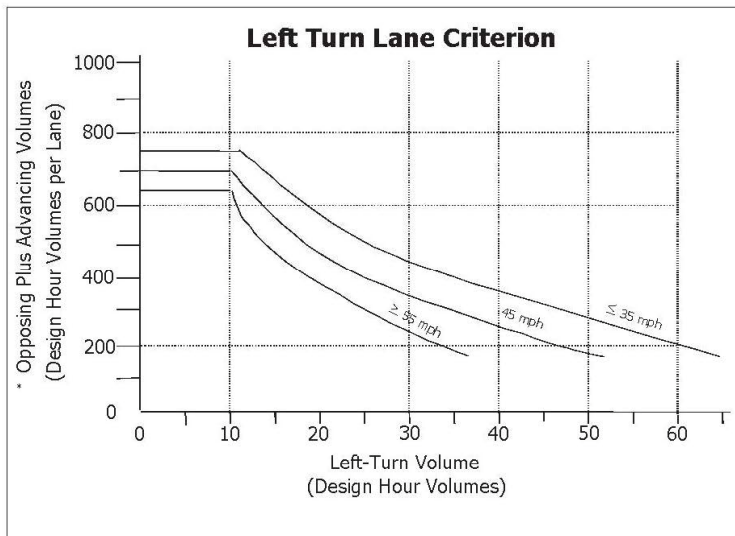


Project Name: Deer Meadows Development  
 Approach: Highway 211 NB at Dubarko Road  
 Scenario: 2021 Existing Conditions

Number of Advancing Lanes: 1  
 Number of Opposing Lanes: 1  
 Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	309	445
Opposing Volume for Design Hour:	184	382
Design Hour Volume Per Lane:	493	827
Number of Left Turns per Hour:	26	69
Left-turn lane warrants satisfied?	<b>YES</b>	<b>YES</b>

**Exhibit 7-1 Left Turn Lane Criterion (TTI)**



\* (Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

## Right-Turn Lane Warrant Analysis (ODOT Methodology)



Project Name: Deer Meadows Development  
 Approach: Highway 211 Northbound at Dubarko Road  
 Scenario: 2021 Existing Conditions

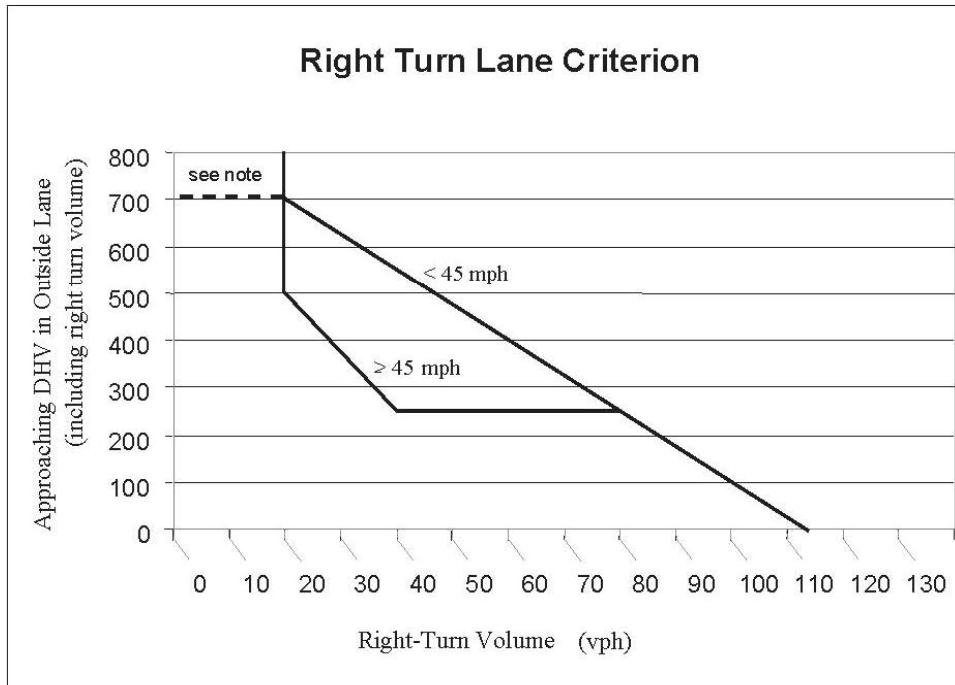
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	11	62
Approaching DVH in Outside Lane:	309	445
Calculated Turn Volume Threshold:	35	24
Right Turn Volume Exceeds Threshold?	<b>NO</b>	<b>YES</b>

### Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

### **Exhibit 7-2 Right Turn Lane Criterion**



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

## Left-Turn Lane Warrant Analysis (ODOT Methodology)

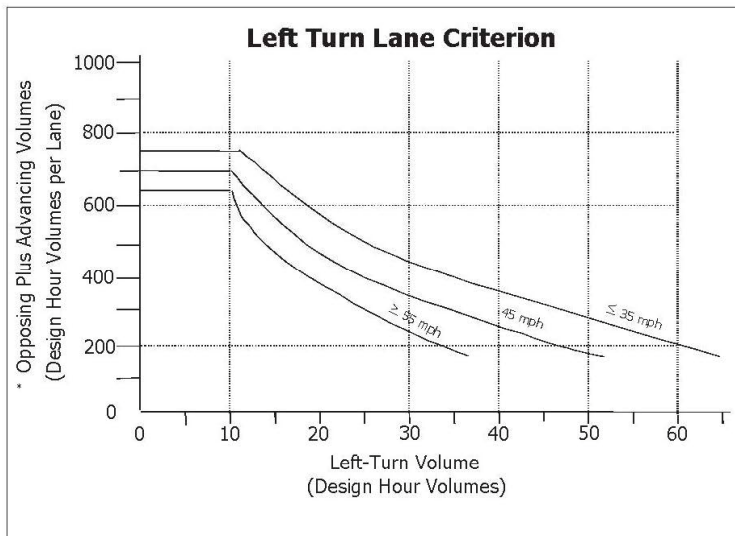


Project Name: Deer Meadows Development  
 Approach: Dubarko Road eastbound at Langensand Road  
 Scenario: 2023 Background plus Site Trips

Number of Advancing Lanes: 1  
 Number of Opposing Lanes: 1  
 Major-Street Design Speed: 25 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	33	46
Opposing Volume for Design Hour:	85	57
Design Hour Volume Per Lane:	118	103
Number of Left Turns per Hour:	23	21
Left-turn lane warrants satisfied?	<b>NO</b>	<b>NO</b>

**Exhibit 7-1 Left Turn Lane Criterion (TTI)**



\* (Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

## Right-Turn Lane Warrant Analysis (ODOT Methodology)



Project Name: Deer Meadows Development  
 Approach: Dubarko Road Westbound at Langensand Road  
 Scenario: 2023 Background Plus Site Trips

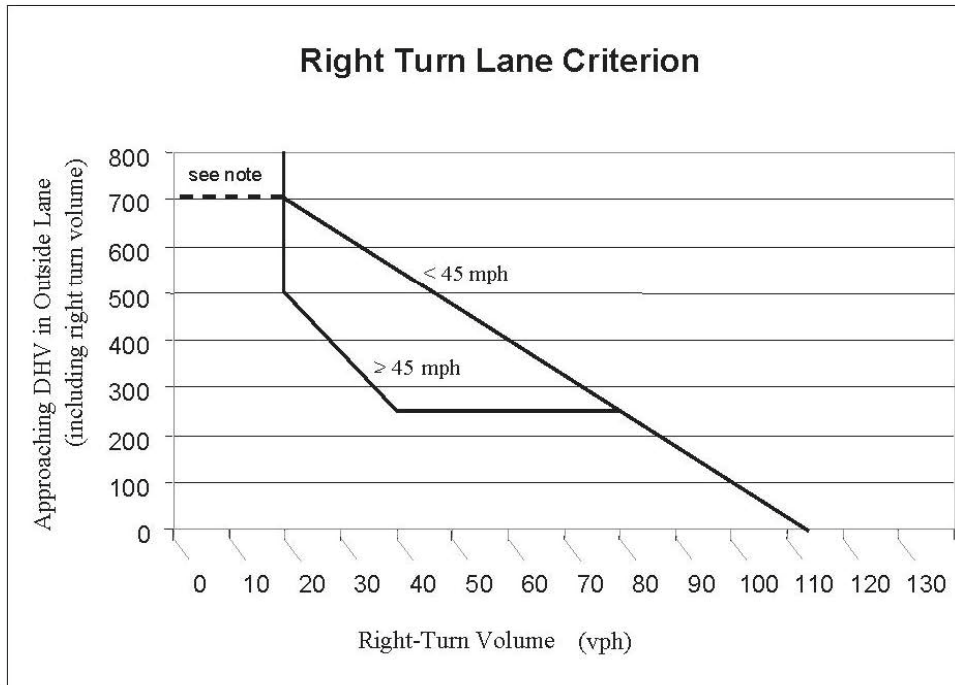
Major-Street Design Speed: 25 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	54	33
Approaching DVH in Outside Lane:	85	57
Calculated Turn Volume Threshold:	102	105
Right Turn Volume Exceeds Threshold?	<b>NO</b>	<b>NO</b>

### Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

### Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

## EXHIBITS DD

9/18/2021

**Re: Proposed New Development**  
**Meeting Date: 9/27/2021 – Public Comment**  
**File No: 21-014 SUB/TREE Deer Meadows Subdivision (TYPE III)**  
**Physical Address: 40808 and 41010 Highway 26**  
**Tax Map/Lots: T2 R5E Section 18 CD, Tax Lots 900 and 1000**



Sir(s):

I would like to ask the planning commission to consider the following proposals.

After reviewing the latest notice that was issued and mailed to property owners within 300 feet of the site on August 10th, 2021; I/We would like to voice our opinions about the following two items we don't feel have been addressed fully in this latest proposal.

1.) Access in and out of the new proposed development is very limited. After reviewing the latest map it is clear that the only access into the new development will be by driving into or out of either Fawn Street or Dubarko. This is a huge concern of our quiet neighborhood. Our neighborhood takes pride in the fact that it is quiet and pedestrian safe and friendly. Because of that we have two suggestions as follows:

- Proposal No. 1: is that commission provides access into and off of Highway 26 into this new neighborhood somewhere between Langensand and Shorty's Corner. With 32+ new homes going into the proposed area we feel traffic volume will become a much bigger problem. With the average residence having a minimum of two vehicles, that would increase daily traffic by 64 vehicles traveling twice a day through our quiet neighborhood streets.
- Proposal No. 2: We would like to suggest that the commission would consider constructing traffic circles into this new area on both the intersections of Fawn and Meadow and Dubarko and Meadow. Without excessive speed deterrent's a straight shot into the new proposed neighborhood we foresee a huge pedestrian safety problem. Speed bumps "DO NOT" slow anyone down enough. The pick-up trucks using Meadow Avenue, Fawn Street, and Dubarko lately have developed excessive speed issues. Traffic circles will and would be a great solution to that problem.
- Proposal No. 3: We would like to see the developer remove the Douglas Fir trees behind the homes on Meadow Avenue between Fawn and Dubarko. Those trees create a potential HUGE fire and safety hazard. With the increase risk of fires growing annually and the development of these new homes those Douglas Firs most definitely are more and more of a huge fire risk. If a fire were to enter into our area in the future like we almost experienced in 2020, our whole neighborhood would have to flee just because of those trees. Please remove them - We do not want those trees to remain.

Both my wife and I have discussed these items with our neighbors numerous times. We love our neighborhood and would like to continue to find it safe and livable for our grandchildren, neighbors children and ourselves, and as free as possible from any future fire risk and traffic issues.

Respectfully,

A handwritten signature in blue ink that reads "Vincent &amp; Lynn K. Mandina".

Vincent & Lynn K. Mandina  
18351 Meadow Avenue  
Sandy, OR 97055



## EXHIBIT EE



21370 SW Langer Farms Pkwy  
Suite 142, Sherwood, OR 97140

### Technical Memorandum

**To:** Dave Vandehey, Roll Tide Properties Corporation  
**From:** Michael Ard, PE  
**Date:** September 27, 2021  
**Re:** Deer Meadows Subdivision – Response to Agency Comments

During review of the proposed Deer Meadows Subdivision project, several questions and concerns have been raised regarding traffic and transportation impacts and facilities within and near the proposed development. This memorandum is written to provide responses to the transportation-related comments raised by the city's on-call Transportation Engineering consultant John Replinger, the Oregon Department of Transportation, City of Sandy staff, and the general public.

#### **COMMENTS BY JOHN REPLINGER, P.E.**

John Replinger raised several concerns in his review letter dated August 30, 2021. Each concern is quoted along with a response below.

*“Key deficiencies include a failure to provide for the extension of Dubarko Road to connect with US 26 as specified in the TSP and a failure to account for development of or access to the commercially zone[d] land (approximately 3 acres) that comprises a portion of ‘Lot 32’ in the proposed development” (pages 1-2).*

As detailed by the applicant's attorney, the City's Transportation System Plan has not been properly incorporated into the city's code requirements. Since the proposed development consists of permitted uses within the underlying zones and does not propose any plan amendments or zone changes which would require a long-range planning analysis, the obligation of the applicant is to address the near-term impacts of the actual development proposed. There is no legal obligation or authority to require consideration of transportation facilities or future development that is not proposed as part of this application. Future development within the C-3 zone will require a separate transportation impact analysis; however, that analysis cannot be required as part of a separate project that does not propose development within the C-3 zone, and any analysis of development within the C-3 zone would be purely speculative since the mix of future uses is not currently known.

As detailed in the updated traffic study dated September 27, 2021, operation and safety of the intersection of Highway 211 at Dubarko Road will be improved following completion of the proposed development and the associated mitigation (all-way stop control). All other study intersections and roadways meet the respective operational and safety requirements of ODOT and the City of Sandy.



*“The engineer’s use of pre-COVID-19 counts is understandable, but new analysis needed to address the full impact of the development should be based on new traffic counts” (page 2).*

An updated traffic impact study has been prepared using count data collected in June and September of 2021. These updated counts are all within one year and therefore fully address the cited deficiency.

Having conducted the analysis based on pre-COVID counts while applying a growth factor to determine the appropriate design traffic volumes **and** based on current year counts while applying a COVID adjustment factor to determine the appropriate design traffic volumes, the results are substantially similar. No changes to the recommendations of the prior report were necessary based on the newer count data.

*“By failing to [show] any development of the commercially zoned land, the applicant has not shown the impact of the proposed removal of a key element of the TSP – namely Dubarko Road, which is shown connecting with US 26 at Vista Loop Drive (West)” (page 3).*

This comment reiterates the concern raised in the first comment. The response is similar. The applicant has no responsibility to provide the city with long-range transportation impact analysis or construction of physical facilities for the city’s long-range planning goals when the city has not properly incorporated the Transportation System Plan into the city’s code requirements. Because this is not a plan amendment or an amendment to a land use regulation, the Transportation Planning Rule as set forth in OAR 660-012-0060(1) does not require the applicant to analyze potential transportation impacts beyond those associated with the actual land use currently proposed in the Deer Meadows Subdivision application.

*“On a city-wide scale, the trip distribution seems reasonable. However, the proposed elimination of Dubarko Road results in localized impacts in the immediate vicinity that will result in different travel patterns than anticipated in the TSP” (page 3).*

The traffic impact studies provided for the proposed development contemplated the distribution of site trips based on the actual street connections proposed. Accordingly, the near-term impacts of the development were properly considered. Again, the applicant has no responsibility to assess or address potential inadequacies of the city’s long range transportation plan in conjunction with an allowed use on this property.

*“Since the TIS did not examine the impact of development of the commercially zoned portion of the site, it is not clear that LOS D would be achieved with full development of the subject property. It appears that only a little more development in Sandy would push the Dubarko Road Highway 211 intersection to LOS E and cause the need for mitigation” (page 4).*



Per the updated traffic impact study, the intersection of Highway 211 at Dubarko Road is projected to operate at level of service E, which does not meet the city’s operational standards. However, conversion of the intersection to all-way stop control is sufficient to reduce average delays for the critical movement as compared to background conditions. As such, the proposed mitigation is sufficient to address the impacts of the development and additional mitigation cannot lawfully be required since the request would be disproportionate to actual impacts.

It is anticipated that future development within the commercially zoned property will require a separate transportation analysis and it is very likely that additional operational mitigation will be required at that time to ensure that operation of this intersection is not degraded by future development. Determination of the appropriate type and scale of mitigation for this future project should be based on the actual characteristics of the future development. This determination lawfully must be made in conjunction with the future land use application for that property.

*“The site plan makes no provision for access to the commercially zoned land (a portion of ‘Lot 32’). The site plan does not show a new subdivision street abutting the commercially zoned portion of ‘Lot 32.’ The applicant appears to be assuming that the commercially zone portion of ‘Lot 32’ would have direct driveway access to US 26, though this appears to conflict with ODOT access control policies. Alternatively, the applicant may be assuming some type of cross-easements or shared driveway connections involving the residentially zoned portion of ‘Lot 32’ would be acceptable. Neither option appears viable.*

*The engineer failed to explain how the site would be developed to serve all uses in the absence of the Dubarko Road extension identified in the TSP. I think this is a serious deficiency. I recommend delaying any approvals until issues of access are fully developed and justified” (page 5).*

No access is proposed to Highway 26 as part of the subdivision application. The proposed street network includes “Street B” extending south from Dubarko Road. This street abuts the undeveloped property within Lot 32 and can provide access to future development on the east side of Street B. Future development within Lot 32 will be subject to Design Review, at which time it will be appropriate to assess how circulation works within this lot. However, there is no clear and objective code standard which requires assessment of access to the C-3 portion of the site as part of this subdivision application.



***ADDITIONAL INFORMATION***

Although not raised explicitly in Mr. Replinger’s review of the traffic study, one other deficiency was addressed in the updated traffic impact analysis. The city’s development code requires that local streets carry no more than 1,000 average daily trips. Several local streets will be impacted by the proposed development, and no explicit assessment of daily traffic volumes was included in the traffic study dated June 6, 2021. This omission has been corrected in the updated traffic study dated September 27, 2021. Based on the analysis, no local streets will experience average daily traffic volumes in excess of the 1,000 ADT limit upon completion of the proposed development.

***ODOT COMMENTS***

The Oregon Department of Transportation has provided comments into the record in the form of a response memo dated September 1, 2021.

The ODOT comments requested that the Dubarko Road extension be completed and that frontage improvements be constructed along Highway 26. It was also noted that “...additional highway access could be dangerous and difficult to approve, particularly for any commercially zoned property such as the parcel on the east side of the proposed development.

Similar to the response to Mr. Replinger’s review, the applicant cannot be required to complete improvements contemplated in the city’s Transportation System Plan since the TSP has not been properly incorporated into the city’s development code. Additionally, since the proposed subdivision does not include a plan amendment or an amendment to a land use regulation, the Transportation Planning Rule as set forth in OAR 660-012-0060(1) does not require the applicant to analyze potential transportation impacts beyond those associated with the actual land use currently proposed in the Deer Meadows Subdivision application.



File # 21-014 SUB/TREE

# Deer Meadows Subdivision

Planning Commission  
September 27, 2021

# Vicinity Map





# Request

- Type II Subdivision
- Based on Section 17.12.20 the Director elevated this application to a Planning Commission hearing because of expected public interest.



# Notices

- Transmittal sent to agencies asking for comment on August 2.
- Notification was mailed to affected property owners within 300 feet of the subject property on August 10.
- A supplemental notice regarding the Planning Commission meeting was mailed to affected property owners within 300 feet of the subject property on August 24.
- A legal notice was published in the Sandy Post on September 15.





# Public comments

- At publication of the staff report five (5) written public comments were received. The main concerns:
  - Dubarko Road is not proposed to intersect with Highway 26.
  - More housing will increase congestion and exacerbate parking issues.
  - Deer Pointe Park is not proposed to be expanded.
  - Multifamily housing should not be approved.

# Agency comments

- Fire Marshal (dated August 10, 2021)
- ODOT (dated September 1, 2021)
- Parks and Trails Advisory Board (dated September 1, 2021)
- City Transportation Engineer (dated August 30, 2021)
- City Transit Director (dated August 30, 2021)
- City Public Works Director (dated September 2, 2021)



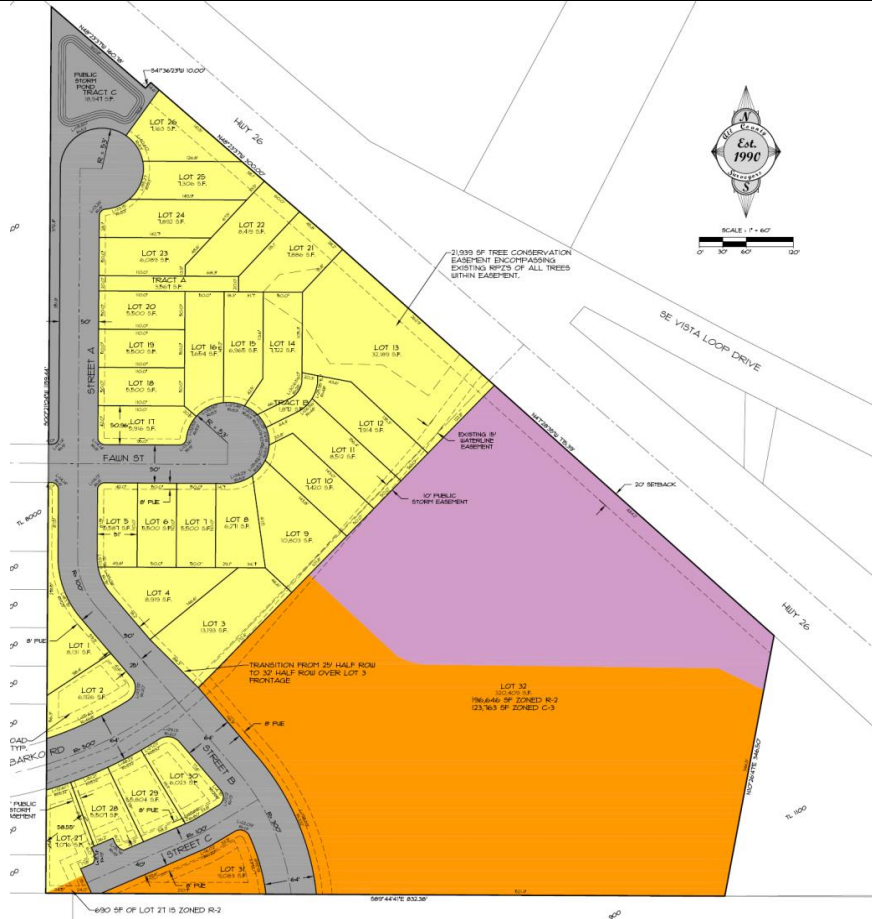
# Proposal

- 32-lot subdivision
- 30 lots of Low Density Residential (R-1) that will contain single family homes or duplexes
- one small lot (9,023 square feet) of Medium Density Residential (R-2)
- one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3)

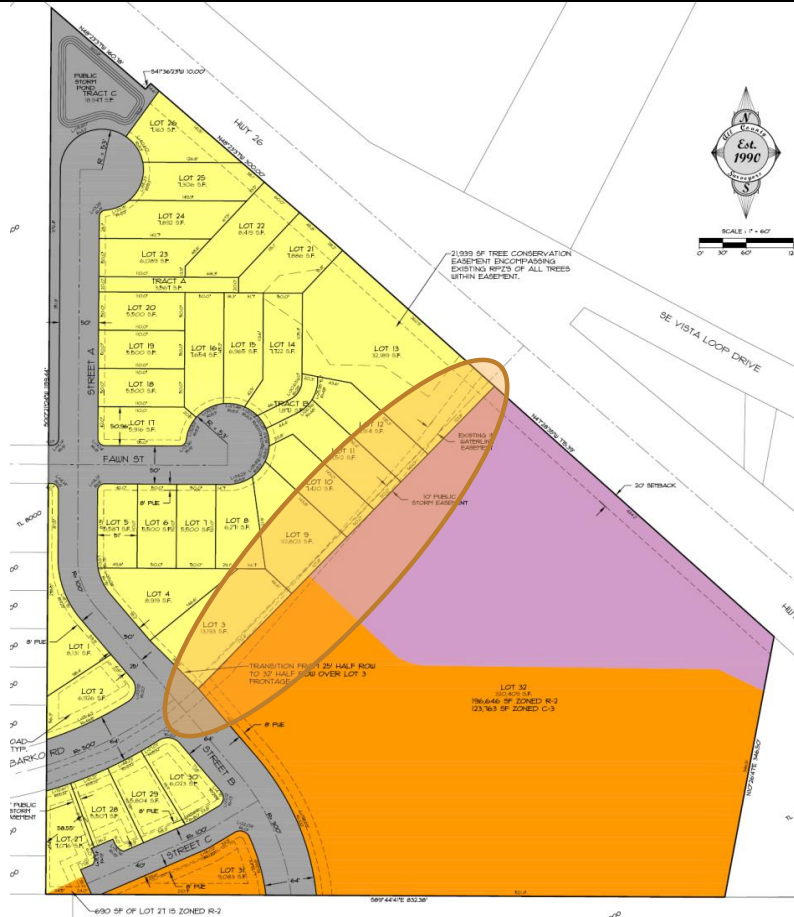
# Proposal

- The 30 lots of R-1 land range in size from 5,500 square feet to 32,189 square feet.
- The exact number of multifamily units will be determined with a subsequent design review application, but the applicant claims the number of multifamily dwelling units on the R-2 zoned land will be between 38 dwelling units and 66 dwelling units.
- The C-3 zoned land will likely contain a mix of commercial and residential development.

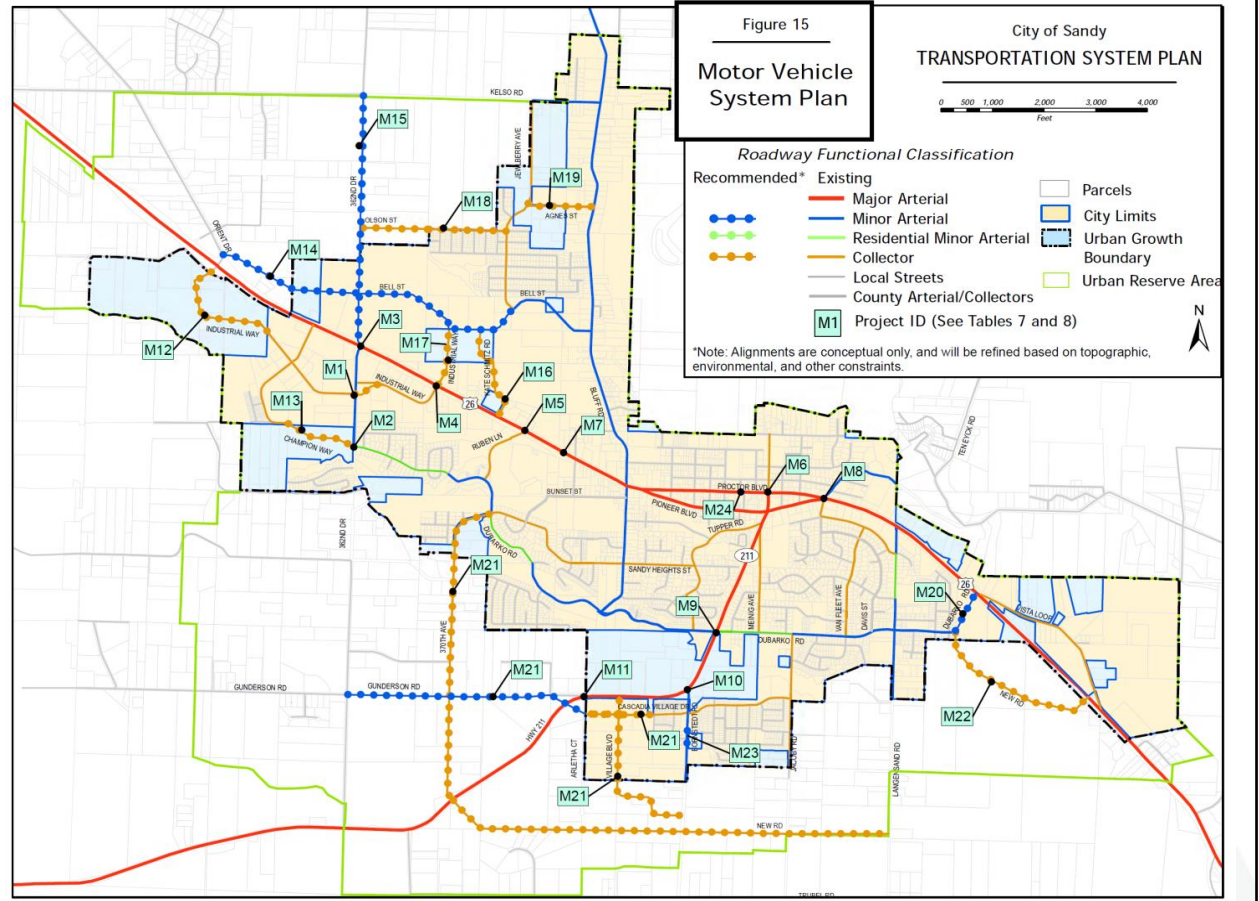
# Plat Map



# No Dubarko Road



# TSP Plan (M20)





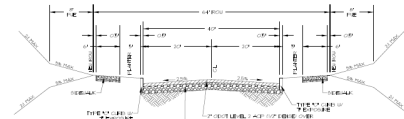
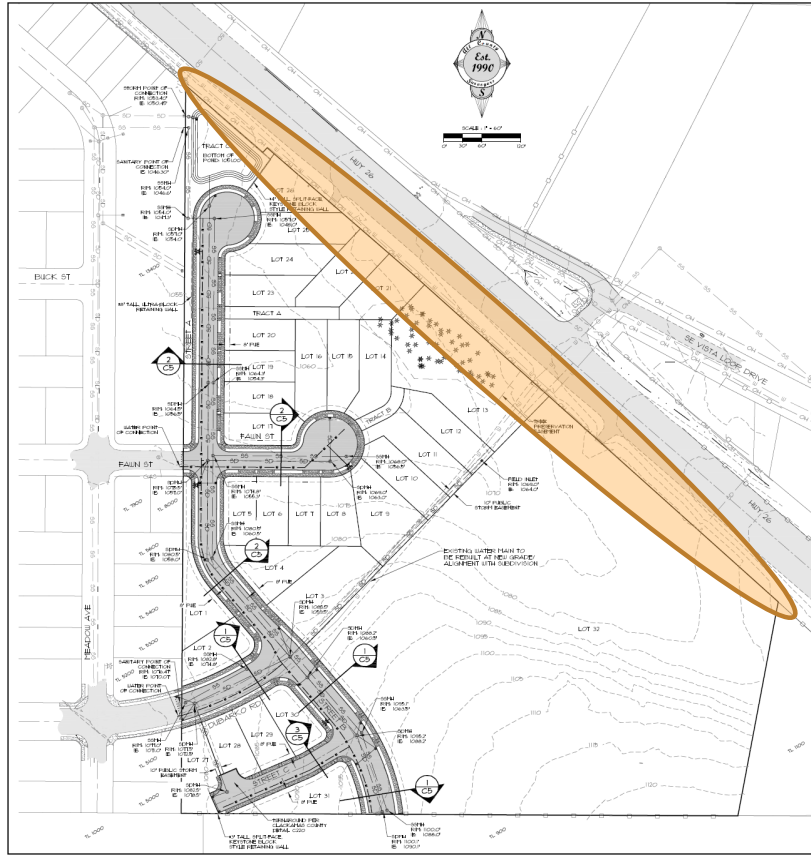




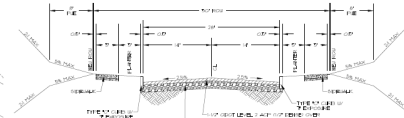




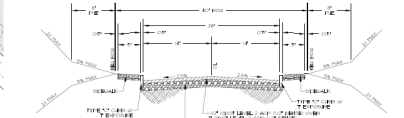
Lack of  
Utility  
Extensions



SECTION 1 (64' ROW - FULL STREET IMPROVEMENTS)  
MINIMUM STREET WIDTH: 64' (10' FROM CURB TO CURB)



SECTION 2 (50' ROW - FULL STREET IMPROVEMENTS)  
MINIMUM STREET WIDTH: 50' (10' FROM CURB TO CURB)



SECTION 3 (40' ROW - FULL STREET IMPROVEMENTS)  
MINIMUM STREET WIDTH: 40' (10' FROM CURB TO CURB)

**NOTES**  
 1) BOTH OF THE PROPOSED UTILITY SACS HAVE BEEN MARKED ON THE SITE PLAN TO BE COVERED BY DRIVEWAY DRIPS.

		SHEET <b>C5</b>
DEER MEADOWS SUBDIVISION MASTER STREET AND UTILITY PLAN ADDRESS: 4420 HWY 26, MANDY, OR 97055		DATE 08/20/2024
SCALE 1" = 40'	DATE 08/20/2024	OF 8
PROJECT NO. 24-00000000	DRAWN BY DAWSON	CHECKED BY DAWSON
DATE 08/20/2024	SCALE 1" = 40'	SHEET NO. C5
PROJECT TITLE DEER MEADOWS SUBDIVISION MASTER STREET AND UTILITY PLAN		
PROJECT ADDRESS 4420 HWY 26, MANDY, OR 97055		
PROJECT NO. 24-00000000		
DRAWN BY DAWSON		
CHECKED BY DAWSON		
DATE 08/20/2024		

# Subdivision approval criteria

- Based on findings 17 – 23 (pages 5 – 8) in the staff report the subdivision proposal is not meeting 6 of the 7 approval criteria.

# Legal arguments from the applicant

- Based on the applicant's submission materials and letters from their attorney they are arguing that large portions of the Sandy Development Code are not clear and objective and do not properly incorporate the Transportation System Plan.
- The applicant's attorney also wants rough proportionality and nexus tests completed for the parkland and Dubarko Road.



# Staff responses to the applicant's arguments

- Staff does not agree with the applicant on the majority of their clear and objective arguments, and believes the TSP is properly incorporated into the subdivision criteria.
- Rough proportionality and nexus tests will need to be completed by the City Attorney and City Engineer, neither of which can be addressed on Sep. 27.

# Staff responses to the applicant's arguments

- Take the applicant's arguments with a grain of salt! The applicant's attorney is hired to try and limit construction costs and argue on behalf of the developer.
- The applicant admitted that Dubarko Road is needed per the TSP and development code in their previous subdivision proposal for this same site.
- Applicant completed a records request of staff emails in search of a smoking gun.



# Recommendation

Staff recommends that the Planning Commission deny the Deer Meadows Subdivision based on the findings of fact in the staff report and the reasons as listed on page 28 of the staff report.



# Deer Meadows Subdivision

Planning Commission Hearing  
September 27, 2021

# Application History

- The previous property owner submitted Vista Loop South Subdivision (81 lots, zone change). Approved October 2006.
- This approval expired in 2008 and was reinstated by the Council in 2013. Due to public improvement construction costs, the preliminary plat expired for a second time in 2015.
- The current owner purchased the property in 2018 and the Bull Run Terrace Subdivision application was submitted to the City at the end of 2019 (7 lots and zone change).
- This application was reviewed in 2020. Both staff and the Planning Commission recommended approval.
- The City Council reviewed the application and initially approved it. At the second reading the Council changed their vote and the application was denied.



## Staff Recommendations (page 28)

1. **Proposal does not meet Subdivision Criteria 17.100.60 (E1 - E6)** - *As explained on pages 6 - 9 of the applicant's attorney's 9/24/21 letter, the majority of these criteria are not clear and objective and cannot be applied. To address Criteria E.4, the applicant has provided additional evidence from our traffic consultant related to ADT on local streets.*
2. **No evidence that the proposal complies with cul-de-sac (50%) requirement.** *An exhibit prepared by All County demonstrates how the proposal complies with this standard. This standard is satisfied.*
3. **Plan does not contain pedestrian connections beyond cul-de-sacs (17.84.30).** *As explained on page 10 of the attorney's letter, this section is not clear and objective and cannot be applied.*
4. **The distance between Dubarko Road and Street C is less than 150 feet (Section 17.84.50(E)(2) and 17.84.50(J)(3)).** *The requirements of these sections are not applicable to the proposed development. Street C is a public access lane, not a local street.*



## Staff Recommendations continued

5. **Minimum 100' tangent Dubarko and Street B not met (17.84.50(J)5(a)).** *The requirements in this section are not clear and objective. If this standard is found to apply, the plan can be modified to comply.*
6. **Dubarko Road not extended to Highway 26 (Development Code and TSP).** *As explained in the attorney's letter, the City cannot require the extension of Dubarko Road because such a requirement has not been incorporated into the City's land use regulations.*
7. **Frontage improvements along Highway 26 not included (Development Code).** *The City cannot require these improvements.*
8. **Plan does not clearly identify if 8" waterline will be replaced and 18" line installed (Water Master Plan).** *As explained in the attorney's letter, although this requirement could be resolved with a Condition of Approval, the applicant reserves the right to challenge the constitutionality of this condition.*

## Staff Recommendations continued

9. **Plans do not show 12” waterline along Highway 26 extended east (Development Code).** *The applicant is unclear what specific code section requires this improvement and whether this standard is clear and objective. If it found to be applicable, this requirement could be a condition but cannot be a basis for denying the application.*
10. **Ten foot public storm easement shown on Lots 9-13, 27, 28 should be 15 feet (17.84.90(A)(2)).** *The applicant is fine with a condition of approval to address this requirement.*
11. **Plan does not include parkland dedication (Chapter 17.86, 1997 Parks Master Plan).** *As explained in the attorney’s letter, the City cannot legally require parkland dedication.*

## Conclusion

- The submitted application is a Needed Housing application.
- The proposal complies with all applicable clear and objective standards.
- As explained in the attorney's letter, City Code does not require dedication of parkland or Dubarko Road to be extended.
- A few of Staff's recommendations should have been Conditions of Approval, not grounds for denying the application.
- The Deer Meadows Subdivision application should be approved.

Questions?



**EXHIBIT HH**

Kelly O'Neill <koneill@ci.sandy.or.us>

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**FW: Deer Meadows Application in Sandy, Oregon**

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**Robinson, Michael C.** <MRobinson@schwabe.com> Wed, Oct 6, 2021 at 12:31 PM  
To: "Kelly O'Neill Jr." <koneill@ci.sandy.or.us>, Dave Vandehey <dave.vandehey@rolltideproperties.com>, Tracy Brown <tbrownplan@gmail.com>  
Cc: David Doughman <David@gov-law.com>

Hi, Kelly. Please place this email in the record before the planning Commission's part of the Applicant's first open record period submittal.

Michael C. Robinson  
Shareholder  
Direct: 503-796-3756  
Mobile: 503-407-2578  
[mrobinson@schwabe.com](mailto:mrobinson@schwabe.com)

Schwabe Williamson & Wyatt

-----Original Message-----

From: Robinson, Michael C. <[MRobinson@schwabe.com](mailto:MRobinson@schwabe.com)>  
Sent: Wednesday, September 1, 2021 6:29 AM  
To: Jon Makler <[Jon.Makler@odot.state.or.us](mailto:Jon.Makler@odot.state.or.us)>; Abraham Tayar <[Abraham.Tayar@odot.state.or.us](mailto:Abraham.Tayar@odot.state.or.us)>  
Cc: Dave Vandehey <[Dave.Vandehey@accessmax.com](mailto:Dave.Vandehey@accessmax.com)>  
Subject: Deer Meadows Application in Sandy, Oregon

Good morning, Jon and Avi.

My client Dave and I had a call with Kelly O'Neil last week to talk about the Deer Meadows application. Kelly said that you intended you to ask the DOJ to get involved in this application. It would seem appropriate that you'd want to talk with the applicant about ODOT's issues before submitting a comment on the application.

Can we schedule a call for next week after Labor Day?

Thanks. Mike

Sent from my iPhone

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NOTICE: This email may contain material that is confidential, privileged and/or attorney work product for the sole use of the intended recipient. Any review, reliance or distribution by others or forwarding without express permission is strictly prohibited. If you are not the intended recipient, please contact the sender and delete all copies.



October 6, 2021

**Michael C. Robinson**

Admitted in Oregon

T: 503-796-3756

C: 503-407-2578

mrobinson@schwabe.com

**PRIVILEGED AND CONFIDENTIAL**

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr., Director  
City of Sandy Development Services Department  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE; Applicant's Extension of the 120-Day Period in ORS 277.178(1)

Dear Mr. O'Neill:

This office represents the Applicant. The Applicant has authorized me to extend the 120-day period in ORS 227.178(1) as allowed by ORS 227.178(5).

The Applicant submitted the application on March 31, 2021. The City deemed the application incomplete. The Development Services Director asked the Applicant to delay making the application complete because he was taking an extended vacation and did not want the 120-day period to begin during this period. The Applicant agreed to do so as a courtesy and agreed to start the 120-day period on July 27, 2021 (**Exhibit 1**) and end the 120-day period on November 24, 2021.

Prior to the conclusion of the initial evidentiary hearing on September 27, 2021, the Applicant requested that the Sandy Planning Commission close the public hearing but leave the written record open on the following schedule:

1. Until Monday October 11, 2021 at 4 p.m. for anyone to submit argument and evidence as those terms are defined in ORS 197.763(9);
2. Until Monday, October 18, 2021 at 4 p.m. for anyone to rebut argument and evidence submitted during the first open record period with argument and evidence; and
3. Until Monday, October 25, 2021 at 4 p.m. for the applicant only to submit final written argument without new evidence.

The Planning Commission adopted the above schedule and closed the public hearing.

The Planning Commission scheduled a special meeting on November 8, 2021 to deliberate to a tentative decision on the application.

Mr. Kelly O'Neill, Jr., Director  
October 6, 2021  
Page 2

The Applicant extended the 120-day period by 42 days, the period of its open record period, and 14 days, the period from the end of the open record period and the special meeting date, for a total of 42 days. The Applicant extends the 120-day period from November 24, 2021 to January 5, 2022.

Please place this letter in the official Development Services Department file for this application and before the Planning Commission prior to its meeting on November 8, 2021.

Very truly yours,



Michael C. Robinson

MCR:jmhi  
Enclosure

cc: Mr. Dave Vandehey (*via email*) (*w/enclosure*)  
Mr. Carey Sheldon (*via email*) (*w/enclosure*)  
Mr. Alex Reverman (*via email*) (*w/enclosure*)  
Mr. Ray Moore (*via email*) (*w/enclosure*)  
Mr. Tyler Henderson (*via email*) (*w/enclosure*)  
Mr. Tracy Brown (*via email*) (*w/enclosure*)  
Mr. Garrett H. Stephenson (*via email*) (*w/enclosure*)  
Ms. Erin Forbes (*via email*) (*w/enclosure*)  
Mr. David Doughman (*via email*) (*w/enclosure*)

PDX\126769\255102\MCR\31870489.1

June 11, 2021

**VIA E-MAIL**

Mr. Kelly O'Neill, Jr., Director  
City of Sandy Development Services Department  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

RE: City of Sandy File No. 21-014 SUB/TREE

Dear Mr. O'Neill:

This office represents the Applicant for the above-referenced Application. This letter confirms the discussion that you and I had on June 1, 2021 regarding your request that the Applicant consider an initial extension of the 120-day period as authorized by ORS 227.178(5).

The Applicant will submit its completeness response on or about June 14, 2021. Rather than have the 120-day period start on the date of submittal when all missing materials are provided in accordance with state law, the Applicant will extend the 120-day period from the submittal date through July 27, 2021. The 120-day period will start on July 27, 2021 and the 120-day period will end on November 24, 2021. The Applicant is not required to further extend the 120-day period.

The extension is conditioned upon your scheduling the initial evidentiary hearing before the Sandy Planning Commission on September 27, 2021. The final decision must be issued by November 24, 2021 based on this extension.

The Applicant hereby extends the 120-day period from the submittal date through July 27, 2021. Please place this letter in the official Development Services Department file for this Application.

Very truly yours,



Michael C. Robinson

MCR:jmhi

cc: Mr. Dave Vandehey (via email)  
Mr. Carey Sheldon (via email)  
Mr. Alex Reverman (via email)  
Mr. Tracy Brown (via email)

Exhibit 1, Page 1 of 2

Mr. Kelly O'Neill, Jr., Director  
June 10, 2021  
Page 2

Mr. Ray Moore (*via email*)  
Mr. Mike Ard (*via email*)  
Ms. Shelley Denison (*via email*)  
Mr. David Doughman (*via email*)

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Exhibit 1, Page 2 of 2

[schwabe.com](http://schwabe.com)

**EXHIBIT JJ**

**REPLINGER & ASSOCIATES LLC**  
TRANSPORTATION ENGINEERING

October 6, 2021

Mr. Kelly O'Neill  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055

**SUBJECT: REVIEW OF TRANSPORTATION IMPACT STUDY – DEER MEADOWS  
SUBDIVISION**

Dear Kelly:

In response to your request, I have reviewed materials submitted in support of the Deer Meadows Subdivision on Dubarko Road in the east part of Sandy. The Transportation Impact Study (TIS), dated September 27, 2021, was prepared under the direction of Michael Ard, PE of Ard Engineering. A future street plan and preliminary plat, dated 7/26/2018, were also provided.

The site, with approximately 16 acres, is on the southwest side of US 26 and is bisected by Dubarko Road, a planned minor arterial road specified in the Sandy Transportation System Plan (TSP). TIS describes a proposal to subdivide the property; extend Dubarko Road from its present east terminus into the site; and create lots for low density dwellings and some apartments. A portion of the development is zoned for commercial uses but is not proposed to be developed at this time.

A significant feature of the development plan is that the applicant ignores the TSP and does not propose extending Dubarko Road, currently a stub street, to connect with US 26 opposite SE Vista Loop (West) as specified in the TSP. Instead, the TIS proposes "a new north/south collector roadway" as the eastern terminus of Dubarko Road.

It is also important to note that the analysis includes no development of the commercially zoned land, which is approximately 3 acres. The TIS indicates a need for further analysis when development of that commercial land is proposed.

**Overall**

TIS addresses most of the city's requirements and provides information useful in assessing many impacts of the proposed development. A key issue with the development proposal is a failure to provide for the extension of Dubarko Road to

Mr. Kelly O'Neill  
October 6, 2021  
Page 2

connect with US 26 as specified in the TSP. Another conflict with the TSP is a proposal to construct a new north-south collector beginning at the proposed easterly terminus of Dubarko Road within the proposed subdivision.

### Comments

**1. Study Area.** The study includes analyses of:

- US 26 at SE Ten Eyck Road;
- US 26 at SE Langensand Road;
- Highway 211 at Dubarko Road; and
- Dubarko Road at SE Langensand Road.

Since the applicant assumes that Dubarko Road will not connect to US 26, the TIS does not include an analysis of this intersection.

**2. Traffic Counts.** The AM and PM peak hour traffic counts were conducted on September 21, 2021 or on June 9, 2021, depending on location. The engineer adjusted the traffic counts to account for seasonal variations. The engineer used a combination approach to account for seasonal variation of recreational traffic and separately for commuter traffic on US 26. Volumes on Highway 211 were adjusted to develop 30<sup>th</sup> highest hour traffic volume. The methodology appears consistent with the procedures defined by the Oregon Department of Transportation (ODOT).

The engineer's also made adjustment to account for lower traffic volumes caused by COVID-19 impact. He increased US 26 volumes by 5.0 percent and others by 5.6 percent to account for the pandemic. The new counts and adjustments appear reasonable.

**3. Trip Generation.** The TIS uses trip generation for single-family dwellings and multi-family dwellings (land use code 210 and 220, respectively) from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. The engineer calculates that 32 single-family homes plus 120 apartments would produce 79 total AM peak hour trips; 99 total PM peak hour trips; and 1180 total daily trips. The calculation of trips generated by the residential development appears reasonable.

This calculation does not include potential trips associated with the future development of the commercially zoned land within the development area. The TIS states that "the nature of this future use has not yet been determined. Accordingly,

Mr. Kelly O'Neill  
October 6, 2021  
Page 3

a future traffic study will be required as part of the design review application for the future commercial site use.”

By failing to account for any development of the commercially zoned land, the applicant has not shown the impact of the proposed removal of a key element of the TSP – namely Dubarko Road, which is shown connecting with US 26 at Vista Loop Drive (West).

- 4. Trip Distribution.** The TIS provided information about trip distribution from the site. The engineer assumed 65 percent of the traffic would travel to and from the northwest on US 26; 20 percent would travel to and from the southeast on US 26; and 15 percent would travel to and from the west on Dubarko Road. On a city-wide scale, the trip distribution seems reasonable. However, the long-range impact from the proposed elimination of Dubarko Road will likely result in different travel patterns and different traffic volumes at key intersections than anticipated in the TSP.
- 5. Traffic Growth.** The TIS uses a 1.96 percent annual increase for Highway 26 based on projected volumes at the west boundary of Sandy. For other facilities it uses a 2.0 percent annual growth rate to account for background traffic growth. The following in-process developments were included in the background traffic: the Clackamas County Health Clinic, Mt. Hood Senior Living, The Pad, The Views, Shaylee Meadows, Mt. View Ridge, Marshall Ridge, Jacoby Heights, Trimble PD, and Bornstedt Views. These assumptions account for future traffic and appear reasonable.
- 6. Analysis.** Traffic volumes were calculated for the intersections cited in #1, above. Intersection level-of-service (LOS) and the volume-to-capacity (v/c) ratio were provided. The intersection of US 26 with SE Ten Eyck Road is signalized; the other intersections are stop-controlled. The analyses were conducted for existing 2021 conditions, 2023 background conditions, and 2023 with the development.

The engineer calculates that the signalized intersection of US 26 with Ten Eyck meets the v/c standards specified by ODOT under all scenarios. At the intersection of US 26 with Langensand Road, the v/c for both the mainline and minor street approaches are calculated to meet ODOT's v/c standard. However, long delays (the basis for LOS) are calculated to occur on the minor street approach under existing and future conditions.

Mr. Kelly O'Neill  
October 6, 2021  
Page 4

The intersection of Dubarko Road and Langensand Road is predicted to operate acceptably under all scenarios. The intersection will operate at LOS "B" or better, meeting city operational standards.

The engineer makes the following statement about the intersection of Highway 211 with Dubarko Road:

*The intersection of Oregon Highway 211 at Dubarko Road was previously under the jurisdiction of the Oregon Department of Transportation and subject to a volume-to-capacity ratio standard rather than level of service. The intersection would have met ODOT's volume-to-capacity based standards for operation, but with conversion to a city intersection it is subject to the city's level-of-service standards. This intersection is projected to operate at level of service "F" under year 2023 background conditions during the evening peak hour.*

*Upon completion of the proposed development, the intersection is projected to continue to operate at level of service F during the evening peak hour, with average delays for the highest-delay movement increasing from 51.0 seconds to 56.3 seconds if no mitigation is provided. However, if the intersection is converted to all-way stop control (as recommended in the Traffic Signal and All-Way Stop Control Analysis section of this report on page 20), the intersection is projected to operate at level of service E, with average delays for the highest-delay movement reduced to 36.3 seconds. Since intersection operation is better than under background conditions, this proposed mitigation is sufficient to fully offset the transportation impacts of the Deer Meadows Subdivision site trips. As such, any requirement for additional mitigation would be disproportionate to the impact of the proposed development.*

I think further explanation and comment about the engineer's statement is in order. The predicted LOS "F" at the intersection relates to the delay encountered by the motorists on the westbound minor street (Dubarko Road) approach during the PM peak hour with the existing traffic control (two-way stop control on the Dubarko Road approaches). Under current traffic control, the northbound and southbound approaches (Highway 211) encounter minimal delay and experience LOS A conditions.

As mitigation for the long delays and poor LOS for the Dubarko Road approaches, the engineer proposes conversion to all-way stop control. Under this traffic control



scenario, all traffic is required to stop at the intersection. Because northbound and southbound traffic volumes are higher, they will be the ones experiencing longer delays if all-way stop control is implemented. Because delays will be encountered on all approaches and the total delay will increase, it is somewhat misleading to describe the intersection as operating "better than under background conditions." Under all-way stop control, the total delay encountered by motorists using the intersection will increase substantially. The delays encountered by motorists on the poorest performing approach with all-way stop control will be lower than the delays encountered by the motorists on the poorest performing approach with the current two-way stop control. The poorest performing approach changes between scenarios.

The proposed conversion to all-way stop control does offer some advantages, including the potential for improving safety. I leave it to others to assess the engineer's contention that "any requirement for additional mitigation would be disproportionate to the impact of the proposed development."

The engineer concluded that "All other intersections are projected to operate acceptably per the appropriate jurisdictional standards."

**7. Analysis of Local Street Impacts.** The TIS also assessed traffic volumes on local streets to assure compliance with Section 17.10.30 of the Sandy Development Code. The proposed street network includes an extension of Fawn Street, which provides connections to Meadow Avenue, Antler Avenue, and Therese Street. The TIS provided estimates of current traffic volumes on these streets with the highest (600 vehicles per day) on Therese Street just east of Langensand Road. He calculates that no more than 210 daily trips would be added to these local streets by the dwellings in the proposed development. He concludes that all impacted local streets will continue to operate with volumes below 1,000 vehicles per day. I concur with his calculations and conclusion.

**8. Crash Information.** The TIA provides information on crashes for the most recent available five-year period covering 2015 through 2019.

At the intersection of US 26 and SE Ten Eyck Road, there were eight reported and a relatively low crash rate. At the intersection of US 26 and Langensand Road, there were seven reported crashes and a low crash rate. At the intersection of Dubarko Road and Langensand Road, there was one reported crash.

Mr. Kelly O'Neill  
October 6, 2021  
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The intersection of Highway 211 and Dubarko Road has been a safety concern for years and has undergone safety improvements. During the five-year period, 27 crashes were reported. The crash rate is substantially above the 90<sup>th</sup> percentile crash rate for similar intersections. Crashes remain a problem following implementation of safety improvements that included realigning the Dubarko Road approaches and added striping on Highway 211. The engineer notes that the crash history indicates warrants are met for all-way stop control. He recommends consideration of the installation of all-way stop control to address safety issues. I concur.

**9. Site Plan and Access.** The site plan provides for the extension of Dubarko Road, but only to a "new north/south collector roadway." Until such time as other development occurs to the south, Dubarko Road will serve as the principal access to the development. The only other access proposed at this time is Fawn Street, which would connect to Meadow Avenue just west of the subdivision.

Neither the TIS nor the site plan describes how the new north/south collector would be integrated with the rest of the street system or would impact the TSP.

**10. Sight Distance.** The engineer did not analyze sight distance at the proposed intersections within the development. Given the terrain, sight distance is unlikely to be a problem and can be dealt with during design of the streets.

**11. Traffic Signal Warrants.** The engineer conducted a preliminary traffic signal warrant analysis at several locations based on ODOT procedures. He concluded that traffic signal warrants were not met at any location.

He concluded that all-way stop-control was warranted at the intersection of Highway 211 and Dubarko Road based on the intersection crash history.

**12. Left-Turn Lane Warrants.** The TIS indicates that left-turn lanes are provided on eastbound US 26 at Langensand Road.

According to the engineer, the intersection of Highway 211 at Dubarko Road currently meets warrants for a northbound left-turn lane and a northbound right-turn lane. However, he states that the need for these turn lanes is not materially related to the proposed development. He further states that turn lane may not be needed if all-way stop control is installed at the intersection as recommended based on his safety analysis.

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According to the TIS, turn lanes are not warranted at the intersection of Dubarko Road and Langensand Road.

**13. Conclusions and Recommendations.** The engineer concludes that with conversion to all-way stop control, the intersection of Highway 211 at Dubarko Road would operate better under year 2023 traffic conditions with construction of the proposed development than without the development and the all-way stop control conversion. Further, he opines that installation of all-way stop control is sufficient to offset the impacts of the proposed development and any additional mitigation would be disproportionate to the actual impact of the proposed development.

He concludes that all other study intersections are projected to operate acceptably through year 2023 either with or without the addition of site trips from the proposed development.

While most study area intersections are operating relatively safely, the intersection of Highway 211 and Dubarko Road suffers from a high number of crashes and a high crash rate. It is substantially higher than the 90<sup>th</sup> percentile crash rate for comparable intersections. Recent safety improvements do not appear to have altered this trend. The proposed development is among those that are expected to increase the traffic using the intersection of Highway 211 and Dubarko Road. The engineer recommends consideration be given to converting the intersection of Highway 211 and Dubarko Road to all-way stop control for safety reasons based on the historical data. He recommends no other mitigation to address safety issues.

### **Conclusion and Recommendations**

As noted repeatedly above, the applicant is proposing to eliminate the planned connection of Dubarko Road with US 26 at Vista Loop Drive (West). Instead, he proposes to terminate Dubarko Road at a "new north/south collector roadway" near his property's west boundary. The TIS provides no justification for this change to the planned street system. There is no analysis showing the impacts on other portions of the street system caused by his proposed elimination of the minor arterial connection represented by Dubarko Road.

The proposal to eliminate a portion of Dubarko Road as a minor arterial street and to develop the new north/south collector roadway may or may not be actions requiring amendment of the TSP.

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October 6, 2021  
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The intersection of Highway 211 and Dubarko Road is a known problem both because of a high crash rate and a poor LOS, especially for the westbound Dubarko Road approach. The engineer's proposed mitigation (conversion to all-way stop control) has some benefits or potential benefits, but there are also disadvantages particularly with regard to the overall delay at the intersection. The engineer contends that the proposed conversion to all-way stop control is sufficient to offset the impact from the proposed development. Further, he opines that additional mitigation would be disproportionate to the impacts of the development. I leave it to others to assess those opinions.

My highest concern relates to the applicant's proposal to eliminate the Dubarko Road connection to US 26 as specified in the TSP. My second concern is with the operation of Highway 211 and Dubarko Road. I think the proposal to convert it to all-way stop control has some potential benefits. I am not, however, convinced that the developer has no responsibility to participate in additional mitigation to improve the operational performance of the intersection given the additional trips his development will add to the intersection.

If you have any questions or need any further information concerning this review, please contact me at [replinger-associates@comcast.net](mailto:replinger-associates@comcast.net).

Sincerely,



John Replinger, PE  
Principal

DeerMeadows2TIS100621



**EXHIBIT KK**

Kelly O'Neill <koneill@ci.sandy.or.us>

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**HB 2001 question**

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**EDGING Sean \* DLCD** <Sean.EDGING@dlcd.oregon.gov> Thu, Oct 7, 2021 at 11:02 AM  
To: "Kelly O'Neill Jr." <koneill@ci.sandy.or.us>, STUCKMAYER Ethan \* DLCD <Ethan.STUCKMAYER@dlcd.oregon.gov>  
Cc: Emily Meharg <emeharg@ci.sandy.or.us>, Shelley Denison <sdenison@ci.sandy.or.us>

Hey Kelly,

Of course! We grappled with this question as part of rulemaking. Because Oregon Fire Code is provided by the state, a local government would not be violating the requirement to allow a duplex "on each lot or parcel" if a subdivision did not meet this standard. There's a difference as to whether a duplex is "allowed" and whether it is "permitted".

For example, if someone created a 29-lot subdivision and indicated they would only build SFDs to avoid providing a fire apparatus turnaround, if an applicant came in later to apply for a building permit for a duplex, the city retains the ability to withhold issuing permit until a fire apparatus is provided. They would not be in violation of HB 2001 by doing so.

This same concept can be applied to other types of infrastructure planning as well, such as sizing of pipes and roadways. This creates an incentive for the subdivider to accurately convey the type of housing that will be built at the subdivision stage.

Best,



**Sean Edging**

Housing Policy Analyst | Community Services Division

Pronouns: He / Him / His

Cell: 971-375-5362 | Main: 503-373-0050

[sean.edging@dlcd.oregon.gov](mailto:sean.edging@dlcd.oregon.gov) | [www.oregon.gov/LCD](http://www.oregon.gov/LCD)

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**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Thursday, October 7, 2021 7:55 AM  
**To:** STUCKMAYER Ethan \* DLCD <Ethan.STUCKMAYER@dlcd.oregon.gov>; EDGING Sean \* DLCD <Sean.EDGING@dlcd.oregon.gov>  
**Cc:** Emily Meharg <emeharg@ci.sandy.or.us>; Shelley Denison <sdenison@ci.sandy.or.us>  
**Subject:** HB 2001 question

Sean and Ethan,

I hope all is well. I have an HB2001 related question. How do the HB2001 rules anticipate compliance with Appendix D of the Oregon Fire Code? That appendix contains access requirements and design guidelines for fire apparatus turnarounds. Section D107 states that any roads (i.e. subdivision or combination thereof) with access to 30 or more dwellings shall install a second fire emergency access. If we approve a 29 lot subdivision we have to assume the potential for 58 dwellings. How do you see HB2001 and the Oregon Fire Code working together?

I believe that any subdivision with more than 14 lots will trigger a second access road now or at the very least the requirement for every dwelling to include sprinklers. Do you agree?

<https://codes.iccsafe.org/content/OFC2019P1/appendix-d-fire-apparatus-access-roads>

Thanks for your help. -Kelly

This e-mail is a public record of the City of Sandy and is subject to the State of Oregon Retention Schedule and may be subject to public disclosure under the Oregon Public Records Law. This e-mail, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please send a reply e-mail to let the sender know of the error and destroy all copies of the original message.

Memorandum

VIA E-MAIL

**To:** Jerry Crosby, Chair, and Sandy Planning Commission Members  
**From:** Michael C. Robinson  
**Date:** October 11, 2021  
**Subject:** City of Sandy File No. 21-014 SUB/TREE; Part of Applicant's First Open Record Period Submittal  
**File No.:**

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Dear Chair Crosby and Sandy Planning Commission members,

Attached are two pages from the Staff Report for the December 7, 2020 Sandy City Council public hearing for the Bull Run application, the prior application concerning this property. These pages are submitted to support the Applicant's argument that the Dubarko Road frontage improvements cannot be based on any City plan, incorporated or otherwise, and that a connection to U.S. Highway 26 requires a Grant of Access.

**Exhibit 1** is Finding 75 from Staff Report page 22 which explained that the U.S. Highway 26 improvements requested by ODOT are not based on the City's Transportation System Plan (the "TSP"). Without the TSP as a basis for the proposed exaction and because applicable law prevents the improvements as an exaction, the City is without authority to require the improvements for this Application, especially because the Application's vehicle trips will not access U.S. Highway 26.

**Exhibit 2** is Finding 86 from Staff Report page 24 which explained that the Dubarko Road connection requires a Grant of Access, the argument made by the Applicant in this Application.

MCR:jmhi  
Attachments


PDX\126769\255102\MCR\31953452.1

**easement will impact the tree retention area. If the tree retention area is negatively impacted the applicant shall preserve additional trees.** Street B (defined as 'New Road in the TSP) is classified as a collector street and does not need to adhere to the standards in Section 17.84.50(B).

73. The alignment of Street B and Dubarko Road does not provide the minimum 100 feet of tangent alignment (as measured from the curb line on Dubarko extended) on Street B as required by Section 17.84.50(H)(5)(a) of the Sandy Municipal Code (SMC). **The alignment of the intersection of Street B and Dubarko Road shall be revised to provide the minimum 100 feet of tangent section to comply with the Development Code or as otherwise approved by the City Engineer.**
74. The widening of Dubarko Road to accommodate the section recommended in the TSP is eligible for Transportation System Development Charge credits. The difference in cost between the required minor arterial improvements and a standard local street section is eligible for credits. **Estimated costs shall be submitted to City staff and reviewed and approved by the City Engineer. The City and the Applicant shall enter into an agreement defining the eligible improvements and estimated costs prior to plat approval. SDC credits shall be based on final audited costs.**
75. Dubarko Road will contain a dedicate left turn and right turn/through lane, a median with street trees, and a dedicated left turn lane to Street B. Highway 26 improvements will include among other things a dedicated right turn lane to Dubarko Road, sidewalks, street trees, and restriping. **The applicant shall adhere to all standards and requirements that are defined by ODOT, including the Dubarko Road connection to Highway 26 and all required improvements along Highway 26 including stormwater facilities constructed as necessary to be consistent with local, ODOT, and ADA standards.** As stated by the Public Works Director any ODOT required improvements on and adjacent to the Highway 26 frontage of the site are not included in the City's TSP or capital plans and as such are not eligible for SDC credits or reimbursement.
76. The proposed development does not include any long straight street segments or cul-de-sac streets and is thus not required to follow the standards in Section 17.84.50(C).
77. Section 17.84.50(D) requires that development sites shall be provided with access from a public street improved to City standards. All single-family homes will gain direct access from a public street improved to city standards with the exception of Lot 4 which will be accessed across an easement on Lot 3. All new streets are proposed as full street improvements with the exception of improvements along Highway 26. No off-site improvements have been identified or are warranted with the construction of this subdivision. All streets are proposed as full streets; with no three-quarter streets being proposed.
78. Section 17.84.50(E) requires that public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property. The proposed street layout results in one temporary dead-end street (Street B) that will be stubbed to the southern property line of the subject property. To accommodate fire apparatus turnaround the



Collector road terminating at the southern extents of the subject property to allow the road to extend south from the westernmost leg of the SE Vista Loop Drive intersection; and curb, sidewalks, cross walk ramp, bikeways and road widening along Highway 26 constructed as necessary to be consistent with local, ODOT, and ADA standards.

 86. The intersection of Dubarko Road and Highway 26 requires a grant of access from ODOT. Prior to final plat approval the applicant shall obtain a grant of access or other necessary approval from ODOT for access to Highway 26 at Dubarko Road.

87. The City Transportation Engineer (Exhibit M) stated that conditions of approval should be included requiring the development comply with the standards and procedures specified by ODOT. He went on to say that ODOT requirements and standards associated with frontage improvements where the development abuts Highway 26 shall be made conditions of approval with the development.

**17.86 – Parkland and Open Space**

88. The applicant intends to dedicate parkland as outlined in the requirements of Section 17.86.

89. 17.86.10(2) contains the calculation requirements for parkland dedication. The formula is acres = proposed units x (persons/unit) x 0.0043. For the four single family homes, acres = 4 x 3 x 0.0043 = 0.05 acres. For the maximum development of 147 multifamily units, acres = 147 x 2 x 0.0043 = 1.26 acres. Combined, this totals 1.31 acres. The applicant proposes to dedicate 1.426 acres of parkland and is thus in compliance with this requirement.

90. If the applicant proposes multifamily dwellings as part of the development of Lot 7 which is proposed to be zoned C-3 the applicant is eligible for parks fee in-lieu credit up to 0.11 acres (the rounded difference between the required amount of parkland dedication and the proposed amount of parkland dedication). **The applicant can propose up to 13 multifamily units (13 x 2 x 0.0043 = 0.11 acres) prior to incurring parks fee in-lieu charges. Anything beyond 13 multifamily units on Lot 7 will incur parks fee in-lieu fees per the calculations as defined in the Sandy Development Code. However, if the applicant does not propose any multifamily units on Lot 7 the applicant will not be owed a monetary credit.**

91. Section 17.86.20 has a requirement that all homes must front on the parkland. The applicant is not proposing any houses to the south or east of the parkland, but instead are proposing future commercial development. The applicant's narrative states, "in order to address the spirit of the requirement of this requirement in this section, the applicant proposes constructing a widened sidewalk along the eastern park frontage adjacent to Lot 7". Staff supports the shift of commercial lands from the east side of Dubarko Road to the west side of Dubarko Road if the parkland is accommodated with adequate landscape buffering, pedestrian amenities, and commercial development (albeit mixed use or traditional commercial) having active storefronts or patios facing the parkland. The purpose of having homes front the parkland is to provide eyes on the park and increase safety for park users. Having active storefronts or patios facing the park will provide the same safety measures as homes facing the park. **Staff recommends that the design review approval for Lot 7 shall**

## EXHIBIT MM



Home Builders Association  
of Metropolitan Portland

October 11, 2021

Chair Crosby  
Sandy Planning Commission  
39250 Pioneer Blvd  
Sandy, OR 97055

**Subject:** Deer Meadows Subdivision, Case File No. 21-014 SUB/TREE

Dear Chair Crosby, Vice-chair Carlton, and Commissioners:

The Home Builders Association of Metropolitan Portland (“HBA”) represents over 850 companies and tens of thousands of women and men who work in the residential building and remodeling industries throughout the greater Portland area. We work to promote housing affordability and are dedicated to maximizing housing choice for all who reside in the region.

The State of Oregon generally – and the Portland Metropolitan region in particular – is suffering from an historic deficit of available housing. The Portland Metro region faces a nearly 60,000 unit current deficit, with an additional 225,000 units needed by 2040<sup>1</sup>. One of the most important measures that the legislature has taken in recent years to help combat this deficit is to strengthen Oregon’s longstanding “Needed Housing Statutes.”

Specifically, the legislature required in 2017 that local governments adopt and apply only “clear and objective standards, conditions and procedures regulating the development of housing.” ORS 197.307(4). The statutes further provide that such regulations “may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.” Moreover, the standards must be clear and objective on the face of the ordinance. ORS 227.173 (2).

HBA is concerned that the City of Sandy (“City”) Municipal Code and Development Code (“Codes”) contain standards, conditions and procedures that regulate the development of housing, which are not clear and objective. Development Code certainty is a large factor in the ability to acquire, finance, develop and construct housing. The degree with which the development community can rely on predictable code standards can determine whether a housing proposal moves beyond a concept and through each subsequent phase of development review. To increase the reliability of its code, with the view toward housing, HBA urges the City to adopt and apply only clear and objective standards regulating the development of housing.

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<sup>1</sup> *Implementing a Regional Housing Needs Analysis Methodology in Oregon: Approach, Results, and Initial Recommendations*. August 2020. Prepared for Oregon Housing and Community Services. Technical Report.

HBA understands that many local governments have had to wrestle with unclear, subjective, and/or discretionary codes written before the amended Needed Housing Statutes. HBA understands that the City is currently grappling with this very issue as it regards the Deer Meadows subdivision, and appreciates that it may require the City to not apply certain land use standards that it may have applied in the past, or is used to applying.

However, HBA encourages the City to abide by the letter and spirit of the Needed Housing Statutes by imposing only clear and objective development code standards, including land use regulations, to this and other applications subject to City approval. At the same time, HBA encourages the City to adopt revised clear and objective standards that regulate the development of housing, to address development issues currently regulated by subjective standards.

The City's attention to clear and objective development standards for housing can help ensure that development proceeds toward construction without unnecessary delays, while meeting specified conditions of approval. In June, pursuant to HB2001, Sandy refined its zoning code, applying clear and objective siting and design standards to allow both attached and detached duplexes on all lots and parcels that allow for the development of single detached dwellings. By adopting and applying clear and objective land use and other standards regulating the development of all housing, the City can support more efficient housing production, in order to accommodate the current and future needs of Sandy residents.

Respectfully,



Roseann Johnson

Assistant Director of Government Affairs

Cc: Steven Hook, Commissioner  
Jan Lee, Commissioner  
Ron Lesowski, Commissioner  
Hollis MacLean-Wenzel  
Chris Mayton, Commissioner  
City Recorder



October 11, 2021

**EXHIBIT NN**

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

VIA E-MAIL TO [PLANNING@CI.SANDY.OR.US](mailto:PLANNING@CI.SANDY.OR.US);  
SUBMITTED ON MONDAY, OCTOBER 11, 2021 BEFORE 4:00 P.M.

Mr. Jerry Crosby, Chair  
Sandy Planning Commission  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE; Applicant's First Open Record Period Submittal

Dear Chair Crosby and Planning Commission Members:

This office represents Roll Tide Properties Corp., the Applicant. This seven-page letter and its eight exhibits are part of the Applicant's first open record period submittal timely submitted on Monday, October 11, 2021 before 4:00 p.m.

**1. Introduction and Schedule.**

**A. Status of Application Review.**

The Planning Commission opened the initial evidentiary hearing on September 27, 201. No one objected to the Planning Commission's jurisdiction to hear the Application nor to the *ex parte* disclosures. Following the Staff Report, public and Applicant testimony and Applicant rebuttal, the Applicant asked the Planning Commission to close the public hearing and leave the written record open on the schedule contained in the Applicant's October 6, 2021 letter. The Planning Commission granted the Applicant's request and the Applicant extended the 120-day period in ORS 227.178(1) for a final decision on the Application by the City until January 5, 2022.

The next events in the review of the Application are:

- The second open record period ends on October 18, 2021 at 4:00 p.m. for argument and evidence as those words are defined in ORS 197.763(9)(a) and (b);
- The Applicant's final written argument without new evidence is due on October 25, 2021 at 4:00 p.m.; and

Mr. Jerry Crosby, Chair  
October 11, 2021  
Page 2

- Planning Commission deliberation to a tentative decision without new evidence or public testimony on November 8, 2021 at 6:30 p.m.

**B. Response to Second City Transportation Engineer Memorandum.**

The Applicant's argument and evidence responding to the City Consulting Transportation Engineer Memorandum submitted October 7, 2021 will be part of the second open record period submittal.

**C. Applicable Approval Criteria are Those in Effect on March 31, 2021.**

The applicable appeal criteria in the Sandy Development Code ("SDC"), subject to statutory requirements, are those in effect on March 31, 2021, the date the Applicant submitted the Application because it made the Application complete within 180 days of the submittal date. The SDC amendments and Parks Master Plan adopted by the Sandy City Council after March 31, 2021 are not applicable approval criteria for the Application. ORS 227.178(3) ("Goal Post Rule" providing that applicable approval criteria are those in effect on Application submittal date).

**D. Characterization of Application.**

The Application is both a "Limited Land Use" application as defined in ORS 197.015(12) because it is a tentative residential subdivision within the City's Urban Growth Boundary (the "UGB") and a "Needed Housing" application as defined in ORS 197.303(1)(a). The City's procedures and any conditions of approval are subject to ORS 197.307(4) and (7). None of the exceptions in ORS 197.303(5) and (6) and 197.307(5) and (7) apply. A zoning map, comprehensive plan map amendment or variance is not included in the Application. As a Limited Land Use application, the Application is subject only to properly incorporated and applicable Comprehensive Plan (the "Plan"), including Transportation System Plan (the "TSP"), provisions. As a Needed Housing application, the Application is subject to only clear *and* objective standards that do not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.

**3. Introductory Arguments.**

The Applicant respects the City and its residents, the staff, the Planning Department and the City Council. The differences between the Application and the Staff Report are the result of differing views of applicable approval criteria related to state law. Nothing in the Applicant's evidence and argument is directed to any person or decision maker but state law requires the Applicant to present its argument and evidence and raise its issues (the "raise it or waive it" requirement in ORS 197.763).

The Applicant will reserve most of its responses to the written and oral staff reports for its final written argument, as allowed by ORS 197.763(6)(e); *Buffalo Bend Associates, LLC v. Clackamas County*, \_\_\_\_ Or LUBA \_\_\_\_ (LUBA No. 2019-090/091, January 31, 2020). However, there

Mr. Jerry Crosby, Chair  
October 11, 2021  
Page 3

are a few issues from those Staff Reports, especially the oral Staff Report, and two Planning Commissioner comments, that are addressed here.

- Neither the Applicant nor its lawyers nor their motivation have anything to do with the Planning Commission's task in this quasi-judicial proceeding, which is deciding if the Applicant has met its legal burden of proof to show that the applicable approval criteria, as consistent with relevant statutes, are met by substantial evidence. This is not a contest of wills between individuals. The Applicant will make its case with due respect for all of the participants.
- Why are three Schwabe lawyers involved? The Applicant values the insight of others than just Mr. Robinson and the City has the services of two very competent lawyers. The Director's comment about the number of lawyers is irrelevant to the approval criteria.
- Why did the Applicant make a public records request? The request was not, as suggested by the Director, because the Applicant does not believe in its case but because the Applicant wants to understand the Director's direction, if any, to agencies and departments that might have influenced their comments.
- How is the Bailey Meadows Subdivision relevant to the Application? It is not relevant to whether the approval criteria are met but it is worth noting the difference between the two applications. In Bailey Meadows, the City and the Applicant worked together to find solutions to many of the issues – providing a second street to the subdivision by expanding the City's Urban Growth Boundary (the "UGB"), providing land for a needed public park and giving the City jurisdiction over part of Oregon Highway 211. In contrast, the City has not desired to find solutions for this Application acceptable to both parties and as the public record disclosures show, has desired to deny the Application without addressing the state law issues that are at the center of the issues in this Application. In fact, the Applicant emailed the Oregon Department of Transportation ("ODOT") after an August 25, 2021 telephone call with Mr. O'Neill, Jr. and Mr. Orem to talk about the Dubarko Road extension but ODOT never responded.
- Why did the Applicant submit its letters so close to the public hearing? The Applicant did so because it took that long to respond to the long Staff Report issued seven days before the public hearing and because the Planning Commission would have time during the open record period to review the letters.
- Are the Needed Housing and incorporation issues new to the City? No. ORS 197.195(1) became effective in 1991 and directs the City to comply within two years of September 29, 1991, over thirty years ago. The Oregon Court of Appeals decided *Paterson v. City of Bend* in 2005 and the Oregon Land Use Board of Appeals ("LUBA") decided *Oster v. City of Silverton* in 2019 and Bailey

Meadows raised the issue the same year. The Needed Housing statutes became effective in 1981 and Statewide Planning Goal 10, "Housing," has included Needed Housing for many years. The Applicant is not at fault for raising issues that have long been state law requirements for the City to satisfy. The City must comply with state law and the Applicant appropriately raised the issue.

- Is the parkland dedication requirement clear and objective? As Planning Commissioner Don Carlton observed in the hearing, the dedication standards in SDC 17.86.10 can be construed as clear and objective but the *choice* between dedication and fee in lieu in SDC 17.86.40 does *not* involve clear and objective standards or procedures, which means the decision to require parkland dedication is subject to a subjective procedure and unknown considerations that are neither clear nor objective as required by ORS 197.307(4).
- Why did the Applicant agree to provide a parkland dedication and the extension of Dubarko Road in the prior application but not in this Application? The Applicant did so then because that Application was a different application subject to different standards. The prior application does not control the Application and different Applications do not require the same results.

#### **4. Applicant's Evidence.**

##### **A. Mike Ard Memorandum dated October 9, 2021 (Exhibit 1).**

Mr. Ard's memorandum contains trip counts and demonstrates that the local streets will operate within required trip levels when considering vehicle trips generated by the subdivision.

##### **B. Dave Vandehey letter dated October 11, 2021 (Exhibit 2).**

ORS 197.307(4) requires that even clear and objective standards, conditions and procedures not have the effect, either in themselves or cumulatively, of discouraging Needed Housing through unreasonable cost or delay. Mr Vandehey's letter explains that the cost of the parkland dedication, the Dubarko Road extension and the U.S. Highway 26 frontage improvements will impose an unreasonable cost on the Needed Housing application. His letter also explains that the Dubarko Road extension will impose an unreasonable delay on the needed housing application. As a matter of evidence only, TSP Table 8, page 36, notes that the Dubarko Road extension (Project M20) is expected to cost \$3.2 million.

The City wants Dubarko Road to be connected to U.S. Highway 26, a State highway. As the Planning Commission learned in the prior Bull Run Subdivision application, ODOT required a "Grant of Access" for the connection under OAR 734-051-2010(2) because no right of access exists at the proposed connection location. U.S. Highway 26 is an access controlled highway at the connection location and a connection is not allowed without ODOT approval through a "Grant of Access." OAR 734-051-1070(1). A Grant of Access for a public approach like Dubarko Road is subject to the approval criteria in OAR 734-051-2020(4)-(14), including the



Mr. Jerry Crosby, Chair  
October 11, 2021  
Page 5

requirement that the property owner be the applicant for the Grant of Access. OAR 734-051-2020(6). U.S. Highway 26 is classified as a “Statewide Highway” at this location. 1999 Oregon Highway Plan, “State Highway Classification System Map,” PDF page 294. There is no legal right for Dubarko Road to connect to U.S. Highway 26 without the Applicant’s approval and without a Grant of Access approval, which is subject to highly discretionary approval criteria and for which no evidence exists to show it can or will be approved, or how long it will take to issue a decision on a Grant of Access request. Even if the City had property incorporated a specific TSP policy into the SDC so that it could require the Dubarko Road connection, it has no legal right to make the connection.

**But none of this matters because SDC 17.100.100.G.2, an exception to the street standards in SDC 17.100.100, expressly provides that “standards for street connections do not apply to freeways and other highways with full access control.” It is undisputed that U.S. Highway 26 has full access control where Dubarko Road would connect. Thus, the City cannot require the extension of Dubarko Road to U.S. Highway 26.**

**C. Erin Forbes’ Memorandum Concerning Attorney Fee Awards dated October 11, 2021 (Exhibit 3).**

City Attorney David Doughman discussed the issue of attorney fees awards to prevailing Needed Housing applicants with the Planning Commission at the September 27, 2021 public hearing under ORS 197.835(10)(b) requiring award of attorney fees when a local government’s decision is reversed. Ms. Forbes’ memorandum provides two recent examples of such mandatory awards.

**D. Erin Forbes’ Memorandum Analyzing SDC Under Incorporation and Clear and Objective Requirements (Exhibit 4).**

Ms. Forbes’ memorandum explains how the SDC standards relied upon in the Staff Report fail to satisfy the incorporation and clear and objective requirements.

The City cannot rely on the Plan, the TSP, the Transit Master Plan or the old Parks Master Plan because they are not properly incorporated into the applicable SDC standards. Even if they were, they all contain standards that are neither clear *nor* objective.

SDC 17.100.20.E.3 refers to the “Official Street Plan” and the Staff Report relies on this as a basis for requiring the Dubarko Road extension. Consistent with *Paterson* and *Oster*, the Official Street Plan, whatever it is, is not properly incorporated into the SDC. The term “Official Street Plan” is not defined in the SDC. The 2011 TSP is not described as the “Official Street Plan.” The term “Official Street Plan” does not appear in the 2011 TSP Chapter 3, “Motor Vehicle System Plan,” nor in any of the fifteen figures in TSP Chapter 3. An applicant is left to guess what the “Official Street Plan” is, what it requires and nothing leads from the “Official Street Plan” to any documents incorporated into the SDC.

Even if the “Official Street Plan” were incorporated, simply having the document incorporated is insufficient under ORS 197.195(1) to require the Dubarko Road extension. Both *Paterson* and



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Page 6

*Oster* require an incorporated Plan document to specify what specific policies, action items or standards apply as approval criteria.

**E. Erin Forbes' Memorandum Providing Recent Incorporation and Clear and Objective LUBA Decisions (Exhibit 5).**

Ms. Forbes' memorandum lists recent examples of LUBA reversing local government decisions relying on improper incorporation or subjective approval standards or affirming local government decisions properly applying the relevant statutes.

**F. Michael Robinson's Letter Providing Excerpts of Public Documents Obtained from the City (Exhibit 6).**

This letter contains excerpts of public documents obtained from the City. The main point of these documents is their lack of a desire to determine if the approval standards comply with state law. The Parks Master Plan, for example, is not incorporated into the SDC and cannot be a basis for either the Dubarko Road extension or the U.S. Highway 26 frontage improvements.

**G. Tracy Brown Memorandum Dated October 8, 2021 (Exhibit 7).**

Mr. Brown's memorandum addresses several of the issues raises in the Staff Report.

**H. Sandy Parks and Trials Advisory Board August 11, 2021 Staff Report (Exhibit 8).**

The Staff Report acknowledges that the City cannot rely on the previous Parks Master Plan because it was not properly incorporated into the SDC as required by ORS 197.195.(1).

**5. Conclusion.**

The record before the Planning Commission shows that the City cannot apply its previous Parks Master Plan, its Transit Master Plan, its TSP or its Plan because they have not been properly incorporated into the SDC as applicable approval criteria. The record also shows that various SDC standards relied upon to recommend denial are not clear *or* objective but even if they were, they impose unreasonable cost and delay on the Application.

While the Planning Commission will hear more evidence and argument before its November 8, 2021 deliberation, the record as of today demonstrates that the Application satisfies by substantial evidence all of the applicable approval criteria and can be approved.

The Applicant respectfully requests that the Planning Commission approve the Application.

Mr. Jerry Crosby, Chair  
October 11, 2021  
Page 7

Very truly yours,



Michael C. Robinson

MCR/jmhi  
Enclosures

cc: Mr. Dave Vandehey (*via email*) (*with enclosures*)  
Mr. Carey Sheldon (*via email*) (*with enclosures*)  
Mr. Alex Reverman (*via email*) (*with enclosures*)  
Mr. Ray Moore (*via email*) (*with enclosures*)  
Mr. Tyler Henderson (*via email*) (*with enclosures*)  
Mr. Tracy Brown (*via email*) (*with enclosures*)  
Mr. Mike Ard (*via email*) (*w/enclosures*)  
Ms. Erin Forbes (*via email*) (*w/enclosures*)  
Mr. Garrett H. Stephenson (*via email*) (*with enclosures*)  
Mr. David Doughman (*via email*) (*w/enclosures*)  
Mr. Kelly O'Neill, Jr. (*via email*) (*with enclosures*)

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## EXHIBITS

- Exhibit 1**      October 9, 2021 Memorandum from Mike Ard, P.E.
- Exhibit 2**      October 8, 2021 Letter from Dave Vandehey
- Exhibit 3**      October 11, 2021 Memorandum from Erin Forbes Concerning Attorney Fee Awards
- Exhibit 4**      October 11, 2021 Memorandum from Erin Forbes Analyzing the SDC Under Incorporation and Clear and Objective Requirements
- Exhibit 5**      October 11, 2021 Memorandum from Erin Forbes Providing Recent Incorporation and Clear and Objective LUBA Decisions
- Exhibit 6**      October 11, 2021 Letter from Michael Robinson Providing Excerpts of Public Documents Obtained from the City
- Exhibit 7**      October 8, 2021 Memorandum form Tracy Brown
- Exhibit 8**      August 11, 2021 Staff Report to the Sandy Parks and Trails Advisory Board



21370 SW Langer Farms Pkwy  
Suite 142, Sherwood, OR 97140

## Technical Memorandum

**To:** Dave Vandehey, Roll Tide Properties Corporation  
**From:** Michael Ard, PE  
**Date:** October 9, 2021  
**Re:** Deer Meadows Subdivision – Local Street Traffic Volumes

The updated traffic impact study prepared for the Deer Meadows Subdivision dated September 27, 2021 contained a new analysis section addressing daily traffic volumes on the impacted local streets in the site vicinity (page 19). The analysis underlying this report section was based on trip generation and distribution estimates for both the existing residential development in the site vicinity and the projected future volumes associated with the proposed Deer Meadows Subdivision. Although the procedures used were appropriate, the most accurate way to determine existing traffic volumes on local streets is through direct measurement. Since 24-hour count data was not available at the time the prior report was issued, the analysis provided represented the most accurate assessment that could be made at the time. However, 24-hour tube counts were subsequently collected at the west end of Therese Street, at the south end of Antler Avenue, and at the south end of Meadow Avenue to verify the assumptions used in the prior report.

This memorandum provides detailed data and analysis refining the prior local street traffic volume estimates. Based on the updated data and analysis, the conclusions of the prior report remain valid. All local streets in the site vicinity currently operate with traffic volumes of less than 1,000 average daily trips, and they will continue to operate with traffic volumes of less than 1,000 daily trips in the future either with or without the addition of site trips from the proposed Deer Meadows development.

### Data Collection and Analysis

Existing daily traffic volumes on the impacted local streets in the site vicinity were determined based on 24-hour tube counts collected at three locations:

- On Therese Street immediately east of SE Langensand Road;
- On Antler Avenue immediately north of Dubarko Road; and
- On Meadow Avenue immediately north of Dubarko Road.

Traffic volumes were measured for the first two locations from 12:00 PM on Tuesday October 5, 2021, to 12:00 PM on Wednesday October 6, 2021. Traffic volumes for the third location were measured from 1:00 PM on Wednesday October 6, 2021, to 1:00 PM on Thursday October 7, 2021.

The detailed traffic count data collected on each local street is reported in the attached technical appendix. It should be noted that the tube count data collected on Antler Avenue and Meadow Avenue was collected on the north side of the two southernmost driveways on each roadway. Accordingly, the projected twenty



trips per day associated with these two homes was manually added to the observed count data to more accurately reflect the highest total traffic volumes experienced on these roadways.

Since traffic count data was collected during the COVID-19 pandemic and the total number of trips observed using these three roadways was lower than the total volume that would normally be projected for the 100 homes served by these streets, the count data was used to determine the actual distribution of existing site trips to and from the local area, while the more conservative ITE Trip Generation data was used to determine the number of trips that would be expected under normal conditions.

Overall, the data showed that 63 percent of site trips to and from the local area utilized Therese Street. An additional 18 percent of site trips were observed to use Antler Avenue, and the remaining 19 percent of site trips were observed to use Meadow Avenue.

Based on the ITE Trip Generation data, the 100 homes served by these three local street access locations would be projected to generate 944 average daily trips.

Conservatively assuming that all homes located north of Dubarko Road within the proposed Deer Meadows subdivision will utilize Fawn Street to connect to one of these three points of access, Fawn Street will carry up to 230 vehicles per day east of Meadow Avenue, and up to 270 vehicles per day east of Antler Avenue.

The average daily traffic volumes based on the observed travel patterns and the conservative trip generation estimate of existing and future daily traffic volumes are detailed in Table 1 below.

**Table 1 - Existing and Future Local Street Traffic Volumes**

	Existing Daily Traffic (ADT)	Deer Meadows Site Trips (ADT)	Future Daily Traffic (ADT)
Therese Street	594	130	<b>724</b>
Antler Avenue	171	38	<b>209</b>
Meadow Avenue	179	40	<b>219</b>

### **Conclusions**

Based on the observed travel patterns and the updated analysis, all local streets are projected to operate with average daily volumes well below the 1,000-trip threshold allowable on local streets per City of Sandy Standards. The prior conclusions from the Deer Meadows Subdivision Traffic Impact dated September 27, 2021 remain valid, and no additional mitigation is recommended in conjunction with the proposed development.

# Appendix

# Daily Volume Count Report

**Study Name** Therese Street at West End  
**Location** 45.390451676168354 /-122.24944115113888  
**Roadway Orientation** West /East

**Site Code** 6197414110  
**Study Date** 10/5/2021  
**Direction**

Start Time	10-4-2021		Tues		Wed		Thurs		Fri		Sat		Sun		Week Average	
	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East
12:00 AM																
01:00						2										0
02:00						1										0
03:00																0
04:00						4										4
05:00						8										8
06:00						9										9
07:00						12										12
08:00						25										25
09:00						25										25
10:00						14										14
11:00						19										19
12:00 PM						21										21
01:00						8	15									8
02:00						10	14									10
03:00						14	14									14
04:00						13	22									13
05:00						13	35									13
06:00						13	27									13
07:00						7	15									7
08:00						8	14									8
09:00						5	8									5
10:00						2	4									2
11:00						1	3									0
12:00						1	1									1
Lane	0	0	0	0	94	171	137	59	0	0	0	0	0	0	0	230
Day	0	0	0	0	265	196	196	196	0	0	0	0	0	0	0	461
AM Peak							08:00	08:00								08:00
Vol.							25	11								25
PM Peak							02:00	04:00								02:00
Vol.							14	35								14

# Daily Volume Count Report

**Study Name** Antler Avenue at South End  
**Location** 45.390127381061774 /-122.24708957295321  
**Roadway Orientation** North /South

**Site Code** 3772865912  
**Study Date** 10/5/2021

**Direction**

Start Time	10-4-2021		Tues		Wed		Thurs		Fri		Sat		Sun		Week Average	
	North	South	North	South	North	South	North	South	North	South	North	South	North	South	North	South
12:00 AM																
01:00																
02:00																
03:00																
04:00																
05:00					1											
06:00					1											
07:00					5											
08:00					2											
09:00					4											
10:00					4											
11:00					5											
12:00 PM					6											
01:00					6											
02:00					7											
03:00					1											
04:00					3											
05:00					6											
06:00					6											
07:00					6											
08:00					1											
09:00					3											
10:00					4											
11:00					2											
Lane	0	0	32	28	24	29	0	0	0	0	0	0	0	0	56	57
Day	0	0	60	60	53	53	0	0	0	0	0	0	0	0	113	113
AM Peak					11:00	11:00									11:00	11:00
Vol.					6	7									6	7
PM Peak					04:00	03:00									04:00	03:00
Vol.					9	8									9	8



# Daily Volume Count Report

**Study Name** Meadow Avenue at South End  
**Location** 45.390044087921844 /-122.24620506924413  
**Roadway Orientation** North /South  
**Site Code** 8339814368  
**Study Date** 10/6/2021  
**Direction**

Start Time	10-4-2021		Tues		Wed		Thurs		Fri		Sat		Sun		Week Average	
	North	South	North	South	North	South	North	South	North	South	North	South	North	South	North	South
12:00 AM																
01:00																
02:00																
03:00								4								4
04:00																
05:00																
06:00								1							1	5
07:00								1							1	2
08:00								7							7	9
09:00								2							2	4
10:00								2							2	4
11:00								2							2	6
12:00 PM								2							2	4
01:00								3							3	1
02:00																
03:00								8							8	7
04:00								8							8	4
05:00								6							6	3
06:00								3							3	4
07:00								4							4	2
08:00								2							2	2
09:00								6							6	3
10:00																
11:00																
Lane	0	0	0	0	37	23	20	39	0	0	0	0	0	0	57	62
Day	0	0	0	0	60	59	59	59	0	0	0	0	0	0	119	119
AM Peak																
Vol.							07:00	07:00							07:00	07:00
PM Peak																
Vol.							02:00	01:00							02:00	01:00
							8	7							8	7

# Trip Generation Calculation Worksheet



Land Use Description: Single-Family Detached Housing  
ITE Land Use Code: 210  
Independent Variable: Dwelling Units  
Quantity: 100 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.74 trips per dwelling unit  
Directional Distribution: 25% Entering 75% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.99 trips per dwelling unit  
Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 9.44 trips per dwelling unit  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

100 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	19	55	74
PM Peak Hour	62	37	99
Weekday	472	472	944

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017

# Trip Generation Calculation Worksheet



Land Use Description: Single-Family Detached Housing  
 ITE Land Use Code: 210  
 Independent Variable: Dwelling Units  
 Quantity: 22 Dwelling Units

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.74 trips per dwelling unit  
 Directional Distribution: 25% Entering 75% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 0.99 trips per dwelling unit  
 Directional Distribution: 63% Entering 37% Exiting

### **Total Weekday Traffic**

Trip Rate: 9.44 trips per dwelling unit  
 Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

22 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	4	12	16
PM Peak Hour	14	8	22
Weekday	104	104	208

Data Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017



***ROLL TIDE PROPERTIES CORPORATION***

October 8, 2021

Michael C. Robinson  
Schwabe Williamson & Wyatt  
[mrobinson@schwabe.com](mailto:mrobinson@schwabe.com)

Michael:

I represent the ownership of the property known as Deer Meadows Subdivision in Sandy, OR. I am writing to inform you that under the current application for this property it is not financially feasible to dedicate a park or extend Dubarko Rd. and connect it to Highway 26. The loss of dwelling units due to the parkland and ROW dedication and cost of Dubarko Rd. and Hwy 26 frontage improvements will discourage this project through unreasonable cost. Also, including the connection of Dubarko Rd. to Highway 26 extends our projects timeline adding to the unfeasibility of it. The delay is unreasonable because connecting to Dubarko requires a grant of access and there is no timeline for acquiring it or whether it can be acquired.

Sincerely,

***Dave Vandehy***

Vice President  
Roll Tide Properties Corporation

PO Box 703  
Cornelius, OR 97113  
503-327-6084



Exhibit 2  
Page 1 of

## Memorandum

VIA E-MAIL

**To:** Mike Robinson  
**From:** Erin M. Forbes  
**Date:** October 11, 2021  
**Subject:** Decisions on Attorney Fee Awards in Needed Housing LUBA Cases  
**File No.:** 126769-255102

---

ORS 197.835(10)(b) provides that if LUBA reverses a local government decision on a development application on the basis that the local government's decision was outside the range of discretion allowed, and subsequently orders the local government to grant approval of the application, then LUBA "shall award attorney fees to the applicant and against the local government." In other words, an award of attorney fees in this situation is mandatory.

The following is a list of 2021 LUBA orders where motions for attorney fees were awarded after a denial of a needed housing application was reversed and approval of the application ordered.

- *Legacy Development Grp. v. City of the Dalles*, LUBA No. 2020-099 (May 17, 2021) (awarding \$18,039.50 in attorney fees to the applicant after reversing denial of needed housing application)
- *Nieto v. City of Talent*, LUBA No. 2020-100 (May 10, 2021) (awarding \$15,387.50 in attorney fees to the applicant after reversing denial of needed housing application)

The above orders are attached to this memorandum as **Exhibits 1** and **2**, respectively.

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Exhibit 3  
Page 1 of 16

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BEFORE THE LAND USE BOARD OF APPEALS  
OF THE STATE OF OREGON

LEGACY DEVELOPMENT GROUP, INC.,  
*Petitioner,*

vs.

CITY OF THE DALLES,  
*Respondent,*

and

DENISE LYNNE DIETRICH-BOKUM,  
ROBERT CLAYTON BOKUM,  
GARY GINGRICH, TERRI JO JESTER GINGRICH,  
DAMON ROLLA HULIT, and  
ROBERTA KAY WYMORE-HULIT,  
*Intervenors-Respondents.*

LUBA No. 2020-099

ORDER

24 **BACKGROUND**

25       In *Legacy Development Group, Inc. v. City of The Dalles*, \_\_\_ Or LUBA  
26 \_\_\_ (LUBA No 2020-099, Feb 24, 2021), petitioner appealed the city council’s  
27 denial of its application for a 72-lot subdivision to include 83 dwellings and a  
28 community park. Petitioner argued that the four provisions of The Dalles  
29 Municipal Code (TDMC) on which the city council relied to deny its application  
30 failed to satisfy the statutory requirement in ORS 197.307(4) that the city apply  
31 only “clear and objective” standards to an application for housing. We agreed  
32 with petitioner that none of the four TDMC provisions on which the city council

1 relied to deny the application satisfied the ORS 197.307(4) requirement that the  
2 city apply only “clear and objective” standards.

3 In the petition for review, petitioner requested that LUBA reverse the  
4 decision and order the city to approve the application. Petition for Review 32.  
5 We agreed with petitioner that the city’s decision to deny the application was  
6 outside the range of discretion allowed the city under its comprehensive plan and  
7 implementing ordinances, and we reversed the city’s decision and ordered it to  
8 approve the application. ORS 197.835(10)(a)(A). Because we sustained  
9 petitioner’s first assignment of error and reversed the decision, we did not address  
10 the second assignment of error that argued that the city committed a procedural  
11 error that prejudiced petitioner’s substantial rights or the third assignment of error  
12 that argued that the city’s decision violated the Fifth Amendment to the United  
13 States Constitution.

14 **MOTION FOR ATTORNEY FEES**

15 ORS 197.835(10)(b) provides, “If the board \* \* \* reverse[s] the decision  
16 and orders the local government to grant approval of the application, the board  
17 shall award attorney fees to the applicant and against the local government.”  
18 Petitioner moves for an award of attorney fees in the amount of \$28,460. An  
19 award of attorney fees under ORS 197.835(10)(b) is mandatory. If LUBA  
20 reverses a local government decision to deny an application and orders the local  
21 government to approve the application under ORS 197.835(10)(a), LUBA must  
22 award attorney fees to the applicant against the local government.

1 In awarding attorney fees pursuant to ORS 197.835(10)(b), although the  
2 award is mandatory, LUBA is afforded the discretion to determine the amount of  
3 attorney fees that is reasonable under the specific facts of the case. *Young v. City*  
4 *of Sandy*, 33 Or LUBA 817, 819 (1997). Intervenors-respondents (intervenors)  
5 and the city each object to petitioner’s motion.

6 **A. Intervenors Are Not Liable for an Attorney Fee Award under**  
7 **ORS 197.835(10)(b)**

8 Intervenors respond to the motion for attorney fees, noting that city did not  
9 participate to defend its decision on appeal and observing that any award of  
10 attorney fees under ORS 197.835(10)(b) is “against the local government.” Thus,  
11 intervenors argue that they may not be held liable for any award of fees under  
12 ORS 197.835(10)(b). We agree. The statute is clear that an award of fees under  
13 ORS 197.835(10)(b) is “against the local government.”

14 **B. Amount of Fees**

15 The city objects to the amount of fees sought in petitioner’s motion.

16 **1. Fees for Non-Attorney Services**

17 The fees sought by petitioner include \$20,295 in fees for 73.8 hours of  
18 services that were provided by a land use planner who is not an attorney. The city  
19 argues that those fees should be reduced by \$11,467.50 because fees incurred by  
20 engaging the services of a land use planner are not fees for “legal services” and  
21 are therefore not recoverable under the plain meaning of the phrase “attorney



1 fees” in ORS 197.835(10)(b), as construed by the Court of Appeals in *Stewart v.*  
2 *City of Salem*, 240 Or App 466, 247 P3d 763 (2011).<sup>1</sup>

3 We agree. In *Stewart*, citing the Oregon Supreme Court’s decision in *Colby*  
4 *v. Gunson*, 349 Or 1, 238 P3d 374 (2010), the Court of Appeals reviewed the  
5 meaning of the phrase “attorney fees,” as used in ORS 197.830(10)(b), and  
6 concluded that it means “the reasonable value of legal services provided by an  
7 attorney that are related to the applicant’s appeal.” *Stewart*, 240 Or App at 473.  
8 Accordingly, the land use planner fees are reduced by the amount requested by  
9 the city, \$11,467.50.<sup>2</sup>

## 10 **2. Hourly Rate for Lead Attorney**

11 Next, the city argues that the rate of \$465 per hour charged by petitioner’s  
12 lead attorney is not reasonable because it is “well above” the median rate  
13 customarily charged in the Tri-County area (Multnomah, Washington, and  
14 Clackamas Counties outside of downtown Portland) for similar services.<sup>3</sup>  
15 Response to Cost Bill and Motion for Attorney Fees 5. One of the factors we

<sup>1</sup> The city’s response is confusing and includes requests for an award of “not more than \$14,867.50” and, in the alternative, “not more than \* \* \* \$9,679.50.” Response to Cost Bill and Motion for Attorney Fees 7.

<sup>2</sup> The city does not argue that the fees included in petitioner’s motion should be reduced by the full \$20,295 attributable to the land use planner.

<sup>3</sup> Petitioner’s lead attorney is based in Clark County, Washington. The city’s response assumes that rates in Clark County, Washington, are similar to rates in the Tri-County area. Response to Cost Bill and Motion for Attorney Fees 5.

1 consider in determining the amount of an attorney fee award is the fee  
2 customarily charged in the locality for similar legal services. *6710 LLC v. City of*  
3 *Portland*, 41 Or LUBA 608, 611 (2002) (citing ORS 20.075(2)(c)).

4 In its response, the city cites the Oregon State Bar 2017 Economic Survey  
5 (the 2017 Survey) and states that the 2017 Survey lists the median rate for an  
6 attorney practicing land use and real estate law in the Tri-County area with years  
7 of experience comparable to petitioner's lead attorney as \$275 per hour.  
8 Response to Cost Bill and Motion for Attorney Fees 5. The city argues that,  
9 adjusting for inflation after 2017 at an annual rate of five percent, a reasonable  
10 rate for attorney services is \$335 per hour. We have previously relied on Oregon  
11 State Bar economic surveys as an accurate indicator of the fees customarily  
12 charged in a community. *Van Dyke v. Yamhill County*, \_\_\_ Or LUBA \_\_\_, \_\_\_  
13 (LUBA Nos 2020-032/033, Order, Apr 1, 2021) (slip op at 17-18); *6710 LLC*, 41  
14 Or LUBA at 612.

15 The burden is on the party seeking the attorney fees to establish that the  
16 requested rates are reasonable, even in the absence of an objection. *6710 LLC*, 41  
17 Or LUBA at 611. Petitioner's statements that \$465 per hour is their lead  
18 attorney's customary rate and that their lead attorney has chaired the government  
19 relations committee for a home builders association do not explain why the rate  
20 charged by their lead attorney is reasonable. Absent any assistance from  
21 petitioner, we agree with the city that petitioner has not established that a rate that  
22 is nearly 40 percent higher than the median rate for an attorney practicing land

1 use and real estate law in the Tri-County area is reasonable.<sup>4</sup> Accordingly,  
2 petitioner is awarded fees for the 13.2 hours that their lead attorney spent on the  
3 appeal, at a rate of \$335 per hour.<sup>5</sup>

4 In sum, petitioner’s motion for attorney fees is partially granted, as  
5 follows:

6	Lead Attorney	\$4,422.00 (13.2 hours at \$335 per hour)
7	Other Attorney	\$162.50
8	Other Attorney	\$105.00
9	Paralegal	\$4,522.50 <sup>6</sup>
10	Land Use Planner	\$8,827.50 (\$20,295 minus \$11,467.50)
11	Total	\$18,039.50

<sup>4</sup> Petitioner asserts that “[t]he total fees are \$31,223 for 108 billable hours, for an average rate of \$289” and argues that that average rate is “consistent with the Portland metro area.” Cost Bill and Motion for Attorney Fees 2. However, petitioner does not otherwise develop that argument or argue that the average rate for all attorney and non-attorney services in an appeal is relevant to LUBA’s assessment of the reasonableness of the rate that petitioner’s lead attorney actually charged for services.

<sup>5</sup> Petitioner’s detailed statement of attorney fees includes \$267.50 for the services of two other attorneys in the law firm, to which the city does not object.

<sup>6</sup> Although the city’s response includes a request for a reduction in the fees for paralegal services based on its argument that the *total* amount of time spent by petitioner’s law firm on the appeal (108 hours) is unreasonable, the city does not assert any independent basis for us to reject or reduce the amount of fees incurred for paralegal services or argue that 20.10 hours for paralegal services is an unreasonable amount of time for the appeal.

1    **COST BILL**

2           Petitioner, the prevailing party in this appeal, filed a cost bill seeking an  
3    award of its filing fee in the amount of \$200. Petitioner is awarded the cost of its  
4    filing fee in the amount of \$200, payable by the city and intervenors. The Board  
5    will return petitioner’s \$200 deposit for costs.

6           Dated this 17th day of May 2021.

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Melissa M. Ryan  
Board Member

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BEFORE THE LAND USE BOARD OF APPEALS  
OF THE STATE OF OREGON

TONY NIETO and TORY NIETO,  
*Petitioners,*

vs.

CITY OF TALENT,  
*Respondent,*

and

VERNON J. DAVIS, MARY A. TSUI,  
LAURIE E. CUDDY, and FOREST L. DAVIS,  
*Intervenors-Respondents.*

LUBA No. 2020-100

ORDER

21 **BACKGROUND**

22 In *Nieto v. City of Talent*, \_\_\_ Or LUBA \_\_\_ (LUBA No 2020-100, Mar  
23 10, 2021), petitioners appealed the city’s denial of their application to subdivide  
24 their 26.58-acre property into a 49-lot residential subdivision. Petitioners argued  
25 that the single basis for the hearings officer’s denial of its subdivision application,  
26 failure to satisfy Talent Municipal Code (TMC) 17.10.060(F), was barred by  
27 ORS 197.307(4), a portion of the needed housing statute that prohibits the city  
28 from applying standards that are not “clear and objective” to applications for the  
29 development of housing. We agreed with petitioners that the city’s decision was

1 barred by ORS 197.307(4) because TMC 17.10.060(F) is not a “clear and  
2 objective” standard.

3         Petitioners requested that LUBA “reverse the Decision and order the City  
4 to approve the Subdivision as presented in the Application and as recommended  
5 by City Staff.” Petition for Review 37. Pursuant to ORS 197.835(10)(a)(A), we  
6 reversed the city’s decision as “outside the range of discretion allowed the [city]  
7 under its comprehensive plan and implementing ordinances” and ordered the city  
8 to approve the application.<sup>1</sup> In doing so, we did not address petitioners’ other  
9 assignments of error, some of which argued that the city’s decision was an  
10 unconstitutional taking of petitioners’ property.

<sup>1</sup> ORS 197.835(10) provides, in relevant part:

“(a) The board shall reverse a local government decision and order the local government to grant approval of an application for development denied by the local government if the board finds:

“(A) Based on the evidence in the record, that the local government decision is outside the range of discretion allowed the local government under its comprehensive plan and implementing ordinances; or

“\* \* \* \* \*

“(b) If the board does reverse the decision and orders the local government to grant approval of the application, the board shall award attorney fees to the applicant and against the local government.”

1 **MOTION FOR ATTORNEY FEES**

2 Petitioners move for an award of attorney fees in the amount of  
3 \$18,269.75. An award of attorney fees under ORS 197.835(10)(b) is mandatory.  
4 If LUBA reverses a local government decision denying an application and orders  
5 the local government to approve the application under ORS 197.835(10)(a),  
6 LUBA must award attorney fees to the applicant against the local government.

7 In awarding attorney fees pursuant to ORS 197.835(10)(b), although the  
8 award is mandatory, LUBA is afforded the discretion to determine the amount of  
9 attorney fees that is reasonable under the specific facts of the case. *Young v. City*  
10 *of Sandy*, 33 Or LUBA 817, 819 (1997). LUBA will look to the factors listed in  
11 ORS 20.075(2) for guidance in determining the amount of an attorney fee award.  
12 *Schaffer v. City of Turner*, 37 Or LUBA 1066, 1072 (2000). We identify the  
13 relevant facts and legal criteria on which we rely in determining what award of  
14 attorney fees is reasonable. *See McCarthy v. Oregon Freeze Dry, Inc.*, 327 Or 84,  
15 96, *adh'd to on recons*, 327 Or 185, 957 P2d 1200 (1998) (so stating).

16 The city objects to petitioners' motion on procedural and substantive  
17 grounds.<sup>2</sup>

<sup>2</sup> Some of the city's objections argue that petitioners failed to properly plead reversal of the city's decision under ORS 197.835(10)(a)(A). Response to Motion for Attorney Fees and Cost Bill 4-7. We reject those objections for two reasons.

First, as noted, petitioners requested that that LUBA "reverse the Decision and order the City to approve the Subdivision as presented in the Application and

1           **A.     Timing of Motion**

2           First, the city argues that LUBA should deny petitioners’ motion for  
3 attorney fees because it was not filed within the time set in OAR 661-010-  
4 0075(1)(a), which provides that a motion for attorney fees must be filed within  
5 14 days of the Board’s final opinion and order.

6           Petitioners concede that the motion was filed one day late but respond that  
7 LUBA should treat the untimeliness as a “technical violation” pursuant to OAR  
8 661-010-0005 and allow the motion.<sup>3</sup> We agree with petitioners. *See Schatz v.*

as recommended by City Staff.” Petition for Review 37. Using the operative language of ORS 197.835(10)(a)(A) is sufficient to plead and request the remedy of reversal of the decision with an order to the city to approve the application.

Second, the objections are, in essence, an impermissible collateral attack on our final opinion and order that determined that the city’s decision was outside the range of discretion allowed it under the TMC. Our decision was not appealed, and it is the law of the case. *Beck v. City of Tillamook*, 313 Or 148, 831 P2d 678 (1992) *see also Walter v. City of Eugene*, 74 Or LUBA 671 (2016) (rejecting a city’s objection to a motion for attorney fees under ORS 197.835(10)(b) that was, in essence, an impermissible collateral attack on LUBA’s final opinion and order).

<sup>3</sup> OAR 661-010-0005 provides:

“These rules are intended to promote the speediest practicable review of land use decisions and limited land use decisions, in accordance with ORS 197.805-197.855, while affording all interested persons reasonable notice and opportunity to intervene, reasonable time to prepare and submit their cases, and a full and fair hearing. The rules shall be interpreted to carry out these objectives and to promote justice. Technical violations not affecting the substantial rights of parties shall not interfere with the review of a land use decision or limited land use decision.”



1 *City of Jacksonville*, 21 Or LUBA 571, 571 n 1 (1991) (accepting motion for  
2 attorney fees filed two days late); *Jones v. Lane County*, 29 Or LUBA 573, 573-  
3 74 (1995) (accepting cost bill filed eight days late). The city’s substantial rights  
4 include the right to respond to petitioners’ motion, which it has done. Therefore,  
5 petitioners’ violation of OAR 661-010-0075(1)(a) does not affect our review.

6 **B. Amount of Fees**

7 The burden is on the party seeking the attorney fees to establish that the  
8 requested rates are reasonable. *6710 LLC v. City of Portland*, 41 Or LUBA 608,  
9 611 (2002). We understand the city to argue that the amount of attorney fees  
10 sought is not reasonable for three reasons.

11 First, according to the city, petitioners’ counsel may not recover fees for  
12 time spent developing arguments in the petition for review and reply brief that  
13 LUBA ultimately did not reach in its final opinion and order.<sup>4</sup> Petitioners respond  
14 that whether LUBA reached the merits of an argument included in petitioners’  
15 brief has no relevance to whether the amount of attorney fees sought is  
16 reasonable. We agree. As the Court of Appeals explained in *Stewart v. City of*  
17 *Salem*, “‘attorney fees,’ under ORS 197.835(10)(b), means the reasonable value  
18 of legal services provided by an attorney that are related to the applicant’s appeal  
19 of a local government decision to LUBA.” 240 Or App 466, 473, 247 P3d 763

<sup>4</sup> As noted, LUBA sustained petitioners’ first assignment of error and did not reach the remaining assignments of error that argued, in part, that the city’s decision was an unconstitutional taking of petitioners’ property.

1 (2011). Nothing in the statute limits attorney fees to only those that are related to  
2 issues that LUBA actually addressed in its final opinion and order. We reject the  
3 city's argument.

4 Second, we understand the city to argue that petitioners' fee statement  
5 lacks sufficient detail to justify the amount of fees sought. OAR 661-010-  
6 0075(1)(e)(A) requires that a motion for attorney fees include a "detailed  
7 statement of the amount of attorney fees sought." This argument is largely  
8 derivative of the city's first argument that petitioners may not be awarded fees  
9 for arguments made in connection with issues that LUBA did not reach and, for  
10 the reasons explained above, we reject it.

11 Moreover, we agree with petitioners that their statement satisfies OAR  
12 661-010-0075(1)(e)(A). Petitioners' statement includes entries such as "Work  
13 with [redacted] to outline brief and develop strategy (1.5);" "Continue drafting  
14 brief (1.5);" and "Review and Analyze Response Brief and provide summary to  
15 client team regarding same (1.5)." Motion for Attorney Fees and Cost Bill,  
16 Attachment 1 at 5-6. Such entries are more than sufficient to meet the  
17 requirements of the rule.

18 Third, the city objects to the following charges included in the motion for  
19 attorney fees: (1) petitioners' \$400 filing fee and deposit for costs and (2) charges  
20 that seek reimbursement for "computer legal research." Petitioners respond that  
21 the total amount of attorney fees requested, \$18,269.75, does not include the \$400

1 filing fee and deposit for costs. Based on that response, we reject the city’s  
2 argument.

3 Petitioners also respond that charges for computer legal research are a  
4 reasonable and typical part of the legal services provided by an attorney and  
5 petitioners should be able to be reimbursed for those charges. However, we agree  
6 with the city that ORS 197.835(10)(b) does not authorize recovery of charges  
7 incurred for “computer legal research.”

8 ORS 197.835(10)(b) authorizes recovery of “attorney fees” and does not  
9 mention expenses. In this respect, it is unlike ORS 197.830(15)(b), which  
10 explicitly authorizes recovery of “reasonable attorney fees *and expenses*.”  
11 (Emphasis added.) Further, ORCP 68A, cited by the Court of Appeals in *Stewart*  
12 as context for interpreting ORS 197.835(10)(b), also distinguishes between  
13 “attorney fees” and “costs and disbursements.” Accordingly, we deduct  
14 \$2,882.25 for “computer legal research” from the stated total of \$18,269.75, for  
15 a total award of \$15,387.50.

16 **COSTS**

17 Petitioners, the prevailing parties in this appeal, filed a cost bill seeking an  
18 award of their filing fee in the amount of \$200. Petitioners are awarded the cost  
19 of their filing fee in the amount of \$200, payable by the city and intervenors-  
20 respondents. The Board shall return petitioners’ \$200 deposit for costs.

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1 Dated this 10th day of May 2021.

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Melissa M. Ryan

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Board Member

## Memorandum

VIA E-MAIL

**To:** Mike Robinson  
**From:** Erin M. Forbes  
**Date:** October 11, 2021  
**Subject:** Analysis of Staff Report Bases for Denial as Relate to Limited Land Use and Needed Housing Requirements  
**File No.:** 126769-255102

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This memorandum sets forth the reasons why the Planning Director’s analysis of the Sandy Development Code (“SDC”) as relates to Oregon’s Limited Land Use and Needed Housing Statutes is insufficient and why denial based on the identified sections of the SDC is improper.

### **1. Limited Land Use Statute / Proper Incorporation of Plan**

ORS 197.195(1) provides that, for limited land use decisions, “[i]f a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.”

Under *Oster v. City of Silverton*, LUBA No. 2018-103 (May 7, 2019), whether comprehensive plan (or related plan, such as a TSP) provisions have been “incorporate[d]” into a city’s land use regulations does not depend on whether the standard is “clear in the TSP or ‘codified’ in the [development code]; instead, the question is whether the [development code] provisions that the city concluded incorporated the [plan] standard make clear what *specific policies or standards in the TSP apply to a limited land use decision as approval criteria.*” *Oster*, Slip Op. at p. 12. Standards that merely “generally ‘incorporate[] by reference the city’s public facility master plans, including plans for domestic water, sanitary sewer, storm drainage, parks, and transportation’” do not meet the requirement of ORS 197.195(1). “Incorporation by reference of the entirety of each of the city’s public facilities plans falls far short of satisfying the incorporation standard in ORS 197.195(1).” *Id.*

In *Oster*, the Silverton Development Code was found to improperly incorporate the TSP where it provided that “[g]eneral street improvement requirements are provided in SDC 3.4.100, *with more specific requirements provided in the city of Silverton transportation system plan and the city’s public works design standards.*” *Oster*, Slip Op. at p. 11.

Memo to: Mike Robinson  
 October 11, 2021  
 Page 2

Similarly, in *Paterson v. City of Bend*, 118 P.3d 842, 846 (Or. App. 2005), the Oregon Appeals Court affirmed LUBA’s holding that certain provisions of the Bend Subdivision Ordinance did not properly incorporate the Bend General Plan. LUBA found that the City of Bend’s code provision that required “compliance with the Bend Area General Plan and implementing land use ordinances and policies” did not meet the incorporation requirement of ORS 197.195(1). *Paterson v. City of Bend*, LUBA No. 2004-115, Slip. Op. at p. 5 (April 5, 2005). LUBA held that “ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan” and that a local government must “at least amend its land use regulations to make clear what *specific* policies or other provisions of the comprehensive plan apply to a limited land use decision as approval criteria.” *Id.*, Slip Op. at pp. 5-6 (emphasis added). The Oregon Appeals Court agreed and held that “by its terms, ORS 197.195(1) provides that, if a local government does not incorporate specific plan provisions into its enactments, the ‘plan standards’ set out in those provisions are not applicable.” *Paterson*, 118 P.3d at 846.

The chart below shows that the Planning Director improperly applied the City of Sandy’s Transportation System Plan and Parks Master Plan to the Application, and subsequently recommended denial of the Application on that improper basis, because the Sandy Development Code does not incorporate that Plan into its development code as described in *Oster* and *Paterson*.

SDC Code Provision Relied Upon	Reason Why Plan Cited is Not Properly Incorporated
<p>SDC 17.84.30.C</p> <p>Where a development site is traversed by or adjacent to a future trail linkage identified within the <b>Transportation System Plan</b>, improvement of the trail linkage shall occur concurrent with development. Dedication of the trail to the City shall be provided in accordance with 17.84.90.D.</p>	<p>Staff found that the standards of Section 17.84.50(B) was not met. <i>See, e.g.</i>, Staff Report at p. 16. But this standard only includes a “broad injunction to comply with unspecified portions of” the TSP, and does not “make clear what specific policies or other provisions” apply. <i>See Paterson</i>, Slip Op. at p. 6. This standard improperly “generally incorporat[es] by reference the” TSP. <i>See Oster</i>, Slip Op. at pp. 11-12.</p>
<p>SDC 17.84.50.B</p> <p>5. If the study identifies level-of-service conditions less than the minimum standard established in the development code or the <b>Sandy Transportation System Plan</b>, or fails to demonstrate that average daily traffic on existing or proposed streets will meet the ADT standards established in the development code or fails to meet the Oregon</p>	<p>Staff found that the standards of Section 17.84.50(B) were not met in numerous instances. <i>See, e.g.</i>, Staff Report at p. 13. But this standard only includes a “broad injunction to comply with unspecified portions of” the Sandy Comprehensive Plan and the Sandy official street plan, and does not “make clear what specific policies or other provisions” apply. <i>See Paterson</i>, Slip Op. at p. 6. This standard improperly</p>

<p>Department of Transportation's mobility standard, the applicant shall propose improvements and funding strategies for mitigating identified problems or deficiencies that will be implemented concurrent with the proposed development.</p>	<p>“generally incorporat[es] by reference the” referenced plans. <i>See Oster</i>, Slip Op. at pp. 11-12.</p>
<p>SDC 17.84.90 – Land for Public Purposes</p> <p>D. Where a development is traversed by, or adjacent to, a future trail linkage identified within the <b>Transportation System Plan</b>, dedications of suitable width to accommodate the trail linkage shall be provided. This width shall be determined by the City Engineer, considering the type of trail facility involved.</p>	<p>SDC 17.84.90.C only includes a “broad injunction to comply with unspecified portions of” the TSP, and does not “make clear what specific policies or other provisions” apply. <i>See Paterson</i>, Slip Op. at p. 6. This standard improperly “generally incorporat[es] by reference the” TSP. <i>See Oster</i>, Slip Op. at pp. 11-12.</p>
<p>SDC 17.86.40 – Cash in Lieu of Dedication</p> <p>A.3 Compatibility with the <b>Parks Master Plan</b>, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program in effect at the time of dedication</p>	<p>SDC 17.86.40.A.3 only includes a “broad injunction to comply with unspecified portions of” the Parks Master Plan, and does not “make clear what specific policies or other provisions” apply. <i>See Paterson</i>, Slip Op. at p. 6. This standard improperly “generally incorporat[es] by reference the” Parks Master Plan. <i>See Oster</i>, Slip Op. at pp. 11-12.</p>
<p>SDC 17.100.60.E – Approval Criteria</p> <p>3. The proposed street pattern is connected and consistent with <b>the Comprehensive Plan or official street plan for the City of Sandy</b>.</p>	<p>SDC 17.100.60.E.3 only includes a “broad injunction to comply with unspecified portions of” the Sandy Comprehensive Plan and the Sandy official street plan, and does not “make clear what specific policies or other provisions” apply. <i>See Paterson</i>, Slip Op. at p. 6. This standard improperly “generally incorporat[es] by reference the” referenced plans. <i>See Oster</i>, Slip Op. at pp. 11-12.</p>
<p>SDC 17.100.60.E – Approval Criteria</p> <p>5. Adequate public facilities are available or can be provided to serve the proposed subdivision.</p>	<p>The Staff Report relies upon the TSP and the Parks Master Plan as a basis for determining the Application did not meet these criteria. But neither the TSP nor the Parks Master Plan are mentioned in these approval criteria. Even if they were, to be applied as approval</p>

<p>6. All proposed improvements meet City standards.</p>	<p>criteria, more than just a “broad injunction to comply with unspecified portions of” the TSP and Parks Master Plan is required. Even the Staff Report fails to specify what portions of those Plans apply to these criteria. <i>See</i> Staff Report at pp. 7-8 (paragraph 21(A) and (B) and paragraph 22).</p>
<p>SDC 17.100.100 – Streets Generally</p> <p>A. <i>Street Connectivity Principle</i>. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.</p>	<p>The Staff Report relies upon the TSP as a basis for determining the Application did not meet this criterion. But the TSP is not mentioned in this approval criterion. Even if it were, to be applied as an approval criterion, more than just a “broad injunction to comply with unspecified portions of” the TSP is required. Even the Staff Report fails to specify what portions of the TSP applies to this criteria. <i>See, e.g.</i>, Staff Report at p. 5 (paragraph 18(B)) &amp; p. 12 (paragraph 37(C)(vi)).</p>

**2. Needed Housing Statute / Clear and Objective Criteria & Procedures Required**

ORS 197.307(4) provides that, for regulating housing applications, including needed housing applications, “a local government may adopt and apply only clear and objective standards, conditions and procedures,” which standards “[m]ay not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.” ORS 227.173(2) further provides that “[w]hen an ordinance establishing approval standards is required under ORS 197.307 to provide clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

If a standard or procedure applicable to a needed housing or housing application is not clear and objective, it cannot be applied to the application. *Nieto v. City of Talent*, LUBA No. 2020-100, Slip Op. at p. 7 (Mar. 10, 2021). Approval standards and procedures are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or communities.” *Id.* at p. 9 (quoting *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff’d*, 158 Or App 1, *rev den*, 328 Or 594 (1999)); *see also Legacy Dev. Grp. v. City of the Dalles*, LUBA No. 2020-099, at p. 14 (Feb. 24, 2021). Further, the needed housing statutes require that the standards, conditions, and procedures that apply to needed housing are “both ‘clear’ and ‘objective.’” *Nieto*, Slip Op. at p. 9.



The chart below shows that the Planning Director improperly applied approval criteria and procedures that are not clear and objective to the Application, and subsequently recommended denial of the Application based on subjective and unclear criteria and standards.

SDC Code Provision Relied Upon	Reason Why Provision is Not Clear and Objective
<p>SDC 17.82.00 – Intent</p> <p>The intent is to provide for <b>convenient, direct, and accessible</b> pedestrian access to and from public sidewalks and transit facilities; provide a <b>safe, pleasant and enjoyable</b> pedestrian experience by connecting activities within a structure to the adjacent sidewalk and/or transit street; and, promote the use of pedestrian, bicycle, and transit modes of transportation.</p>	<p>All of the bolded terms and phrases identified in SDC 17.82.00 are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “convenient, direct, and accessible” and what is “safe, pleasant and enjoyable”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.82.20 – Building Orientation</p> <p>B. Dwellings shall have a primary entrance connecting directly between the street and building interior. A <b>clearly marked, convenient, safe and lighted</b> pedestrian route shall be provided to the entrance, from the transit street. The pedestrian route shall consist of materials such as concrete, asphalt, stone, brick, permeable pavers, <b>or other materials as approved by the Director</b>. The pedestrian path shall be permanently affixed to the ground with gravel subsurface <b>or a comparable subsurface as approved by the Director</b>.</p> <p>C. Primary dwelling entrances shall be <b>architecturally emphasized</b> and visible from the street and shall include a covered porch <b>at least feet in depth</b>.</p>	<p>All of the bolded terms and phrases identified in SDC 17.82.20 are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “clearly marked, convenient, safe and lighted” and what is “architecturally emphasized”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>The allowance for the Director to approve “other materials” and “a comparable subsurface” do nothing other than allow for the Director to make a “subjective, value-laden analysis” as to what may be allowed. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev.</i></p>

	<p><i>Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>Subsection C omits the number of feet in depth the “covered porch” must be, making the criterion impossible to apply in any clear and objective way.</p>
<p>SDC 17.84.30 – Pedestrian and bicyclist requirements</p> <p>A.2 Sidewalks along arterial and collector streets shall be separated from curbs with a planting area, <b>except as necessary</b> to continue an existing curb-tight sidewalk. The planting area shall be landscaped with trees and plant materials approved by the City. The sidewalks shall be a minimum of six feet wide.</p> <p>A.3 Sidewalk improvements shall be made <b>according to City standards, unless the City determines that the public benefit in the particular case does not warrant imposing a severe adverse impact to a natural or other significant feature</b> such as requiring removal of a mature tree, requiring <b>undue</b> grading, or requiring modification to an existing building. . . .</p>	<p>All of the bolded terms and phrases identified in SDC 17.84.30.A are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “necessary,” what is “a severe adverse impact,” what an “other significant feature” is, what is “undue”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>Further, the standard allows the City to “determine that the public benefit in the particular case does not warrant imposing a severe adverse impact,” but it does not describe what the City must analyze or consider, or how to do that, in making such a determination. This is neither clear nor objective because it allows for complete discretion by the City.</p>
<p>SDC 17.84.30 – Pedestrian and bicyclist requirements</p> <p>B. <b>Safe and convenient</b> pedestrian and bicyclist facilities that strive to minimize travel distance <b>to the extent practicable</b> shall be provided in conjunction with new development within and between new subdivisions, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and</p>	<p>While “safe and convenient” is defined by this subsection, the definition itself includes phrases that are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what “the extent practicable” means, what is “reasonably free,” what “hazards” are being discussed,” how something may “discourage” travel, what a “short” trip is, what are “travel needs,” and how “destination and length of trip” are considered, what is considered “unusually</p>

<p>neighborhood activity centers such as schools and parks, as follows:</p> <ol style="list-style-type: none"> <li>1. For the purposes of this section, “safe and convenient” means pedestrian and bicyclist facilities that: are <b>reasonably free</b> from <b>hazards</b> which would <b>interfere with</b> or <b>discourage</b> travel for <b>short</b> trips; provide a direct route of travel between destinations; and meet the <b>travel needs</b> of pedestrians and bicyclists <b>considering destination and length of trip</b>.</li> <li>2. To meet the intent of B., above, rights-of-way connecting cul-de-sacs or passing through <b>unusually long or oddly shaped</b> blocks shall be a minimum of 15 feet wide with eight feet of pavement.</li> <li>3. Twelve feet wide pathways shall be provided in areas with <b>high</b> bicycle <b>volumes</b> or multi-use by bicyclists, pedestrians, and joggers.</li> <li>4. Pathways and sidewalks shall be encouraged in new developments by clustering buildings or constructing <b>convenient</b> pedestrian ways. . . .</li> </ol>	<p>long or oddly shaped,” what the city considers “high” volume or “convenient”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.84.40 – Transit and school bus transit requirements</p> <p>A. Development sites located along existing or planned transit routes shall, <b>where appropriate</b>, incorporate bus pull-outs and/or shelters into the site design. These improvements shall be installed <b>in accordance with the guidelines and standards of the transit agency</b>. School bus pull-outs and/or shelters may also be required, <b>where appropriate</b>, as a condition of approval for a residential development of greater than 50 dwelling units where a school</p>	<p>All of the bolded terms and phrases identified in SDC 17.84.40 are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to when something is “appropriate,” what specific “guidelines and standards of the transit agency” apply and how an applicant can be “in accordance” with them, what a “large number” of children is, what distance is considered “near,” what is “safe, convenient access,” and what makes an entrance “prominent”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate</p>

<p>bus pick-up point is anticipated to serve a <b>large</b> number of children.</p> <p>B. New developments at or <b>near</b> existing or planned transit or school bus transit stops shall design development sites to provide <b>safe, convenient access</b> to the transit system, as follows:</p> <p>1. Commercial and civic use developments shall provide a <b>prominent</b> entrance oriented towards arterial and collector streets, with front setbacks reduced as much as possible to provide access for pedestrians, bicycles, and transit.</p> <p>2. All developments shall provide <b>safe, convenient</b> pedestrian walkways between the buildings and the transit stop, in accordance with the provisions of 17.84.30.B.</p>	<p>impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.84.50 – Street Requirements</p> <p>E. Local streets shall be <b>designed to discourage</b> through traffic. NOTE: for the purposes of this section, “through traffic” means the traffic traveling through an area that does not have a local origination or destination. To discourage through traffic and excessive vehicle speeds the following street design characteristics shall be considered, <b>as well as other designs intended to discourage</b> traffic:</p> <p>1. Straight segments of local streets should be kept to less than a quarter mile in length. <b>As practical</b>, local streets should include traffic calming features, and design features such as curves and “T” intersections while maintaining <b>pedestrian connectivity</b>.</p> <p>2. Local streets should typically intersect in “T” configurations rather than four-way intersections to <b>minimize conflicts and discourage through traffic</b>. Adjacent “T”</p>	<p>All of the bolded terms and phrases identified in SDC 17.84.50.E are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “designed to discourage through traffic,” what is “practical,” what may “minimize conflicts” and what is considered a “conflict”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>Further, the standard allows for undefined and unidentified “other designs intended to discourage traffic,” but does not explain how those designs are reviewed or chosen, or how it is determined that they are “intended to discourage traffic.”</p>

<p>intersections shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.</p>	
<p>SDC 17.84.50 – Street Requirements</p> <p><b>H. Where required by the Planning Commission or Director</b>, public street improvements <b>may be required</b> through a development site to provide for the <b>logical</b> extension of an existing street network or to connect a site with a nearby neighborhood activity center, such as a school or park. Where this creates a land division incidental to the development, a land partition shall be completed concurrent with the development.</p>	<p>All of the bolded terms and phrases identified in SDC 17.84.50.H are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to whether to require public street improvements and what a “logical extension” is; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.84.50.J</p> <p>3. <b>As far as practical</b>, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in “T” intersections are unavoidable, they shall leave a minimum of 150 feet between the nearest edges of the two rights-of-way.</p> <p>5. Streets shall be designed to intersect at angles <b>as near as practicable</b> to right angles and shall comply with the following: . . . .</p>	<p>All of the bolded phrases identified in SDC 17.84.50.J are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to whether something is done “as far as practical” or “as near as practicable”; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.84.60.D</p> <p><b>As necessary</b> to provide for <b>orderly</b> development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies).</p>	<p>All of the bolded phrases identified in SDC 17.84.60.D are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to whether something is “necessary” and what “orderly development” is; and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed</p>

	<p>to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.86.40 – Cash in lieu of dedication</p> <p><b>At the city's discretion only</b>, the city <b>may accept</b> payment of a fee in lieu of land dedication. The city <b>may require</b> payment in lieu of land when the park land to be dedicated is less than three acres. A payment in lieu of land dedication is separate from Park Systems Development Charges, and is not eligible for a credit of Park Systems Development Charges. The amount of the fee in lieu of land dedication (in dollars per acre) shall be set by City Council Resolution, and it shall be based on the typical market value of developed property (finished lots) in Sandy net of related development costs.</p> <p>A. The following factors shall be used in the choice of whether to accept land or cash in lieu:</p> <ol style="list-style-type: none"> <li>1. The <b>topography, geology, access to, parcel size, and location of land</b> in the development available for dedication;</li> <li>2. <b>Potential adverse/beneficial effects</b> on environmentally sensitive areas;</li> <li>3. <b>Compatibility with the Parks Master Plan, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program</b> in effect at the time of dedication;</li> <li>4. <b>Availability</b> of previously acquired property; and</li> <li>5. The <b>feasibility</b> of dedication.</li> </ol>	<p>All of the bolded terms and phrases identified in SDC 17.86.40 are subjective and unclear because they are undefined and / or allow the decision maker to make a “subjective, value-laden analysis” as to what those terms and phrases (i.e., “adverse/beneficial effects,” “compatibility with” and “feasibility”) mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>The phrase “at the city’s discretion only” is wholly subjective because it literally allows the city to use “discretion” in determining whether it will accept payment of a fee in lieu of parkland dedication.</p> <p>The factors used in the choice of whether to accept land or cash in lieu do not explain what about the “topography, geology, access to, parcel size, and location of land” would make cash in lieu versus dedication an appropriate option. They do not explain how much of a beneficial or adverse effect must occur, nor what such effects even are. They require compatibility with various plans, but do not explain what must be compatible with those plans and what parts of those plans are relevant to the decision. They do not explain how “availability” of previously acquired property is relevant, what that means, who must have acquired said property, or how to apply it to the decision. And they do not describe how the feasibility of dedication is determined.</p>

	<p>These factors are unclear and subjective, as is the process for determining whether to accept cash in lieu of dedication versus requiring dedication.</p>
<p>SDC 17.100.60.E</p> <ol style="list-style-type: none"> <li>1. The proposed subdivision is <b>consistent with</b> the density, setback and dimensional standards of the base zoning district.</li> <li>2. The proposed subdivision is <b>consistent with the design standards</b> set forth in this chapter.</li> <li>5. <b>Adequate</b> public facilities are available or can be provided to serve the proposed subdivision.</li> <li>6. All proposed improvements meet <b>City standards</b>.</li> </ol>	<p>The phrase “consistent with” is neither clear nor objective because it does not define how the proposed subdivision can be “consistent with” the stated standards, and it allows for the decision maker to make a “subjective, value-laden analysis” “designed to balance or mitigate impacts of the development.” <i>See Legacy Dev. Grp.</i>, Slip Op. at p. 14 (holding that terms such as “consistent” are designed to balance or mitigate impacts from development and are therefore not objective); <i>Nieto</i>, Slip Op. at p. 9.</p> <p>The term “adequate” is neither clear nor objective because it is undefined and it allows the decision maker to make a “subjective, value-laden analysis” “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at p. 14; <i>Nieto</i>, Slip Op. at p. 9.</p> <p>The phrases “design standards” and “City standards” are not clear nor objective because the criteria do not define what design standards or City standards should be applied, and therefore they allow the decision maker to make a “subjective, value-laden analysis” “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at p. 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.100.100</p> <p>A. <i>Street Connectivity Principle</i>. The pattern of streets established through land divisions should be connected to: (a) provide <b>safe and convenient options</b> for cars, bikes and pedestrians; (b) create a <b>logical, recognizable pattern</b> of circulation; and (c) spread traffic</p>	<p>All of the bolded terms identified in SDC 17.100.100.A, D &amp; E are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “safe and convenient,” what is a “logical, recognizable pattern,” how many streets is “many” streets, which streets are “key,” how to determine</p>

<p>over <b>many</b> streets so that <b>key</b> streets (particularly U.S. 26) are not <b>overburdened</b>.</p> <p>D. <i>Street Spacing</i>. Street layout shall <b>generally</b> use a rectangular grid pattern with <b>modifications as appropriate</b> to adapt to topography or natural conditions.</p> <p>E. <i>Future Street Plan</i>. Future street plans are conceptual plans, street extensions and connections on acreage adjacent to land divisions. They assure access for future development and promote a <b>logical, connected</b> pattern of streets. It is in the interest of the city to promote a <b>logical, connected</b> pattern of streets. All applications for land divisions shall provide a future street plan that shows the pattern of existing and proposed future streets within the boundaries of the proposed land divisions, proposed connections to abutting properties, and extension of streets to adjacent parcels within a 400 foot radius of the study area where development may <b>practically</b> occur.</p>	<p>whether something is “overburdened,” what “generally” means, what “modifications” are allowed and when they are “appropriate,” what a “logical, connected pattern of streets” is, and how “practical[ ]” something may be; they are not clear and objective, but rather are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>
<p>SDC 17.100.120</p> <p>A. <i>Blocks</i>. Blocks shall have <b>sufficient width</b> to provide for two tiers of lots at <b>appropriate depths</b>. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.</p> <p>B. <i>Residential Blocks</i>. Blocks fronting local streets shall not exceed 400 feet in length, <b>unless topographic, natural resource, or other similar physical conditions justify</b> longer blocks.</p> <p>D. <i>Pedestrian and Bicycle Access Way Requirements</i>. In any block in a residential or commercial district over 600 feet in length, a pedestrian and bicycle accessway with a minimum improved surface of ten feet within a 15-foot right-of-way or tract shall be</p>	<p>All of the bolded terms and phrases identified in SDC 17.100.120 are subjective and unclear because they are undefined and allow the decision maker to make a “subjective, value-laden analysis” as to what is “sufficient,” “appropriate”; what specific features from the general list supplied in part B would justify longer blocks; and how “public convenience and mobility” could be “enhance[d]” and what those terms mean. <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9. Such terms and phrases are “designed to balance or mitigate impacts of the development.” <i>Legacy Dev. Grp.</i>, Slip Op. at pp. 12 - 14; <i>Nieto</i>, Slip Op. at p. 9.</p>



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October 11, 2021  
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provided through the middle of the block. <b>To enhance public convenience and mobility</b> , such accessways may be required to connect to cul-de-sacs, or between streets and other public or semipublic lands or through greenway systems.	
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## Memorandum

VIA E-MAIL

**To:** Mike Robinson  
**From:** Erin M. Forbes  
**Date:** October 11, 2021  
**Subject:** LUBA Decisions on Limited Land Use Applications (proper incorporation of plans) and Needed Housing Applications (clear and objective standards & procedures)  
**File No.:** 126769-255102

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This memorandum sets forth the LUBA opinions issued between January 1, 2019 and the present where LUBA substantively discussed and decided on (1) the proper incorporation of comprehensive plans, transportation system plans and the like, as required by the Limited Land Use statutes; and (2) whether standards, conditions, and procedures applied to Needed Housing applications are clear and objective as required by the Needed Housing statutes.

### **1. Proper Incorporation / Limited Land Use Applications**

ORS 197.195(1) provides that “[i]f a city or county does not incorporate its comprehensive plan provisions into its land use regulations, the comprehensive plan provisions may not be used as a basis for a decision by the city or county or on appeal from that decision.”

The following is a list of LUBA opinions issued between January 1, 2019 and the present where LUBA reversed or remanded a local government’s decision to deny a needed housing application.

*Oster v. City of Silverton*, LUBA No. 2018-103 (May 7, 2019) (reversing)

The above-listed case is the only LUBA case published during this time period addressing the proper incorporation requirement of the limited land use decision statute.

### **2. Clear and Objective Standards & Procedures / Needed Housing Applications**

ORS 197.307(4) provides that “a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing.” ORS 227.173(2) further provides that “[w]hen an ordinance establishing approval

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October 8, 2021  
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standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

The following is a list of LUBA opinions issued between January 1, 2019 and the present where LUBA reversed or remanded a local government’s decision to deny a needed housing application, or where LUBA affirmed a local government’s approval of an application and did not apply subjective standards.

- *Legacy Development Grp. v. City of the Dalles*, LUBA No. 2020-099 (Feb. 24, 2021) (reversing)
- *Nieto v. City of Talent*, LUBA No. 2020-100 (Mar. 10, 2021) (reversing)
- *Buffalo-Bend Associates, LLC v. Clackamas County*, LUBA No. 2019-091 (Jan. 31, 2020) (remanding for failure to apply needed housing statutes and failure to analyze whether applicable criteria are clear and objective)
- *Knoell v. City of Bend*, LUBA No. 2021-037 (Aug. 20, 2021) (affirming approval of subdivision application that was approved after city declined to apply approval criteria that were not clear and objective based on needed housing rules)

Only one decision since 2019 has been issued where LUBA found that challenged standards were clear and objective, contrary to the applicant’s objections. *See Piculell Living Trust v. City of Eugene*, LUBA No. 2019-067 (Nov. 19, 2019) (affirming city’s decision to impose conditions of approval that were appealed by the applicant on basis that the relevant approval criteria were not clear and objective under the needed housing statutes).

\* \* \*

As stated above, the cases listed above were found through a search of LUBA opinions issued between 2019 and the present. With the exception of *Piculell*, all the cases cited support that LUBA is looking carefully at whether local governments are analyzing their development standards with the requirements of the limited land use and needed housing statutes in mind (that is, whether the standards properly incorporate the identified plans and whether the standards and procedures are clear and objective).

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October 11, 2021

**Michael C. Robinson**  
Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

**VIA E-MAIL**

Mr. Jerry Crosby, Chair  
Sandy Planning Commission  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE; Applicant's Submittal of Materials  
Received Pursuant to Public Record Request

Dear Chair Crosby and Planning Commission Members:

This office represents the Applicant in the above referenced Application. The Applicant requested, via public records request, correspondence relating to this Application. Several of those emails are relevant to the Director's decision-making process as relates to his recommendation for denial of the Application, and they are attached to this letter.

As you know, Mr. O'Neill's Staff Report for the September 27, 2021 public hearing noted that the Applicant made a public records request. The Applicant made the request, which Mr. O'Neill acknowledged is proper under Oregon law, to make sure it has all of the information allowing it to respond to the issues in this Application. The materials submitted with this letter are relevant to the arguments in support of the Director's recommendation to deny the Application.

The Applicant appreciates that the Director has an obligation to recommend either approval or denial of any application. However, even though here the Director has recommended denial of the Application, the email correspondence between the Director and the agencies asked to review the Application shows a lack of analysis of the needed housing statutes and whether the Commission may rely on the Comprehensive Plan, Transportation System Plan, Transit Master Plan, or Parks Plan in making its decision to approve or deny the Application. Indeed, there appears to have been no discussion between the Director and those agencies of the fact that the Application is both a needed housing application (which requires the application of only clear and objective approval criteria, standards, and procedures) and a limited land use decision (which allows reliance on the City's Comprehensive, Transportation System, Transit Master Plan, and Parks Plans *only if* those plans are properly incorporated into the approval criteria).

Mr. Jerry Crosby, Chair  
October 11, 2021  
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The attached correspondence shows that no consideration was given to the fact that the Applicant's second Application was no longer requesting a Plan amendment, and that as submitted now, it was subject to different approval criteria and different state laws (namely, the needed housing and limited land use decision statutes) when analyzing the Applicant's submission materials.

Please place this letter and the enclosed attachments before the Planning Commission prior to its meeting on November 8, 2021, and in the official Development Services Department file for the above-referenced Application.

Very truly yours,



Michael C. Robinson

MCR/jmhi  
Enclosures

cc: Mr. Dave Vandehey (*via email*) (*with enclosures*)  
Mr. Carey Sheldon (*via email*) (*with enclosures*)  
Mr. Alex Reverman (*via email*) (*with enclosures*)  
Mr. Ray Moore (*via email*) (*with enclosures*)  
Mr. Tyler Henderson (*via email*) (*with enclosures*)  
Mr. Tracy Brown (*via email*) (*with enclosures*)  
Mr. Garrett H. Stephenson (*via email*) (*with enclosures*)  
Ms. Erin M. Forbes (*via email*) (*with enclosures*)  
Mr. Kelly O'Niell (*via email*) (*with enclosures*)  
Mr. David Doughman (*via email*) (*with enclosures*)

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Exhibit 6  
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**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Monday, August 16, 2021 12:10 PM  
**To:** Shelley Denison  
**Subject:** Re: Video for 21-014

I think if you use a combination of the notice I created and the applicant narrative that should do the trick. We should stay factual about the parkland and Dubarko Road extension, and state that certain plans (i.e. the Parks Master Plan and TSP) required additional parkland dedication and the road connection, but not hint at those two items leading to any sort of denial. If you can use the site plan and plat as visuals in the video that would be great also. Thanks!

On Mon, Aug 16, 2021 at 8:46 AM Shelley Denison <[sdenison@ci.sandy.or.us](mailto:sdenison@ci.sandy.or.us)> wrote:  
Hey Kelly,

I'm gonna make this video today. Are there certain things I should focus on?

I'm also thinking about directing folks to watch the development process video as well.

--

**Shelley Denison**  
**Associate Planner**

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
503-783-2587  
[sdenison@ci.sandy.or.us](mailto:sdenison@ci.sandy.or.us)

*"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody." - Jane Jacobs*

--

Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

**From:** BRUMLEY Seth A <Seth.A.BRUMLEY@odot.state.or.us>  
**Sent:** Monday, August 16, 2021 2:58 PM  
**To:** Kelly O'Neill Jr.  
**Cc:** BOLEN Glen A  
**Subject:** RE: Deer Meadows

Hi Kelly,

I am meeting with our planning manager tomorrow morning to discuss this. We have a new process for engaging with DOJ. I hope to be able to provide more information at our meeting tomorrow.

Thanks,  
Seth

---

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Monday, August 16, 2021 2:33 PM  
**To:** BRUMLEY Seth A <Seth.A.BRUMLEY@odot.state.or.us>  
**Subject:** Re: Deer Meadows

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Seth - Can you get me the DOJ attorney contact information so that I can forward to our city attorney?

On Sun, Aug 15, 2021 at 2:12 PM BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)> wrote:

I can try, but it may be difficult to get somebody by Tuesday. I will talk to our manager Monday morning.

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**From:** Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)>  
**Sent:** Saturday, August 14, 2021 10:41 PM  
**To:** BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)>  
**Subject:** Re: Deer Meadows

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Can an attorney from ODOT make our meeting on Tuesday? I have engaged the City land use attorney on this project and believe the ODOT attorney needs to be involved also.

On Wed, Aug 11, 2021, 4:19 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:

How about Tuesday the 17th at 11:30 am?

On Wed, Aug 11, 2021, 2:54 PM BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)> wrote:

Hi Kelly,

ODOT received the land use application for Deer Meadows and I have been asked to help coordinate the ODOT response since it is very important to the TSP implementation. Do you have time tomorrow afternoon or early next week to meet and discuss the Dubarko Rd extension? It looks like Monday afternoon after 3:00 and most times on Tuesday would work for me and Avi.

Thanks,

Seth

This e-mail is a public record of the City of Sandy and is subject to the State of Oregon Retention Schedule and may be subject to public disclosure under the Oregon Public Records Law. This e-mail, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please send a reply e-mail to let the sender know of the error and destroy all copies of the original message.

--

Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Friday, August 27, 2021 8:28 AM  
**To:** BRUMLEY Seth A  
**Cc:** TAYAR Abraham \* Avi  
**Subject:** Re: Deer Meadows

Great. I want to hear from Mike Walker and our attorney as well.

On Fri, Aug 27, 2021 at 8:27 AM BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)> wrote:

Sounds good. We can make that recommendation and let the City negotiate from there as needed. I will make that change.

---

**From:** Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)>  
**Sent:** Friday, August 27, 2021 8:13 AM  
**To:** BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)>  
**Cc:** TAYAR Abraham \* Avi <[Abraham.TAYAR@odot.state.or.us](mailto:Abraham.TAYAR@odot.state.or.us)>  
**Subject:** Re: Deer Meadows

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

John Replinger said, " I think the "not preclude " language is far from ideal. I say construct it."

On Thu, Aug 26, 2021 at 1:37 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:

Thanks Seth and Avi. I will review and also get feedback from Replinger, Mike Walker and our attorney.

On Thu, Aug 26, 2021, 1:26 PM BRUMLEY Seth A <[Seth.A.BRUMLEY@odot.state.or.us](mailto:Seth.A.BRUMLEY@odot.state.or.us)> wrote:

Hi Kelly,

Here is a draft ODOT comment letter for Deer Meadows. I am still working with our manager to try and arrange a discussion between our DOJ attorney and the City attorney, but I don't think it would significantly change our comments. Please take a look and let me know if anything needs clarification before I submit a final version.

Thanks,

Seth

--

Kelly O'Neill Jr.

Development Services Director

City of Sandy

Development Services Department

39250 Pioneer Blvd

Sandy, OR 97055

(503) 489-2163

[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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Kelly O'Neill Jr.

Development Services Director

City of Sandy

Development Services Department

39250 Pioneer Blvd

Sandy, OR 97055

(503) 489-2163

[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Monday, August 30, 2021 11:41 AM  
**To:** Andi Howell  
**Cc:** Marisol Martinez  
**Subject:** Re: Deer Meadows

Andi - Do you have a timeline for a revised memo? I need it ASAP. Thanks

On Thu, Aug 26, 2021 at 4:09 PM Kelly O'Neill Jr. <koneill@ci.sandy.or.us> wrote:

That said, if you want to expand on the importance it would help.

On Thu, Aug 26, 2021 at 4:08 PM Kelly O'Neill Jr. <koneill@ci.sandy.or.us> wrote:

This is great, thank you!

On Thu, Aug 26, 2021 at 3:36 PM Andi Howell <ahowell@ci.sandy.or.us> wrote:

Hi there, attached is a memo regarding Deer Meadows Subdivision. I briefly referenced the Transit Master Plan in this memo.

If you would like me to expand on the importance of transit amenities with a village development, include the pages of the Transit Master Plan and/or the importance of planned developments with access to major arterial road/highways to reduce costs of operations and greatly improve transit's ability to serve the development, please let me know.

Thank you,

Andi

**Andi Howell**  
Transit Director

City of Sandy  
16610 Champion Way  
Sandy, OR 97055  
503-489-0925  
[ahowell@ci.sandy.or.us](mailto:ahowell@ci.sandy.or.us)

[Sandy Transit Web and Trip Planner](#)



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Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

--

Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Tuesday, August 31, 2021 10:20 AM  
**To:** MW  
**Subject:** Re: PW comments file no. 21-014 Deer Meadows

Also, Street C is a public access lane so I think your comment that the ROW has to be at least 50 feet is not applicable.

On Tue, Aug 31, 2021 at 9:39 AM Kelly O'Neill Jr. <koneill@ci.sandy.or.us> wrote:

Thanks Mike. How about water and sanitary sewer? You had comments on both with Bull Run Terrace but I do not see anything in this memo. Do you want either utility extended east in Highway 26 to the furthest extent of the property boundary?

On Tue, Aug 31, 2021 at 9:13 AM MW <mwalker@ci.sandy.or.us> wrote:

Kelly,

attached please find my comments. Let me know if questions.

--

Mike Walker

Director of Public Works

City of Sandy

39250 Pioneer Blvd.

Sandy, OR 97055

503-489-2162 V

503-668-8714 F

[www.ci.sandy.or.us](http://www.ci.sandy.or.us)

--

Kelly O'Neill Jr.  
Development Services Director

City of Sandy

Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

--  
Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

2

Exhibit 5  
Page 2 of 2

Exhibit 6  
Page 11 of 19

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Tuesday, August 31, 2021 10:59 AM  
**To:** MW  
**Subject:** Re: PW comments file no. 21-014 Deer Meadows

here are some examples:

1. The applicant shall install all water lines and fire hydrants in compliance with the applicable standards in Section 17.100.230, which lists requirements for water facilities. According to the Public Works Director the existing 8-inch diameter water line resides in an easement granted to the City of Sandy recorded at 2004-110340. **The applicant shall replace the existing waterline with an 8-inch diameter water line at a depth approved by the City Engineer.** There will be no compensation or credits for replacement of the existing water line. This pipe is a standard pressure line and will be used to provide domestic water service to the development. The City's water master plan shows an 18-inch diameter water line in Dubarko Road south of Highway 26. **The applicant shall install an 18-inch water line in Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26.** Due to the elevation of the site relative to the existing water reservoirs on Vista Loop Drive this line will be a low-pressure, high-volume line and will be used for fire protection. The cost difference between a standard diameter water line and the required 18-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017. Section 17.84.60D SMC states: "As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies)". **The applicant shall extend the existing 12-inch water main in Highway 26 east from the proposed intersection of Dubarko Road and Highway 26 to the east boundary of the site.** The cost difference between a standard diameter (8 inch) water line and the required 12-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017.

2. The applicant intends to install sanitary sewer lines in compliance with applicable standards in Section 17.100.240. [Add MW comments] All lots except Lot 7 are designed to gravity drain to the sanitary sewer line in Dubarko Road. Due to grade, Lot 7 is not able to drain to the line in Dubarko Road but is proposed to connect to the existing sanitary sewer line at the north end of the park property. According to the Public Works Director the recently adopted Wastewater System Facilities Plan (2019) identified a capacity deficiency in the Southeast pump station and force main as well as several conveyance lines downstream. The City will adopt a Sanitary Sewer SDC surcharge on each Equivalent Residential Unit developed in the basin served by the Southeast pump station. The surcharge amount will be calculated by dividing the estimated cost of the required capacity improvements by the estimated number of dwelling units that can be built in the pump station drainage basin. The surcharge will be collected with each building permit issued in the basin.

3. Section 17.100.250(A) details requirements for stormwater detention and treatment. A public stormwater quality and detention facility is proposed as Tract C to be located at the northwest corner of the proposed development. [Add MW comments] This facility has been sized and located to accommodate the water quality and stormwater detention needs of all streets in addition to Lots 1-4. The applicant submitted a revised utility plan (Exhibit M) detailing a second stormwater facility identified as Tract C in the SW corner

of the property. The revised utility plan also removed the 15-foot-wide public stormwater easement and utilities along the west lot line of Lots 1, 2, and 4. The water quality and detention needs of Lots 5-7 will be accommodated on each of those lots and stormwater from Lots 5 and 6 will be routed to flow through Tract B. After onsite detention and water quality treatment, stormwater from Lot 7 will be piped and connected to the existing storm line in the park. All site runoff shall be detained such that post-development runoff does not exceed the predevelopment runoff rate for the 2, 5, 10 and 25 year storm events. Stormwater quality treatment shall be provided for all site drainage per the standards in the City of Portland Stormwater Management Manual (COP SWMM).

On Tue, Aug 31, 2021 at 10:56 AM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:

Ok, thanks. I want to deny this application on a number of things...previously we required sanitary sewer extended in the Highway 26 ROW. Please add anything applicable for water and sanitary sewer also.

On Tue, Aug 31, 2021 at 10:55 AM MW <[mwalker@ci.sandy.or.us](mailto:mwalker@ci.sandy.or.us)> wrote:

I wondered about that but since they identified it as a street I added the comment. I will edit the comments and re send them.

On Tue, Aug 31, 2021 at 10:20 AM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:

Also, Street C is a public access lane so I think your comment that the ROW has to be at least 50 feet is not applicable.

On Tue, Aug 31, 2021 at 9:39 AM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:

Thanks Mike. How about water and sanitary sewer? You had comments on both with Bull Run Terrace but I do not see anything in this memo. Do you want either utility extended east in Highway 26 to the furthest extent of the property boundary?

On Tue, Aug 31, 2021 at 9:13 AM MW <[mwalker@ci.sandy.or.us](mailto:mwalker@ci.sandy.or.us)> wrote:

Kelly,

attached please find my comments. Let me know if questions.

--

Mike Walker

Director of Public Works

City of Sandy

39250 Pioneer Blvd.

Sandy, OR 97055

503-489-2162 V

503-668-8714 F

[www.ci.sandy.or.us](http://www.ci.sandy.or.us)



--  
Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

--  
Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
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Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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Mike Walker  
Director of Public Works  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055  
503-489-2162 V  
503-668-8714 F  
[www.ci.sandy.or.us](http://www.ci.sandy.or.us)

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Exhibit 6  
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Exhibit 6  
Page 14 of 19

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Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

--  
Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Thursday, September 02, 2021 2:53 PM  
**To:** MW  
**Subject:** Re: revised comments 21-014

Thank you! Sorry for all the back and forth but I want to raise these issues now especially with my recommendation being a denial.

On Thu, Sep 2, 2021, 2:42 PM MW <[mwalker@ci.sandy.or.us](mailto:mwalker@ci.sandy.or.us)> wrote:  
Thanks Kelly,

I dropped references to Street "C" as a street in this version. However they can't have it both ways... if its a street it doesn't meet the intersection spacing standard, if its a public access lane it doesn't meet the 150 ft. minimum separation between an 'access' to a collector (Street "B") and an arterial street (Dubarko). This version addresses that.

On Thu, Sep 2, 2021 at 2:29 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:  
I modified the date to Sep. 2 and changed the highlighted section to just reference 17.100.160. See attachment. Good?

On Thu, Sep 2, 2021 at 2:12 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:  
In Section 17.100.160 of the narrative, Tracy says:

"Due to the configuration of the subject property and the location and access limitations to Dubarko Drive and Street B, Street C is proposed as a Public Access Lane as detailed below."

On Thu, Sep 2, 2021 at 2:05 PM MW <[mwalker@ci.sandy.or.us](mailto:mwalker@ci.sandy.or.us)> wrote:  
Kelly,

Here you go... Check the italicized and highlighted comments and delete or edit as you see fit.

On Thu, Sep 2, 2021 at 12:17 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:  
Mike - Any updates?

On Wed, Sep 1, 2021 at 9:36 AM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:  
Mike - If you can get the revised letter to me today that would be much appreciated. Thanks

On Tue, Aug 31, 2021 at 3:42 PM Kelly O'Neill Jr. <[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)> wrote:  
Received, thank you.

On Tue, Aug 31, 2021 at 3:32 PM MW <[mwalker@ci.sandy.or.us](mailto:mwalker@ci.sandy.or.us)> wrote:  
Kelly,

My revised comments are attached - Take a look at the discussion in italics regarding Street C.

--

Mike Walker  
Director of Public Works  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055  
503-489-2162 V  
503-668-8714 F  
[www.ci.sandy.or.us](http://www.ci.sandy.or.us)

--

Kelly O'Neill Jr.  
Development Services Director  
City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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Kelly O'Neill Jr.  
Development Services Director  
City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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Mike Walker  
Director of Public Works

City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055  
503-489-2162 V  
503-668-8714 F  
[www.ci.sandy.or.us](http://www.ci.sandy.or.us)

--  
Kelly O'Neill Jr.  
Development Services Director  
City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

3

Exhibit 7  
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Page 18 of 19

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Kelly O'Neill Jr.  
Development Services Director

City of Sandy  
Development Services Department  
39250 Pioneer Blvd  
Sandy, OR 97055  
(503) 489-2163  
[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

--  
Mike Walker  
Director of Public Works  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055  
503-489-2162 V  
503-668-8714 F  
[www.ci.sandy.or.us](http://www.ci.sandy.or.us)

Date: October 11, 2021

To: Sandy Planning Commission

From: Tracy Brown, Tracy Brown Planning Consultants, LLC

Subject: Deer Meadows Subdivision (File No. 21-014) Staff Recommended Conditions

The purpose of this memo is to provide additional written testimony regarding items identified in the September 17, 2021 staff report in bold type. It is our understanding items identified in bold type are staff recommended Conditions of Approval. As detailed below, the applicant is requesting modifications to a few of these Conditions.

1. Finding 30 - This Condition lists Lots 9-16, 20, and 21 as requiring shared driveways. *Response: A review of the submitted plan and the listed lots reveals that it is not feasible to require all of these lots to share driveways. Driveways are typically shared in pairs only. With this in mind, we request this Condition be modified to only require shared driveways for Lots 9/10 and 14/15. After reviewing this Condition we have determined it is not feasible to require Lot 11 to share a driveway, Lots 12/13 already share a private drive (Tract B), there is no lot for Lot 16 to share access with, and Lots 20/21 already share a private drive (Tract A).*
2. Finding 34 - This Condition requires all residential structures on lots abutting Highway 26, Dubarko Road, and Street B to have their primary entrances oriented towards these streets. *Response: As noted in the narrative submitted with this application, the submitted application is a "Needed Housing" application pursuant to ORS 197.303(1) and ORS 197.307(4), therefore only objective standards and procedures apply to the application review. The words "primary entrances" and "oriented toward" as used in Section 17.82.20(A) are subjective words. The applicant is fine with complying with this Condition for homes located abutting Dubarko Road and Street B, but because of the grade separation between Highway 26 and the lots abutting this road, the applicant is opposed to this Condition for Lots 13, 21, 22, 25, and 26 abutting Highway 26. The applicant requests this Condition be modified.*
3. Finding 54 requires a transit pad and bench adjacent to Lot 1 and 5. *Response: The lot numbers in this recommendation are confusing in that Lots 1 and 5 are located along Street A, a local street, not a transit street. In addition, the applicant does not propose extending Dubarko Road to intersect with Highway 26 as stated in this Finding. The applicant requests this Condition be removed.*
4. Finding 69 requires the applicant to replace the existing 8-inch waterline and install an 18-inch waterline. *Response: The recommendations in this Condition are addressed in the applicant's attorney's 9/24/21 letter.*
5. Finding 70 requires the applicant to extend the existing 12-inch waterline to the eastern boundary of the site. *Response: The recommendation in this Condition is addressed in the applicant's attorney's 9/24/21 letter.*

6. Finding 88 requires the applicant to update the Street Tree Plan and install trees 30 feet on center along Street C and Highway 26 with the trees along Street C to be located behind the sidewalk and the trees along Highway in a planter strip.  
*Response: The applicant is fine with installing trees along Street C but since no improvements including a planter strip are proposed along Highway 26, the applicant requests this Condition be revised to require trees to be planted at the back of those lots (Lots 13, 21, 22, 25, 26) abutting Highway 26. The applicant requests this Condition be modified accordingly.*





City of Sandy  
39250 Pioneer Blvd.,  
Sandy, OR 97055

Agenda Date: August 11, 2021

To: Parks and Trails Advisory Board

From: Kelly O'Neill Jr., Development Services Director

Sarah Richardson, Staff Liaison Parks and Trails Advisory Board

Subject: Deer Meadows Subdivision

Attachments: None

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**Background:**

Deer Meadows is a proposed 32 lot subdivision located at 40808 Hwy. 26, Sandy, OR which is 15.91 acres.

The developer originally proposed a subdivision known as Bull Run Terrace with a zoning map amendment. The Bull Run Terrace proposal was denied by the City Council on 12/29/20.

The current application is a new land use application and does not include a zoning map amendment. The board discussed the previous land use application at meetings in June, July, and November of 2020. Minutes from those meetings can be accessed from the Public Meeting portal on the city's website: <https://sandy.civicweb.net/Portal/>

The proposed site is adjacent to the Deer Pointe subdivision, and to 1.40 acres of land designated for park development that was dedicated with the plat of Deer Pointe. Based on the 1997 Parks Master Plan, a neighborhood park is two to seven acres. Therefore, additional land dedication is needed to provide adequate area for the planned park. Additional land would provide capacity for desired community amenities and for the conceptual park as designed by ESA, the consultant for the Parks and Trails Master Plan.

According to the developer's narrative the Low Density Residential (R-1) zoned land will have 30 single family home lots (these could also be duplexes per House Bill 2001), and the Medium Density Residential (R-2) zoned land will have between 38 multifamily dwelling units and 66 multifamily dwelling units. The Village Commercial (C-3) land could also include multifamily dwelling units, but the number of units is unknown at this time. If multifamily dwelling units are proposed on the C-3 land the City of Sandy will collect parks fee in lieu.

Based on the subdivision proposal the calculation for the parkland is as follows:

R-1: 30 units x 3 x 0.0043 = 0.39 acres

R-2 minimum: 38 units x 2 x 0.0043 = 0.33 acres

R-2 maximum: 66 units x 2 x 0.0043 = 0.57 acres

Total minimum = 0.72 acres of parkland

Total maximum = 0.96 acres of parkland

NOTE: The number of dwelling units could be modified if conditions of approval require additional right-of-way dedication or parkland dedication.

The board can recommend that the developer dedicate land or pay a Fee in Lieu of land dedication.

**Municipal Code 17.86.10 MINIMUM PARKLAND DEDICATION REQUIREMENTS**

***Parkland Dedication:*** *New residential subdivisions, planned developments, multi-family or manufactured home park developments shall be required to provide parkland to serve existing and future residents of those developments.*

*Calculation of Required Dedication: The required parkland acreage to be dedicated is based on a calculation of the following formula rounded to the nearest 1/100 (0.00) of an acre: Required parkland dedication (acres) = (proposed units) x (persons/unit) x 0.0043 (per person park land dedication factor).*

*To read the entire Municipal Code related to Parkland and Open Space visit the Municipal Code Library:*

[https://library.municode.com/or/sandy/codes/code\\_of\\_ordinances?nodeId=TIT17DECO\\_CH17.86PAOPSP\\_S17.86.50MISTOPSPDE](https://library.municode.com/or/sandy/codes/code_of_ordinances?nodeId=TIT17DECO_CH17.86PAOPSP_S17.86.50MISTOPSPDE)

However, pursuant to ORS 197.195, the City cannot rely on the adopted parks master plan (i.e. the 1997 Parks Master Plan) to require the dedication of land or impose other standards in the plan because the standards are not incorporated into the development code. Further, because the master plan does not apply, the City might have difficulty in requiring the parkland to be dedicated at a particular location.

**Staff Recommendation: Require parkland dedication with the Deer Meadows subdivision plat.**

**Staff Contact:**

Sarah Richardson  
503-489-2150

[srichardson@cityofsandy.com](mailto:srichardson@cityofsandy.com)

10/18/21, 9:58 AM

City of Sandy Mail - New deer park development



**EXHIBIT OO**

Marisol Martinez <mmartinez@ci.sandy.or.us>

---

## New deer park development

---

Christy Veselik <christy@beeingkind.com>  
To: planning@ci.sandy.or.us

Sat, Oct 16, 2021 at 7:09 PM

Good evening,

I wanted to give my objection to the proposed new deer park development.

I've lived in Sandy my entire life, as did my mom, and my grandma. I've seen it grow now to a level that is just too much.

Traffic backs all the way back to Fred's RV and pulling out at Shorty's corner has become increasingly dangerous. The amount of fatalities in that intersection alone should show the issues with our current traffic flow, and the lack of any better options to make it improved.

The traffic in Sandy is a nightmare. Lights backing up all through town.. issues with the school bus lines and overfilled classrooms...

Not to mention all the new crime in the area. They're are just too many people for our area.

I strongly oppose ANY more new houses/apartments until the above issues are fixed.

Thank you,

Christy Veselik  
c/o Beeingkind  
503-312-0198  
Beeingkind.com

**Beeingkind to your body by using all natural ingredients.**

**Beeingkind to the earth by using reusable and recyclable packaging.**

**Beeingkind to YOU by creating a great tasting product!**



## Exhibit PP

October 18, 2021

**Michael C. Robinson**

Admitted in Oregon

T: 503-796-3756

C: 503-407-2578

mrobinson@schwabe.com

VIA E-MAIL TO [PLANNING@CI.SANDY.OR.US](mailto:PLANNING@CI.SANDY.OR.US);

SUBMITTED ON MONDAY, OCTOBER 18, 2021 BEFORE 4:00 P.M.

Mr. Jerry Crosby, Chair  
Sandy Planning Commission  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE; Applicant's Second Open Record  
Period Submittal

Dear Chair Crosby and Planning Commission Members:

This office represents Roll Tide Properties Corp., the Applicant. This letter and its exhibit constitutes the Applicant's second open record period submittal and is timely submitted on Monday, October 18, 2021 before 4:00 p.m.

### A. Testimony Schedule.

The Planning Commission opened the initial evidentiary hearing on September 27, 2021. The Planning Commission closed the public hearing and left the written record open until October 11, 2021 for any person to submit new evidence or argument. The Planning Commission allowed a second open record period until October 18, 2021 at 4:00 PM for any person to rebut argument and evidence submitted during the first open record period. The Applicant's final written argument is due on October 25, 2021 at 4:00 p.m. This letter constitutes the Applicant's second open record period response.

### B. Items Submitted During the First Open Record Period.

Seven discrete documents were submitted into the record during the first open record period:

1. A letter dated October 11 from Michael Robinson on behalf of the Applicant, with eight exhibits (Exhibit NN).
2. A memorandum dated October 11 from Michael Robinson on behalf of the applicant, enclosing two excerpts from the Staff Report for the prior Bull Run application (Exhibit LL).
3. An email dated October 6 from Michael Robinson enclosing an email between Mr. Robinson and ODOT staff (Exhibit HH).

Mr. Jerry Crosby, Chair  
October 18, 2021  
Page 2

4. A letter dated October 6 from Michael Robinson granting an extension of the City's 120-day decision deadline to January 5, 2022 (Exhibit II).
5. A letter from Portland Metro Homebuilder's Association (Exhibit MM).
6. A memo dated October 6, 2021 from the City's transportation engineer, Replinger Associates (Exhibit JJ, the "Replinger Memo") commenting on updated traffic analysis provided by Mark Ard, the Applicant's transportation engineer.
7. An email dated October 7, 2021 between planning director Kelly O'Neil and Oregon Department of Land Conservation and Development Staff (Exhibit KK, the "DLCD Email") regarding applicability of Oregon Fire Code access requirements to duplexes allowed under HB 2001.

This letter responds to the last two submittals, the DLCD Email and the Replinger Memo.

**C. Response to Exhibit KK, the DLCD Email.**

The Oregon Fire Code requires two separate fire access roads into a "development" that includes more than 30 dwelling units. The Application includes two fire access routes: Dubarko Road and Fawn Street, and a third fire access will be created if and when "Street B" is extended to the south.

Exhibit KK is an email between the Planning Director and DLCD staff in which the Planning Director speculates about the impact of Oregon Fire Code accessibility requirements if the proposed lots were developed with duplexes. As explained in the application, the proposed subdivision is anticipated to provide 30 single-family dwelling units. While these lots could allow duplexes under HB 2001 (commonly known as the "Middle Housing Bill"), duplexes are not currently proposed on the lots. Therefore, whether the proposed fire access system is amendable to duplexes is not before the Commission. Regardless, as explained above, the Application includes two fire access points. Moreover, DLCD staff indicates that whether some of the lots could be developed with duplexes is not a basis upon which the City should deny the Application.

**D. Response to Exhibit JJ, the Replinger Memo.**

As noted above, John Replinger's October 6 memorandum responds to additional transportation analysis submitted by Mike Ard on September 27, 2021. Mr. Ard's September 27 memorandum addressed the Project's potential traffic impacts on the intersection of Highway 211 and Dubarko Road, provides additional information about traffic safety, and examines the impact of the project on existing and proposed local streets.

Mr. Replinger's response generally concurred with Mr. Ard's conclusions, including the following points:

Mr. Jerry Crosby, Chair  
October 18, 2021  
Page 3

- The Applicant’s traffic counts for the AM and PM peak hours are based on the correct methodology and appear reasonable.
- The Applicant’s trip generation estimate appears reasonable.
- The Applicant’s trip distribution analysis “seems reasonable” on a “city-wide scale.”
- The Applicant’s background traffic-growth assumptions are reasonable.
- The Applicant’s analysis of local street impacts is correct.
- Mr. Replinger concurs with the Applicant’s proposal to provide a four-way stop control at the Highway 211 and Dubarko Road intersection to address potential safety issues there.
- Mr. Replinger found that “sight distance is unlikely to be a problem and can be dealt with during design of the streets.”

The only disagreement that Mr. Replinger appears to have with Mr. Ard relates to the proposed mitigation for the Highway 211 and Dubarko Road intersection. Mr. Replinger concedes that the Applicant’s “proposed mitigation (conversion to all-way stop control) has some benefits or potential benefits,” but goes on to speculate that the proposed four-way stop at the Highway 211 and Dubarko Road intersection could increase delays in the northbound and southbound direction. However, Mr. Replinger does not appear to disagree that the four-way stop would increase safety at that intersection and would address level of service concerns in the eastbound and westbound direction. Ultimately, Mr. Replinger concludes that “I leave it to others to assess those opinions.”

Mr. Replinger’s discussion of the lack of a Dubarko Road extension is a transportation planning issue not directly related to the transportation impacts of the Application. Stated simply, the Applicant is not required, as a matter of law or transportation engineering, to analyze street extensions and other development that is not proposed.

In **Exhibit 1**, Mr. Ard provides a comprehensive response to the transportation engineering aspects of Mr. Replinger’s analysis. As explained therein, the only contested transportation engineering issue—the level of service at the Highway 211 and Dubarko Road intersection—is adequately addressed by the Applicant’s transportation impact study. This is because the City’s adopted method of transportation analysis relies on the “most recent edition of the Transportation Research Board’s Highway Capacity Manual”; as explained in Exhibit 1, following conversion to all-way stop control, intersection performance is improved when measured in accordance with the procedures described in the Highway Capacity Manual.

Regardless, even if the mitigation did not satisfy the City’s level of service standard, under ORS 197.195(1) it could not be a basis for denial because that standard has not been incorporated into the City’s land use regulations.

Mr. Jerry Crosby, Chair  
October 18, 2021  
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**E. Conclusion.**

For the reasons stated in the Application, the hearing, and post-hearing testimony, the Applicant respectfully requests that the Planning Commission approve the Application.

Very truly yours,



Michael C. Robinson

MCR/jmhi  
Enclosures

cc: Mr. Dave Vandehey (*via email*) (*with enclosures*)  
Mr. Carey Sheldon (*via email*) (*with enclosures*)  
Mr. Alex Reverman (*via email*) (*with enclosures*)  
Mr. Ray Moore (*via email*) (*with enclosures*)  
Mr. Tyler Henderson (*via email*) (*with enclosures*)  
Mr. Tracy Brown (*via email*) (*with enclosures*)  
Mr. Mike Ard (*via email*) (*w/enclosures*)  
Ms. Erin Forbes (*via email*) (*w/enclosures*)  
Mr. Garrett H. Stephenson (*via email*) (*with enclosures*)  
Mr. David Doughman (*via email*) (*w/enclosures*)  
Mr. Kelly O'Neill, Jr. (*via email*) (*with enclosures*)

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21370 SW Langer Farms Pkwy  
Suite 142, Sherwood, OR 97140

## Technical Memorandum

EXPIRES: 12/31/2021

**To:** Dave Vandehey, Roll Tide Properties Corporation  
**From:** Michael Ard, PE  
**Date:** October 15, 2021  
**Re:** **Deer Meadows Subdivision – Review Comment Responses**

---

Following submittal of the updated traffic impact study prepared for the Deer Meadows Subdivision dated September 27, 2021 we have received review comments from the city's transportation engineer, John Replinger, PE. This memorandum is written in response to his review comments dated October 6, 2021.

In his review, Mr. Replinger agrees with nearly all of the assumptions, methodologies and analysis provide in the traffic impact study. However, he maintains a few concerns which are further addressed herein.

- Concerns regarding the elimination of the Dubarko Road extension to intersect Highway 26 and the proposed new north/south collector roadway

Mr. Replinger expressed concern that the applicant does not propose extending Dubarko Road to connect with Highway 26 opposite SE Vista Loop Drive (West), and instead proposes that Dubarko Road will terminate at a new north/south collector roadway.

The TSP has not been properly incorporated into the city's development code. Accordingly, the proposed development cannot lawfully be evaluated based on whether Dubarko Road is extended to intersect Highway 26. However, a north/south collector is actually a feature described in the city's TSP. Providing a north/south collector roadway establishes a logical and useful connection which facilitates future development to the south of the subject property and could even ultimately facilitate an alternative connection to Highway 26 south of the Dubarko Road alignment.

- Concerns regarding future development within the C3 zone

Mr. Replinger expressed concerns that future traffic volumes associated with potential development within the C3 zone were not assessed in the traffic impact study.

No development is proposed on the commercially zoned property. This results in several unknowns which make a near-term analysis impossible. First, we cannot assess the expected volume of traffic that would be generated by development within the C3 zone without knowing the nature and intensity of the land use. Second, we cannot be confident that the trip distribution assumptions made for the residential uses in the current development plan would equally apply to unknown future commercial uses within the C3 zone. Third, we cannot know when future development might occur within the C3 zone.





This third element, project timing, is critical to evaluation of a proposed development. When preparing a traffic impact study, the year of project completion is used to project background traffic levels (absent the development) and make comparisons to traffic volumes with the addition of site trips from the development. This comparison is what allows a determination of whether the transportation system will meet established mobility standards and is the framework within which appropriate mitigation can be determined. Since nothing is currently proposed within the C3 zone, we cannot reasonably expect that this portion of the property will develop in the near future and cannot even be sure that it will develop even within the long-range planning horizon.

In this instance, the property already has appropriate zoning and no changes to the zoning are proposed. Accordingly, a long-range planning horizon analysis is not required for the proposed development. The provisions of Oregon's Transportation Planning Rule do not apply to the outright permitted use currently being proposed. The analysis provided properly accounts for the development currently being proposed, and any future development application will require its own analysis based on the actual characteristics and timing of the future development.

- Concerns that the distribution of site trips assumed in the TSP may be impacted by the elimination of the Dubarko Road extension

Mr. Replinger expressed concerns that travel patterns in the site vicinity may be impacted by deletion of the Dubarko Road extension as measured at the planning horizon.

Since no Dubarko Road connection exists currently, near term impacts on traffic distribution patterns will be minimally impacted by the proposed development. Since the proposed development is in conformance with the underlying zoning and no zone change is proposed for the property, our obligation is to analyze conditions at the time of project completion with and without the addition of site trips from the proposed development. That analysis was provided in the Traffic Impact Study prepared for the project, and appropriate safety and operational mitigations were recommended. Trip distribution patterns will remain similar to existing conditions upon completion of the proposed development.

Any analysis beyond the year of the current project completion will need to be conducted in conjunction with future development applications and/or the city's ongoing update to its Transportation System Plan. However, such an analysis cannot be required in conjunction with a permitted use, particularly one that provides needed housing.

- Concerns regarding the adequacy of the proposed mitigation at Highway 211 and Dubarko Road



Mr. Replinger indicated that “It is somewhat misleading to describe the intersection [of Highway 211 at Dubarko Road] as operating ‘better than under background conditions.’”

The city’s development code contains no operational standards directly applicable to intersections in the City of Sandy. Instead, the code merely states, “*The study must demonstrate that the transportation impacts from the proposed development will comply with the City's level-of-service and average daily traffic standards and the Oregon Department of Transportation's mobility standard*” (Sec. 17.84.50.B.4). Although not stated explicitly in this code section, the city’s operational standards are found in the Transportation System Plan, which has not been properly incorporated into the development code. Accordingly, these standards cannot lawfully be applied.

However, it should be noted that even if the city’s standards had applied to this application, the assertion that intersection operation is improved remains accurate as defined by the City of Sandy. The city’s Transportation System Plan provides:

*Mobility standards are established to delineate the maximum level of congestion that will be accepted on a given facility or within a specified area. The road authority – City, State or County – sets and applies specific standards for their facilities.*

*The City of Sandy mobility standard requires a minimum level of service (LOS) D for signalized, as well as unsignalized intersections. Level of service shall be based on the most recent edition of the Transportation Research Board's Highway Capacity Manual.*

From this text, two things are made clear.

First, the text provides that the applicable road authority sets and applies the specific standards for their facilities. Accordingly, the analyzed state highway intersections would be subject to the mobility standards established in the Oregon Highway Plan based on intersection volume-to-capacity ratios, while the intersections operating under City of Sandy jurisdiction would be subject to the city’s level-of-service based mobility standards.

Second, the text describes that signalized and unsignalized intersections operating under the jurisdiction of the City of Sandy should operate at level of service “D” or better based on the methodology described in the Highway Capacity Manual (HCM).

In the Traffic Impact Study dated November 27, 2021 the intersection of Highway 211 at Dubarko Road is described as operating at level of service F under year 2023 background conditions and level of service E under year 2023 background plus site trips conditions following conversion of the intersection to all-way



stop control. These results were reported based on evaluation of the worst approach movement in order to provide an “apples to apples” comparison between the two scenarios in which both background traffic conditions and future background plus site trips mitigated conditions are compared using the same metric.

However, most jurisdictions evaluate the level of service for all-way stop control based on the average intersection delay (similar to a signalized intersection), rather than the average delay for the worst approach movement. This is because all-way stop control intersections alternate between serving the different approach movements and no individual movement is subject to indefinite delays where the driver needs to constantly remain vigilant in looking for a safe gap in the traffic flow. Using the Synchro analysis output worksheet previously provided in the November 27<sup>th</sup> traffic impact study, the average intersection delay during the morning peak hour with conversion to all-way stop control is 17.4 seconds (level of service C), and the average intersection delay during the evening peak hour is 27.2 seconds (level of service D). Accordingly, if future intersection operation is evaluated based on average intersection delay it is projected to meet the city’s level of service standard.

Regardless of which option is used to assess intersection operation, the level of service is improved following implementation of our proposed mitigation. Since intersection level of service is the city’s explicitly defined metric for evaluating compliance with the mobility standard, intersection operation is improved per the city’s own definition.

If the City wishes to pursue alternative improvements to the intersection of Highway 211 at Dubarko Road, it may be possible to achieve operation at level of service “D” for all approach movements under year 2023 background plus site trips conditions. One potential mitigation that could achieve this goal would be the installation of all-way stop control along with construction of a new northbound right-turn lane from Highway 211 onto Dubarko Road. With both improvements in place, the worst intersection approach would operate at level of service “D” or better during the peak hours. Detailed analysis worksheets showing the results of this potential mitigation are provided in the attached technical appendix.

## Appendix

HCM 6th AWSC  
3: Highway 211 & Dubarko Road

10/15/2021

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕	↕		↕	↕
Traffic Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Future Vol, veh/h	7	11	48	44	53	86	27	297	13	17	197	2
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	5	5	5	4	4	4	5	5	5	4	4	4
Mvmt Flow	9	14	62	56	68	110	35	381	17	22	253	3
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	10.1	11.3	21.2	14.5
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	8%	0%	39%	0%	45%	0%	8%	0%
Vol Thru, %	92%	0%	61%	0%	55%	0%	92%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	13	18	48	97	86	214	2
LT Vol	27	0	7	0	44	0	17	0
Through Vol	297	0	11	0	53	0	197	0
RT Vol	0	13	0	48	0	86	0	2
Lane Flow Rate	415	17	23	62	124	110	274	3
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.698	0.025	0.047	0.11	0.243	0.187	0.476	0.004
Departure Headway (Hd)	6.047	5.297	7.36	6.445	7.034	6.09	6.241	5.491
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	598	673	484	552	509	587	576	648
Service Time	3.801	3.05	5.147	4.231	4.805	3.86	4.003	3.252
HCM Lane V/C Ratio	0.694	0.025	0.048	0.112	0.244	0.187	0.476	0.005
HCM Control Delay	21.7	8.2	10.5	10	12.1	10.3	14.6	8.3
HCM Lane LOS	C	A	B	A	B	B	B	A
HCM 95th-tile Q	5.6	0.1	0.1	0.4	0.9	0.7	2.6	0

HCM 6th AWSC  
3: Highway 211 & Dubarko Road

10/15/2021

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕		↕	↕		↕	↕
Traffic Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Future Vol, veh/h	7	48	60	40	40	51	72	345	71	54	376	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	7	49	62	41	41	53	74	356	73	56	388	21
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	11	11.5	22.1	25.4
HCM LOS	B	B	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	17%	0%	13%	0%	50%	0%	13%	0%
Vol Thru, %	83%	0%	87%	0%	50%	0%	87%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	71	55	60	80	51	430	20
LT Vol	72	0	7	0	40	0	54	0
Through Vol	345	0	48	0	40	0	376	0
RT Vol	0	71	0	60	0	51	0	20
Lane Flow Rate	430	73	57	62	82	53	443	21
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.736	0.109	0.121	0.119	0.179	0.1	0.761	0.031
Departure Headway (Hd)	6.164	5.366	7.699	6.913	7.827	6.855	6.181	5.407
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	662	468	521	461	526	581	656
Service Time	3.948	3.149	5.403	4.618	5.531	4.555	3.965	3.191
HCM Lane V/C Ratio	0.735	0.11	0.122	0.119	0.178	0.101	0.762	0.032
HCM Control Delay	24.4	8.8	11.5	10.6	12.2	10.3	26.2	8.4
HCM Lane LOS	C	A	B	B	B	B	D	A
HCM 95th-tile Q	6.3	0.4	0.4	0.4	0.6	0.3	6.8	0.1

**EXHIBIT QQ**

October 25, 2021

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

VIA E-MAIL TO [PLANNING@CI.SANDY.OR.US](mailto:PLANNING@CI.SANDY.OR.US);  
SUBMITTED ON MONDAY, OCTOBER 25, 2021 BEFORE 4:00 P.M.

Mr. Jerry Crosby, Chair  
Sandy Planning Commission  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: City of Sandy File No. 21-014 SUB/TREE (the “Applications”); Applicant’s Final  
Written Argument

Dear Chair Crosby and Planning Commission Members:

This office represents the Applicant. This letter is the Applicant’s final written argument without new evidence as those terms are defined in ORS 197.763(9)(a) and (b). Final written argument is the Applicant’s summary of its arguments in support of the Application and can include new issues. ORS 197.763(1) and ORS 197.763(6)(c) (Issues may be raised until the close of the record and final written argument is part of the record).

**1. Summary of Arguments.**

This letter summarizes the reasons why the Sandy Planning Commission (the Planning Commission”) should approve the Application with any necessary conditions of approval. The Planning Commission can find the following.

A. The Application requests tentative subdivision approval and is both a Limited Land Use Application and a Needed Housing Application. The Application does not request any variances nor are any of the Needed Housing exceptions applicable. State law provisions limit the approval criteria and discretion that the City may apply to the Application, unlike other kinds of Applications.

B. The requested park dedication cannot be based on the previous Parks Master Plan, as acknowledged in the Staff Report to the Parks and Trails Advisory Board nor can the City meet its *Nollan* and *Dolan* burden of proof to require the dedication without resorting to a standardless choice that is not clear and objective. The new Parks Master Plan was not effective on the date that this Application was submitted.

Mr. Jerry Crosby, Chair  
October 25, 2021  
Page 2

C. None of the Plans – the Transit Plan, the Comprehensive Plan the Parks Plan and the Transportation System Plan (the “TSP”) – referenced in the Staff Report can be used by the Planning Commission in making its decision on the Application because they are not properly incorporated into the land use regulations and contain standards and guidelines that are not clear and objective, contain non-clear and objective procedures and encourage non-clear and objective conditions, all of which result in unreasonable cost and delay in the provision of housing.

Most importantly, there is no effective legal rebuttal to the Applicant’s arguments so far. While the Planning Director asked for the Oregon Department of Transportation (“ODOT”) to have the Oregon Justice Department participate (it did not), the Planning Director did not ask for the Oregon Department of Land Conservation and Development (“DLCD”) to comment on the Application’s Needed Housing and incorporation arguments.

D. The requested extension of Dubarko Road cannot be based on the TSP because the TSP is not incorporated into the City’s land use regulations and even if it were, the relevant standards are not clear and objective. The same is true for the requested U.S. Highway 26 frontage improvements.

E. The standards that can be applied to the Application are satisfied by substantial evidence, including the Application narrative and evidence included in the Applicant’s two open record period letters.

F. The procedures applied by the Planning Commission to the Application must be clear and objective. The Director elevated this Type II Application to a Type III procedure based on a standard that is not clear and objective and which prejudiced the Applicant’s rights to a full and fair hearing by subjecting it to a procedure it was not required to undergo and by adding unreasonable cost and delay to the processing of the Application.

G. While some nearby residents to the west opposed the Application, the number of opponents was relatively small. Moreover, the neighbors will not experience cut-through traffic between U.S. Highway 26 and Oregon Highway 211 if Dubarko Road connected the two highways. In any event, the Application proposes a residential subdivision on land that has long been zoned for residential development.

H. Issues associated with matters that are not part of the Application – duplexes and development of the C-3 zoned property – are not a basis for the decision on the Application.

I. ORS 197.522 directs the Planning Commission to approve the Application if it is consistent with applicable land use regulations and Comprehensive Plan policies. If the Application is not consistent, then the Applicant is entitled to offer an amendment or to propose a condition of approval that would make the Application consistent with the standards, considering the requirements of incorporation and clear and objective standards, conditions and procedures. In the event this statute is invoked, the Planning Commission, which could make the final decision in the event its decision is not appealed, can extend the 120-day period in ORS



Mr. Jerry Crosby, Chair  
October 25, 2021  
Page 3

227.178(1) in order to set forth a new time limitation for final action on the consideration of an amendment or condition of approval.

J. The Planning Director stated at the September 27, 2021 public hearing that the City has approved many applications in the past without the issues raised by the Applicant. While that is undoubtedly true, if those decisions were not challenged, those past decisions cannot substitute for correctly applying law to this Application.

K. The evidentiary record is closed, so additional public testimony may not be provided. The Application would not object to answering questions based on the record without new facts and would not object to others answering questions as long as the Applicant has the last word and new facts are not added to the record.

## 2. Conclusion.

The Applicant appreciates the Planning Commission's consideration of its argument and evidence. The Applicant respectfully requests that the Planning Commission approve the Application with clear and objective conditions of approval because it satisfies the clear and objective and properly incorporated approval standards and that it provide the Applicant the opportunity under ORS 197.522, if it tentatively determines to deny the Application.

Very truly yours,



Michael C. Robinson

MCR/jmhi

cc: Mr. Dave Vandehey (*via email*)  
Mr. Alex Reverman (*via email*)  
Mr. Carey Sheldon (*via email*)  
Mr. Tracy Brown (*via email*)  
Mr. Ray Moore (*via email*)  
Mr. Tyler Henderson (*via email*)  
Mr. Mike Ard (*via email*)  
Mr. David Doughman (*via email*)  
Mr. Kelly O'Neill, Jr. (*via email*)

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**MEMORANDUM**

TO: Chair Crosby  
Sandy Planning Commission

FROM: David Doughman, City Attorney's Office

SUBJECT: Deer Meadows Subdivision Application

DATE: November 1, 2021



---

On November 8, 2021, the Sandy Planning Commission (“PC”) will conduct deliberations for the Deer Meadows application. The PC held an initial evidentiary hearing on September 27. That evening, the PC closed the hearing but left the record open for additional written testimony. The record closed on Monday, October 25. The city asked us to provide a memo for the record with respect to some of the legal issues that relate to the application. In addition, we want to note a couple procedural matters for the November 8 deliberation.

**Procedural Considerations**

The deliberation on November 8 is for the PC to discuss the application and, based on the testimony and evidence presented, determine whether the application should be approved, approved with conditions or denied. The purpose is not to consider additional testimony or evidence from the applicant or members of the public. However, as part of deliberating, the PC may ask questions of staff or the city attorney.

In its final written argument dated October 25, the applicant noted two possible ways the PC could take additional testimony on (or after) November 8. These are addressed in paragraphs (I) and (K) of that letter. I want to briefly respond to both of those points.

- In paragraph (K), the applicant states it would not object to answering any questions the PC may have of the applicant while it deliberates. I did speak with Mike Robinson, the applicant’s lawyer, about this. As I said to him, while the PC could technically do this, it can create procedural problems (particularly in a remote environment) and potentially entitle other parties an opportunity to respond. To avoid procedural concerns, I would recommend the PC not ask questions of the applicant during its deliberation.
- In paragraph (I), the applicant refers to ORS 197.522, a statute that applies to housing applications. The statute says that before denying an application, the local government must allow an applicant the opportunity to either propose an amendment to its application or propose a condition of approval. If an applicant decides to offer an amendment or a condition of approval, the local government may then extend the 120-day deadline in order to study the

applicant's proposal and determine whether it resolves the basis for the denial. Although local governments must offer this opportunity to an applicant, an applicant is not required to take any action.

- Although I do not believe the PC has experience with this process, it was required and implemented during a hearing in 2020 before the Sandy City Council on the Bailey Meadows application.
- If it appears the PC will deny the application, before voting on a motion the PC will need to offer the applicant one opportunity to amend its application or propose a condition of approval. Our office would guide the PC through the particulars. If the applicant were to offer an amendment or a condition, we would need to work out the details of that on November 8. It would likely result in an additional open record period narrowly focused on the proposed amendment/condition and a subsequent rescheduling of the deliberation. As indicated above, the statute authorizes the city to establish a new 120-day deadline if an applicant proposes an amendment or a condition.

Finally, with respect to procedure, we would remind PC members at the start of the deliberation to declare any ex-parte contacts that may have occurred between September 27 and November 8. We will also want to allow for any party to challenge a disclosure through the appropriate mechanism on Zoom. For example, after the declarations, we should pause briefly to allow people to use the "raise hand" function or dial \*9 if they are on the phone. Parties may also use the same raise hand or \*9 functions if they believe they have a legal basis to object to some aspect of the PC's deliberation (for example, if they believe the PC is considering evidence that is not in the record).

### **Substantive Considerations**

The primary legal issues involved in this application relate to two Oregon statutes. One of them, ORS 197.307(4), is specific to applications that propose housing, regardless of the cost of the housing or type of housing. It requires local governments to apply only "clear and objective" criteria, conditions and procedures to an application for housing. The other one, ORS 197.195, is applicable to subdivisions. It says comprehensive plan provisions that serve as a basis to approve or deny subdivisions must be incorporated into the development code. Both have existed for years. However, over the past few years and for a variety of reasons, the two statutes now often play a significant role in applications for housing. This has been true in Sandy and in many other cities and counties throughout the state.

Under ORS 197.307(4), "a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing." While seemingly straightforward, this is easier said than done. The Land Use Board of Appeals ("LUBA") itself once remarked that "few tasks are *less* clear or *more* subjective than attempting to determine whether a particular land use approval criterion is clear and objective."<sup>1</sup> Nevertheless, LUBA and the courts will generally find standards that require "subjective, value-laden analyses that are designed to

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<sup>1</sup> *Rogue Valley Association of Realtors v. City of Ashland*, 35 Or LUBA 139, 155 (1998) (emphasis in original).

balance or mitigate impacts of the development” to violate ORS 197.307(4).<sup>2</sup> Examples have included:

- A criterion allowing a decision maker to impose conditions “if it is deemed necessary to mitigate any potential negative impact caused by the development.”
- A criterion requiring development to have a “minimal adverse impact on the livability, value and appropriate development” of other properties in a neighborhood.
- A standard requiring development to “minimize” possible conflicts between pedestrians and vehicles, “where necessary for traffic circulation.”

However, based on other cases that have considered ORS 197.307(4), it is very difficult to draw “bright lines” that readily distinguish criterion that are clear and objective from those that are not. In our opinion, simply because a decision maker must exercise some discretion does not result per se in a violation of the statute.

In a recent case from Cannon Beach, LUBA stated that a standard may be “clear and objective” and comply with ORS 197.307(4) even *if* an interpretation is required to apply it.<sup>3</sup> In that case, the Board said: “[t]he fact that some interpretation is required does not make a term not clear and objective. Instead, a standard is not clear and objective if it is capable of being applied in multiple ways in a manner that allows the city to exercise significant discretion in choosing which interpretation it prefers.” Sometimes, it will be fairly easy to conclude that a standard requires a “value-laden” analysis and allows for significant discretion. Many other times, it is difficult to draw that conclusion.

In the interest of time and cost, we cannot respond in this memo to every specific argument the applicant makes regarding whether applicable code criteria are clear and objective, whether certain comprehensive plan standards are sufficiently incorporated into the code, etc. Of course, we will discuss these issues with the PC during its deliberation and advise the PC accordingly. One example we do wish to highlight concerns the dispute over whether the city can require the applicant to dedicate park land.

While not free of doubt, we believe the relevant law would permit the city to require a dedication of park land in accordance with the formula provided in Chapter 17.86 of the city’s code. The dedication requirement clearly applies to subdivisions. Determining the amount of land an applicant must dedicate does not involve any discretion. Rather, the amount is determined through a mathematical formula clearly stated in the code. The city does retain the discretion to require a fee-in-lieu of dedication. However, that discretion amounts to a binary choice between requiring land or requiring cash in-lieu, in an amount set by resolution. The criteria do not require a value-laden analysis that is susceptible to multiple different interpretations or that may be applied in a variety of ways to various applications.

As usual, we will participate in the PC’s deliberations on November 8. In the meantime, please let us know if we can answer any questions.

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<sup>2</sup> *Id.* at 158.

<sup>3</sup> *Roberts v. City of Cannon Beach* (LUBA No. 2020-116, July 23, 2021)

**PLANNING COMMISSION STAFF REPORT  
TYPE III LAND USE PROPOSAL**

This proposal was reviewed concurrently as a Type III subdivision with tree removal. The following exhibits and findings of fact explain the proposal and support the staff recommendation.

**DATE:** September 17, 2021

**FILE NO.:** 21-014 SUB/TREE

**PROJECT NAME:** Deer Meadows Subdivision

**APPLICANT/OWNER:** Roll Tide Properties, Corp.

**PHYSICAL ADDRESS:** 40808 and 41010 Highway 26

**LEGAL DESCRIPTION:** T2 R5E Section 18CD, Tax Lots 900 and 1000

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## EXHIBITS

### **Applicant's Submittals:**

- A. Land Use Application
- B. Project Narrative (dated June 17, 2021)
- C. Civil Plan Set
  - Sheet C1 - Cover Sheet and Future Street Plan
  - Sheet C2 - Preliminary Plat Map
  - Sheet C3 - Existing Conditions and Tree Retention Plan
  - Sheet C4 - Tree Tables
  - Sheet C5 - Master Street and Utility Plan
  - Sheet C6 - Preliminary Street Tree and Parking Plan
  - Sheet C7 - Preliminary Grading and Erosion Control Plan
  - Sheet C8 - Slope Analysis
- D. Preliminary Stormwater Report
- E. Traffic Impact Study (dated June 14, 2021)
- F. Arborist Report
- G. Wetland Determination
- H. DSL Offsite Determination
- I. Geotechnical and Slope Stability Investigation
- J. Geotechnical Supplemental Review Letter
- K. Letter from Michael Robinson (dated March 31, 2021)
- L. Letter from Michael Robinson (dated June 11, 2021)

### **Agency Comments:**

- M. Fire Marshal (dated August 10, 2021)
- N. ODOT (dated September 1, 2021)
- O. Parks and Trails Advisory Board (dated September 1, 2021)
- P. City Transportation Engineer (dated August 30, 2021)
- Q. City Transit Director (dated August 30, 2021)
- R. City Public Works Director (dated September 2, 2021)

### **Public Comments:**

- S. Gary and Val Roche (received August 16, 2021)
- T. Dave and Nancy Allan (received August 23, 2021)
- U. Ashley Yukich (received August 23, 2021)
- V. Marilyn Euteneier (September 8, 2021)
- W. Scott Ruehrdanz (September 13, 2021)

## **FINDINGS OF FACT**

### **GENERAL FINDINGS**

1. These findings are based on the applicant's submittals received on March 31, 2021, and other information on June 11 and June 17, 2021. In a letter dated June 11, the applicant agreed to toll the 120-day clock until July 27, 2021. Therefore, absent any further extensions, this application has a 120-day deadline of November 24, 2021.
2. This report is based upon the exhibits listed in this document, including the applicant's submittals, agency comments, and public testimony.
3. The subject site is approximately 15.91 acres. The site is located at 40808 and 41010 Highway 26.
4. The parcel has a Comprehensive Plan Map designation of Village and a Zoning Map designation of R-1, Low Density Residential; R-2, Medium Density Residential; and C-3, Village Commercial.
5. The applicant, Roll Tide Properties Corp., requests to develop a 32-lot subdivision at 40808 and 41010 Highway 26. The development is proposed to include two partial street extensions and the creation of two new streets. The applicant proposes 30 lots of Low Density Residential (R-1) that will contain single family homes or duplexes, one small lot (9,023 square feet) of Medium Density Residential (R-2), and one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3). The 30 lots of R-1 land range in size from 5,500 square feet to 32,189 square feet. The applicant proposes to retain 48 existing trees and proposes to remove the remainder of the trees from the site.
6. The exact number of multifamily units will be determined with a subsequent design review application, but the applicant claims the number of multifamily dwelling units on the R-2 zoned land will be between 38 dwelling units and 66 dwelling units. The C-3 zoned land will likely contain a mix of commercial and residential development.
7. Due to the interest in the previous proposal at the subject site, the Development Services Director elevated this application to a Type III decision to be heard and considered by the Planning Commission. The notice labels provided by the applicant were for the properties within 300 feet of the subject property consistent with a Type II land use application.
8. Throughout the project narrative (Exhibit B) the applicant failed to submit required information. Instead, on 14 occasions in the narrative the applicant states that the development code is subjective (i.e., not clear and objective) and because the subdivision constitutes a needed housing application the subjective development code language is not applicable. Staff does not agree with the applicant's interpretation of what constitutes and does not constitute subjectivity.

9. Per the Comprehensive Plan a specific area plan (SAP) is required for development in a Village. The applicant did not submit an SAP with submission of this application.
10. The applicant previously proposed a development at the site that was denied by the City Council (File No. 19-050 CPA/ZC/SUB/SAP/TREE Bull Run Terrace). This application is substantively different from that prior proposal. The applicant is not proposing a Comprehensive Plan amendment or Zone Change. The applicant does not propose to expand Deer Pointe Park or connect Dubarko Road to Highway 26. The existing parks master plan details the Deer Pointe neighborhood to have a Community Park. The existing transportation system plan classifies Dubarko Road as a minor arterial and shows it connecting to Highway 26. This subject property was previously approved for an 88-lot subdivision known as Vista Loop South (File No. 05-029). Vista Loop South received a few tentative plat extensions and one plat reinstatement, but the subdivision was never constructed, and the approval expired in 2015.
11. The City of Sandy completed the following notices:
  - A. A transmittal was sent to agencies asking for comment on August 2, 2021.
  - B. Notification of the proposed application was mailed to affected property owners within 300 feet of the subject property on August 10, 2021.
  - C. A supplemental notice regarding the Planning Commission meeting was mailed to affected property owners within 300 feet of the subject property on August 24, 2021.
  - D. A legal notice was published in the Sandy Post on September 15, 2021.
12. At publication of this staff report five (5) written public comments were received. The main concerns expressed by residents include the following:
  - A. Dubarko Road is not proposed to intersect with Highway 26.
  - B. More housing will increase congestion and exacerbate parking issues.
  - C. Deer Pointe Park is not proposed to be expanded.
  - D. Multifamily housing should not be approved.
13. As explained in this staff report, staff agrees with concerns regarding the lack of extension of Dubarko Road and lack of proposed parkland dedication. Regarding multifamily housing, the subject property includes R-2 and C-3 zoned land both of which allow multi-family housing. Therefore, the City of Sandy cannot preclude multifamily housing from the subject property.



### **LAND DIVISION CRITERIA – Chapter 17.100**

14. This land use application is for the subdivision of land and therefore is reviewed in compliance with Chapter 17.100.
15. Submittal of preliminary utility plans and street plans is solely to satisfy the requirements of Section 17.100.60. **Preliminary plat approval does not connote utility or public improvement plan approval which will be reviewed and approved separately upon submittal of public improvement construction plans.**
16. On page 1 of the project narrative (Exhibit B) the applicant states that in accordance with ORS 197.307 (4) a local government may apply only clear and objective standards, conditions, and procedures regulating the creation of needed housing. The analysis of land division criteria as follows has been conducted through review of clear and objective standards. Staff's assessment of this subdivision proposal meets ORS 197.307 (4).
17. Section 17.100.60(E)(1) requires subdivisions to be consistent with the density, setback, and dimensional standards of the base zoning district, unless modified by a Planned Development approval. Each base zoning district requires that residential development comply with Chapter 17.82. First, Preliminary Plat Map (Exhibit C, Sheet C2) details setbacks for Lots 2, and 27-31 showing the front setback facing the local street or public access lane, instead of the Transit Street as required by Chapter 17.82. Second, Sheet C2 does not identify that lots abutting Highway 26 shall face Highway 26 as required by Chapter 17.82, nor does the plan set detail frontage improvements along Highway 26 as required by Chapter 17.86. Third, by not proposing the extension of Dubarko Road to connect with Highway 26 the lots that would otherwise abut Dubarko Road do not have the required frontage to Dubarko Road as required by Chapter 17.82. Fourth, by not proposing Dubarko Road or parkland dedication, some of the proposed lots are in the required right-of-way for Dubarko Road and also located across required parkland. Therefore, this proposal does not meet approval criteria 17.100.60 (E)(1).
18. Section 17.100.60(E)(2) requires subdivisions to be consistent with the design standards set forth in this chapter. The proposal is not consistent with Section 17.100.70, Section 17.100.100 (A)(E) or (F). The proposal does not meet approval criteria 17.100.60 (E)(2) as explained in A. through E., below:
  - A. In accordance with Section 17.100.70 the design standards in Chapter 17.100 are not met as the proposed subdivision does not follow the City of Sandy Transportation System Plan by providing the connection of Dubarko Road to Highway 26.
  - B. In accordance with Section 17.100.100 (A) the proposed subdivision does not meet the Street Connectivity Principle. By not connecting Dubarko Road to Highway 26 the subdivision does not provide safe and convenient options for cars, bikes, and pedestrians; does not create a logical, recognizable pattern of circulation; and does not spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened.

- C. In accordance with Section 17.100.100 (E), by not connecting Dubarko Road to Highway 26 the proposed subdivision does not provide a future street plan that promotes a logical, connected pattern of streets.
  - D. In accordance with Section 17.100.100 (F) the proposed subdivision does not include the continuation of Dubarko Road and proposes two cul-de-sacs and one dead-end public access lane, all of which do not provide connectivity to other streets within the development and to existing and planned streets outside the development.
  - E. The applicant did not submit any information on block lengths or information regarding single tier vs double tier blocks. Instead, the applicant stated the block length standards in Section 17.100.120 are subjective (i.e., not clear and objective) and because the subdivision constitutes a needed housing application the block length standards are not applicable. The applicant failed to submit information into the record regarding block lengths and therefore staff does not have enough information to determine block lengths.
19. Section 17.100.60(E)(3) requires the proposed street pattern to be connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy. The proposed street pattern is not consistent with the Comprehensive Plan and the city's standards, including connecting Dubarko Road to Highway 26. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan'. The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26. On pages 9, 10, and 14 of the project narrative (Exhibit B) the applicant references the City's TSP and states that the TSP identifies Dubarko Road as a minor arterial. On page 32 of the project narrative (Exhibit B) the applicant claims that subdivision approval criteria 17.100.60 (E)(3) is not clear and objective and therefore the subdivision does not need to meet the Comprehensive Plan or official street plan for the City of Sandy. However, in the narrative for Bull Run Terrace (File No. 19-050) for the same subject site the same applicant stated, "*As illustrated on the submitted Future Street Plan (Sheet C1), the proposed street system is consistent with the City's Transportation System Plan and Comprehensive Plan.*" So, with the Bull Run Terrace land use application the applicant conceded that the street system had to be consistent with the City's Transportation System Plan and Comprehensive Plan to meet criteria 17.100.60 (E)(3). The applicant's inconsistent understanding of what is the official street plan (i.e., the City's TSP) is illogical and inconsistent even in the applicant's project narrative. Additionally, in a previous TIS from Ard Engineering (dated September 28, 2020) on page 24 the applicant's traffic engineer references the requirement for the Dubarko Road connection by stating, "it is the completion of the city's planned connection of Dubarko Road to Highway 26." Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP. By not providing the connection of Dubarko Road to Highway 26 in the proposal the subdivision request does not meet approval criteria 17.100.60 (E)(3).

20. Section 17.100.60(E)(4) requires that traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions. The applicant's project narrative (Exhibit B) and the applicant's Traffic Impact Study (Exhibit E) do not evaluate ADT on local streets. The applicant's project narrative on page 32 states, "As detailed in the submitted Traffic Study traffic volumes on local streets are not projected to exceed ADT standards. This criterion is met." Staff cannot find an evaluation of ADT standards in the submitted TIS. Based on incomplete ADT analysis of the surrounding local streets the subdivision request does not meet approval criteria 17.100.60 (E)(4).
21. Section 17.100.60(E)(5) requires that adequate public facilities are available or can be provided to serve the proposed subdivision. City water, sewer and stormwater are available or will be constructed by the applicant to serve the subdivision. However, the proposal does not meet approval criteria 17.100.60 (E)(5) as explained in A through C, below:
- A. Dubarko Road. As thoroughly explained in this staff report the proposal does not propose the continuation of Dubarko Road to connect with Highway 26. This is inconsistent with the 2011 TSP and will create a safety concern by increasing trips to other streets in Sandy that are not designed to accommodate additional traffic without the connection of Dubarko Road to Highway 26. As stated by the City of Sandy Transportation Engineer (Exhibit P), the Deer Meadows subdivision application should be denied based on the inadequacy of the TIS and because the applicant does not propose the connection of Dubarko Road to Highway 26. By not providing the Dubarko Road connection to Highway 26 the subdivision fails to incorporate a key project from the 2011 TSP and therefore fails to provide adequate public facilities for transportation. Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP.
  - B. Parkland Dedication. Pursuant to 17.86.10 of the Development Code, new residential subdivisions "shall be required to provide parkland to serve existing and future residents of those developments." As thoroughly explained in this staff report the proposal does not include dedication of 0.96 acres of parkland as the Code requires. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. Because the Deer Meadows subdivision does not propose parkland dedication abutting Deer Pointe Park the proposed subdivision is inconsistent with the 1997 Parks Master Plan. Staff recognizes that outside of the City of Sandy purchasing land, there are practical and legal impediments to requiring an applicant to dedicate enough acreage to accommodate a 20-acre community park. Staff finds that a neighborhood park would be a more reasonable solution. Based on the 1997 Parks Master Plan, a neighborhood park is two to seven acres. The existing land the City owns for Deer Pointe Park is 1.40 acres. When coupled with the .96 acres required by this application, the result would be an approximately 2.4 acre neighborhood park.

- C. Highway 26 frontage improvements. As explained by the Public Works Director (Exhibit R) the site plan does not depict frontage improvements (curbs, sidewalks, street lighting, street trees, storm drainage, etc.) on the Highway 26 frontage of the site. Frontage improvements along Highway 26 are required by Section 17.84.50(F)(1) and Section 17.84.30(A). Section 17.84.50(F)(1) states, “Where a development site abuts an existing public street not improved to City standards, the abutting street shall be improved to City standards along the full frontage of the property concurrent with development.”
22. Section 17.100.60(E)(6) requires all proposed improvements to meet City standards. A detailed review of proposed improvements is contained throughout this staff report. Staff has identified a few aspects of the proposed subdivision improvements requiring additional information or modification by the applicant. Some of the required improvements could be satisfied with conditions of approval, but several of the required improvements can only be satisfied by a substantial modification to the subdivision proposal. The proposed subdivision lacks the following substantial improvements: 1) Dubarko Road connecting to Highway 26; 2) Highway 26 frontage improvements; and 3) Parkland dedication. The proposal does not meet approval criteria 17.100.60 (E)(6).
23. Section 17.100.60(E)(7) strives to ensure that a phasing plan, if requested, can be carried out in a manner that meets the objectives of the above criteria and provides necessary public improvements for each phase as it develops. The applicant is not requesting a phased development. That said, the applicant is proposing that the design of the multifamily dwellings and commercial land occurs at a future date. The proposal meets approval criteria 17.100.60 (E)(7).

### **DENSITY CALCULATIONS – Chapter 17.30**

24. The total gross acreage for the entire property is 15.91 acres. After removal of the proposed right-of-way and proposed stormwater tract, the net site area (NSA) for the subject property is reduced to 13.22 net acres with three zoning districts. The area zoned as R-1 is 5.64 net acres, the area zoned as R-2 is 4.74 net acres, and the area zoned as C-3 is 2.84 net acres.

NOTE: The density calculations on the subject site do not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to density are based on unreliable assumptions.

25. For the area zoned R-1, a minimum of 5 and a maximum of 8 units per acre are allowed. The minimum density for the subject area is 5.64 net acres x 5 units/net acre = 28.2 rounded down to 28 units. The maximum density for the subject area is 5.64 net acres x 8 units/net acre = 45.12 rounded down to 45 units. The applicant identifies 30 lots, within the density range.
26. For the area zoned R-2, a minimum of 8 and a maximum of 14 units per acre are allowed. The minimum density for the subject area is 4.74 net acres x 8 units/net acre = 37.92 rounded up to 38 units. The maximum density for the subject area is 4.74 net acres x 14 units/net acre = 66.36 rounded down to 66 units. The applicant has not identified the exact number of units which will be built in the subject area. In the project narrative (Exhibit B) on page 5 the applicant states that the exact number of multi-family dwelling units will be determined with a future land use application. **Multi-family housing development on this site shall be reviewed in a future design review process.**
27. For the area zoned C-3, the Sandy Development Code does not define a minimum or maximum density, but does prescribe use requirements, height requirements, minimum setbacks, landscaping percentage requirements, and parking requirements. The combination of these requirements will dictate the maximum number of residential multi-family housing units. The property zoned C-3 will also need to contain a commercial use. **This will be reviewed in a future design review process.**

## **ZONING DISTRICTS – Chapters 17.36, 17.38, and 17.46**

### Chapter 17.36 – Low Density Residential (R-1)

28. The applicant proposes constructing 30 single-family dwellings or duplexes as permitted in this zoning district. Section 17.36.30 contains the design standards for this zone. As shown on Sheet C2 of the plan set (Exhibit C), all lots in the proposed subdivision contain at least 5,500 square feet, have at least 20 feet of street frontage or access along a private drive (i.e., Lot 12), and contain an average lot width of at least 50 feet as required.
29. Section 17.36.40(A) requires that water service be connected to all dwellings in the proposed subdivision. Section 17.36.40(B) requires that all proposed dwelling units be connected to sanitary service if currently within 200 feet from the site, which it is. Section 17.36.40(C) requires that the location of any real improvements to the property must provide for a future street network to be developed. Section 17.36.40(D) requires that all dwelling units must have frontage or approved access to public streets. The applicant proposes to meet all these requirements.
30. Section 17.36.50(B) requires that lots with 40 feet or less of street frontage shall be accessed by a rear alley or shared private driveway. Lots 9-16 proposed to access the cul-de-sac at the east terminus of Fawn Street all have less than 40 feet of lot frontage along Fawn Street, therefore, all 8 of these lots shall include shared driveways. Lots 20 and 21 share a private drive, Tract A, that accesses Street A, therefore these two lots shall include a shared driveway. **Lots 9-16, 20, and 21 shall have shared driveways.**

### Chapter 17.38 – Medium Density Residential (R-2)

31. The R-2 zoning district allows for all residential use types, including but not limited to single family dwellings, duplexes, row houses, and multifamily dwelling units. The applicant is proposing three lots, Lots 27, 31, and 32, to include R-2 zoned land. Both lots 27 and 32 are proposed as split zoned lots. Lot 27 is split zoned between R-1 and R-2 zoned land, while Lot 32 is split zoned between R-2 and C-3 zoned land. Lot 31 is proposed to be entirely zoned R-2. Staff anticipates that Lot 31 will likely contain a single-family home or duplex, and Lot 32 will likely contain multi-family dwellings. As noted above, the applicant will be allowed to develop between 38 and 66 dwelling units on the R-2 zoned land, unless additional public land dedications are required. The R-2 zone does not include a minimum lot area. **The future design review application will include a review of development standards and requirements.**

### Chapter 17.46 – Village Commercial (C-3)

32. While the C-3 zoning district will have to contain some commercial development there is a decent chance the C-3 land will also contain residential dwelling units. The exact number of potential residential units is not known at this time. If residential units are proposed on the C-3 land the dwelling units will be assessed in a future design review. **Any future development on the land zoned C-3 will require a design review in accordance with the development standards found in Section 17.46.30 and the Sandy Municipal Code.**

**ADDITIONAL SETBACKS AND SPECIAL SETBACKS – Chapters 17.80 and 17.82**

33. Chapter 17.80 requires all residential structures to be setback at least 20 feet to collector and arterial streets. Highway 26 is classified as an arterial, Dubarko Road is classified as a minor arterial, and Street B is classified as a collector. **All structures on lots abutting Highway 26, Dubarko Road, and Street B shall be setback at least 20 feet.**
34. Section 17.82.20(A) requires that all residential dwellings shall have their primary entrances oriented toward a transit street rather than a parking area, or if not adjacent to a transit street, toward a public right-of-way or private walkway which leads to a transit street. Highway 26, Dubarko Road, and Street B are all transit streets. **All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street. This means for example that Lot 30 shall be oriented to Dubarko Road.**
35. The applicant references ORS to claim that Chapter 17.82 is not clear and objective and therefore the design standards in Chapter 17.82 do not have to be followed, but the project narrative goes on to state that Lots 2, and 27-31 can be designed in compliance with the standards of Chapter 17.82. Section 17.82.20(B) requires that dwellings shall have a primary entrance connecting directly between the street and building interior and outlines requirements for the pedestrian route. Section 17.82.20(C) requires that primary dwelling entrances shall be architecturally emphasized and visible from the street and shall include a covered porch at least 5 feet in depth. **The adherence to Chapter 17.82 for residential design standards shall be required.**
36. Section 17.82.20(D) requires that if the site has frontage on more than one transit street, the dwelling shall provide one main entrance oriented to a transit street or to a corner where two transit streets intersect. **If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street. This means for example that Lot 30 shall be oriented to Dubarko Road. The orientation of the future multi-family units that have frontage on both Highway 26 and Dubarko Road will be determined in a future design review process.**

## **TRANSPORTATION – Chapters 17.84 and 17.100**

37. This finding analyzes the Traffic Impact Study (Exhibit E).

- A. The applicant submitted a Traffic Impact Study (Exhibit E) from Ard Engineering, dated June 14, 2021. The study did identify some required mitigation. According to the Traffic Impact Study (TIS), the proposed residential development (not including the commercial lot) would generate up to 79 site trips during the morning peak hour, 99 trips during the evening peak hour, and 1,180 daily site trips.
- B. The TSP states that Highway 211 at Dubarko Road has a high historical crash rate. Ard Engineering also states that no operational mitigations are necessary or recommended in conjunction with the proposed subdivision.
- C. The City Transportation Engineer (Exhibit P) states that the development plan ignores the TSP and does not propose extending Dubarko Road, currently a stub street, to connect with Highway 26 opposite SE Vista Loop (West) as specified in the TSP. The City Transportation Engineer also includes the following concerns:
  - i. The TIS addresses some of the city’s requirements but does not provide an adequate basis to evaluate impacts of the proposed development. Key deficiencies include a failure to provide for the extension of Dubarko Road to connect with Highway 26 as specified in the TSP and a failure to account for development of or access to the commercially zoned land (approximately 3 acres) that comprises a portion of Lot 32 in the proposed development.
  - ii. The engineer’s use of pre-COVID-19 counts is understandable, but new analyses needed to address the full impact of the development should be based on new traffic counts.
  - iii. The applicant appears to be assuming that the commercially zoned portion of Lot 32 would have direct driveway access to Highway 26, though this appears to conflict with ODOT access control policies. Alternatively, the applicant may be assuming some type of cross-easements or shared driveway connections involving the residentially zoned portion of Lot 32 would be acceptable. Neither option appears viable.
  - iv. Since the TIS did not examine the impact of development of the commercially zoned portion of the site, it is not clear that LOS D would be achieved with full development of the subject property. It appears that only a little more development in Sandy would push the Dubarko Road and Highway 211 intersection to LOS E and cause the need for mitigation.
  - v. The proposed elimination of Dubarko Road results in localized impacts in the immediate vicinity that will result in different travel patterns than anticipated in the TSP.
  - vi. The applicant’s traffic engineer failed to explain how the site would be developed to serve all uses in the absence of the Dubarko Road extension identified in the TSP. The City Traffic Engineer recommends delaying any approvals until access issues are resolved and street connectivity meets the TSP.

38. The City Transportation Engineer (John Replinger) recommends denial of the application based on the inadequacy of the TIS. Mr. Replinger states that the applicant has two paths to approval. The first involves submitting a new application that provides for the extension of Dubarko Road to Highway 26 as specified in the TSP. The second involves seeking a TSP



amendment with an alternative arterial and collector street network that allows the regional needs to be met without the section of Dubarko Road that is proposed to be eliminated.

39. This finding analyzes the necessity for Dubarko Road to intersect with Highway 26.
- A. The proposed street pattern in Deer Meadows is not consistent with the Comprehensive Plan and the city's street plan, including connecting Dubarko Road to Highway 26. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan'. The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.
  - B. The proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP.
  - C. ODOT (Exhibit N) recommends that the City require the applicant to construct Dubarko Road as shown in the adopted Transportation System Plan (TSP). Consistent with OAR 660-012-0045, completing this connection would implement the adopted road network in the TSP. The extension of this arterial would provide increased connectivity for the proposed development as well as for other residents of the City. This would help reduce motor vehicle congestion and provide more options for those walking, biking, and using transit. Planning within the City of Sandy has assumed the Dubarko Road connection for over a decade. For example, the Sandy Area Metro Transit Master Plan identifies this connection as a way to provide increased service on the east side of Sandy and to more efficiently serve residents along Vista Loop Road.
  - D. Dubarko Road shall continue in a northeast direction to connect with Highway 26. Dubarko Road shall include features consistent with the minor arterial street section in the 2011 Sandy TSP. The widening of Dubarko Road to accommodate the street section in the TSP is eligible for Transportation System Development Charge credits. The difference in cost between the required minor arterial improvements and a standard local street section is eligible for credits.
  - E. The extension of Dubarko Road is classified as a minor arterial street and shall meet the standards of Section 17.84.50(B) which states that arterial streets should generally be spaced in one-mile intervals and traffic signals should generally not be spaced closer than 1,500 ft for reasonable traffic progression.
  - F. Per the 2020 Transit Master Plan, the extension of Dubarko Road to intersect with Highway 26 is a future transit route.
40. Street B (defined as 'New Road' in the TSP) is classified as a collector street and does not need to adhere to the standards in Section 17.84.50(B).
41. The applicant's project narrative (Exhibit B) and the applicant's Traffic Impact Study (Exhibit E) do not evaluate ADT on local streets. The applicant's project narrative on page 32 states, "As detailed in the submitted Traffic Study traffic volumes on local streets are not projects to exceed ADT standards. This criterion is met." Staff cannot find an evaluation of ADT standards in the submitted TIS. As explained earlier in this staff report, based on

incomplete ADT analysis of the surrounding local streets the subdivision request does not meet approval criteria 17.100.60 (E)(4).

42. Section 17.84.50(E) requires that public streets installed concurrent with development of a site shall be extended through the site to the edge of the adjacent property. The proposed street layout results in one temporary dead-end street (Street B) that will be stubbed to the southern property line of the subject property. The proposal also includes two cul-de-sacs and one public access lane. The proposed subdivision does not propose the extension of Dubarko Road which is inconsistent with the City of Sandy 2011 TSP and thus fails to install the public street extension of Dubarko Road concurrent with development of the site. The proposed subdivision does not meet the standards of Section 17.84.50 (E).
43. The proposed development includes the need to name Street A, Street B, and Street C. Street A and Street B are one continuous street running north to south and therefore should be one street name. **The street shall be related to the deer theme in the development to the west and shall be an ‘avenue’ as it runs north/south. Staff recommends the name Velvet Avenue. The public access lane, Street C shall be related to the deer theme in the development to the west and shall be a ‘street’ as it runs east/west.**
44. Proposed streets do not meet the requirements of 17.84.50(H) as public street improvements (i.e., Dubarko Road) do not provide for the logical extension of an existing street network. The proposed streets also do not meet Section 17.100.100(E) as the subdivision proposal does not promote a logical, connected pattern of streets. The future street plan (Exhibit C, Sheet C1) does not adhere to the adopted 2011 TSP. Both Dubarko Road and Street B are identified in the TSP; however, the applicant is not proposing the connection of Dubarko Road to Highway 26. Therefore, the future street plan is incomplete and inconsistent with the TSP which is adopted by the City of Sandy and recognized by the State of Oregon as the official street plan for the city of Sandy.
45. Dubarko Road and Street “C” create “T” intersections at their connection to Street “A” and Street “B” respectively. The Code at 17.84.50(E)(2) states that adjacent “T” intersections “shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.” The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).
46. Based on the submitted site plan it does not appear that that the minimum 100 feet of tangent alignment required in Section 17.84.50(J)(5)(a) is provided at the intersection of Street “B” (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street “B”.
47. While Section 17.100.100(C) calls for a rectangular grid pattern the proposed street layout is not a rectangular grid pattern as it incorporates cul-de-sacs and does not include the required extension of Dubarko Road to Highway 26. Staff finds that the proposed street layout does not represent a logical street pattern.

48. The applicant did not submit any information on block lengths or information regarding single tier vs double tier blocks. Instead, the applicant stated the block length standards in Section 17.100.120 are subjective (i.e., not clear and objective) and because the subdivision constitutes a needed housing application the block length standards are not applicable. The applicant failed to submit information into the record regarding block lengths and therefore staff does not have enough information to determine block lengths.

### **PEDESTRIAN IMPROVEMENTS – Chapters 17.84 and 17.100**

49. Section 17.84.20(A)(1) requires that all improvements shall be installed concurrently with development or be financially guaranteed. **All lots in the proposed subdivision will be required to install public and franchise utility improvements or financially guarantee these improvements prior to final plat approval.**
50. Section 17.84.30(A)(1) requires that all proposed sidewalks on the local streets will be five feet wide as required by the development code and separated from curbs by a tree planting area that is a minimum of five feet in width.
51. As required by Section 17.84.30(A)(2), six-foot sidewalks shall be constructed along Highway 26, Dubarko Road, and Street B. These frontages shall include planter strips as required. ODOT (Exhibit N) recommends that the City require frontage improvements consistent with City, ODOT, and ADA standards. The applicant does not propose to install frontage improvements along Highway 26 and therefore does not meet the requirements of Section 17.84.30(A)(4).
52. As required by Section 17.84.30(B), safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall be provided in conjunction with new development within and between new subdivisions. Subsection 17.84.30(B)(2) goes on to elaborate that right-of-way connecting cul-de-sacs passing through unusually long or oddly shaped blocks shall be a minimum of 15 feet wide with eight (8) feet of pavement. The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30. Furthermore, the Street A cul-de-sac is in the parkland expansion area for Deer Pointe Park.
53. In relation to Sections 17.84.30(B), 17.84.30(C), 17.84.30(D), and 17.84.30(E), no pedestrian or bicycle facilities other than sidewalks have been identified or proposed in the subdivision. The plan set (Exhibit C, Sheet C5) does not identify bicycle lanes on Dubarko Road or Street B. **The applicant shall revise the plan set to include bicycle lanes on Dubarko Road and Street B.**
54. Section 17.84.40(A) requires the developer to construct adequate public transit facilities. Per the 2020 Transit Master Plan, the extension of Dubarko Road to intersect with Highway 26 is a future transit route. With extension of Dubarko Road to intersect with Highway 26 two transit amenities are required along the completed extension of Dubarko Road. **The applicant shall install two concrete bus shelter pads and green benches (Fairweather model PL-3, powder coated RAL6028). The required pad size is 7 feet by 9 feet 6 inches and the amenities should be located adjacent to Lot 1 and Lot 5.**

## **PARKING, LOADING, AND ACCESS REQUIREMENTS – Chapter 17.98**

55. Section 17.98.10(M) requires that the developer provide a Residential Parking Analysis Plan. This plan identifying the location of parking for the 30 R-1 zoned lots is included in Exhibit C, Sheet C6.
56. Section 17.98.20(A) requires that each single-family dwelling unit or duplex is required to provide at least two off-street parking spaces. **Compliance with this requirement will be evaluated during building plan review. Parking for the proposed multi-family units will be evaluated as part of a future design review application.**
57. Section 17.98.60 has specifications for parking lot design and size of parking spaces. Lot 32 is proposed to gain access from an arterial or collector street and therefore is required to comply with Section 17.98.80.
58. Section 17.98.100 has specifications for driveways. The minimum driveway width for a single-family dwelling is 10 feet. The Public Works driveway approach standard detail specifies a maximum of 24 feet wide for a residential driveway approach. Additionally, all driveways shall meet vertical clearance, slope, and vision clearance requirements. Staff has concerns with the following lots:
- A. The driveway on Lot 3 and its proximity to the intersection of Dubarko Road as it's within 150 feet of the intersection of Dubarko Road and Highway 26. **Driveway access for Lot 3 shall be reviewed and approved by the City Public Works Director and City Engineer prior to issuance of a building permit.**
  - B. There is no driveway identified for Lot 32. **Driveway access for Lot 32 shall be reviewed and approved by the City Public Works Director and City Engineer concurrently with land use review of Lot 32.**
59. The Public Works Director (Exhibit R) stated that no dimensional information is detailed in the plan set about driveway widths. **The location, number, and width of all driveway approaches in cul-de-sacs shall not exceed the dimensional standards in Section 17.98.100.** The applicant's statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops" is not sufficient.
60. Section 17.98.110 outlines the requirements for vision clearance. **The requirements of this section will be considered in placing landscaping in these areas with construction of homes and will be evaluated with a future design review application for the multi-family units.**
61. Section 17.98.130 requires that all parking and vehicular maneuvering areas shall be paved with asphalt or concrete. As required by Section 17.98.130, **all parking, driveway, and maneuvering areas shall be constructed of asphalt, concrete, or other approved material.**
62. Section 17.98.200 contains requirements for providing on-street parking spaces for new residential development. Per 17.98.200, one on-street parking space at least 22 feet in length

has been identified within 300 feet of each of the 30 lots zoned as R-1 as required. Exhibit C, Sheet C6 shows that 47 on-street parking spaces have been identified in compliance with this standard. No parking courts are proposed by the applicant.

NOTE: The locations of the lots on the subject site do not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the distances and locations of on-street parking spaces is based on unreliable assumptions.

### **UTILITIES – Chapters 17.84 and 17.100**

63. Section 17.84.60 outlines the requirements of public facility extensions. The applicant submitted a utility plan (Exhibit C, Sheet C5) which shows the location of proposed public water, sanitary sewer, and stormwater drainage facilities. **Broadband fiber service shall be detailed with construction plans.**
64. Franchise utilities will be provided to all lots within the proposed subdivision as required in Section 17.84.80. The location of these utilities will be identified on construction plans and installed or guaranteed prior to final plat approval. The applicant does not anticipate extending franchise utilities beyond the site. All franchise utilities other than streetlights will be installed underground. The developer will make all necessary arrangements with franchise utility providers. **The developer shall install underground conduit for street lighting.**
65. Section 17.84.90 outlines requirements for land for public purposes. The application includes dedication of right-of-way and land for a stormwater detention pond. The proposal does not include land dedicated for parkland as required by the Sandy Development Code nor does the proposal include land dedicated for the continuation of Dubarko Road to intersect with Highway 26. Eight-foot-wide public utility easements will be required along all lots adjacent to street rights-of-way, including Highway 26, for future franchise utility installations. **All easements and dedications shall be identified on the final plat.**
66. As required by 17.100.130, eight-foot-wide public utility easements (PUE) are required along all property lines abutting a public right-of-way. The applicant did not propose a PUE along Highway 26. **The applicant shall add a PUE along all lots abutting Highway 26.**
67. Chapter 15.30 contains the City of Sandy's Dark Sky Ordinance. A lighting plan will be coordinated with PGE and the City as part of the construction plan process and prior to installation of any fixtures as required by Section 17.100.210. The applicant will need to install street lights along all street frontages wherever street lighting is determined necessary. **The locations of these fixtures shall be reviewed in detail with construction plans. Full cut-off lighting shall be required. Lights shall not exceed 4,125 Kelvins or 591 nanometers to minimize negative impacts on wildlife and human health.**
68. Section 17.84.100 outlines the requirements for mail delivery facilities. **The location and type of mail delivery facilities shall be coordinated with the City Engineer and the Post Office as part of the construction plan process.**
69. The applicant shall install all water lines and fire hydrants in compliance with the applicable standards in Section 17.100.230, which lists requirements for water facilities. According to the Public Works Director the existing 8-inch diameter water line resides in an easement granted to the City of Sandy recorded at 2004-110340. **The applicant shall replace the existing waterline with an 8-inch diameter water line at a depth approved by the City Engineer.** There will be no compensation or credits for replacement of the existing water line. This pipe is a standard pressure line and will be used to provide domestic water service to the development. The City's water master plan shows an 18-inch diameter water line in Dubarko Road south of Highway 26. **The applicant shall install an 18-inch water line in**

**Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26.** Due to the elevation of the site relative to the existing water reservoirs on Vista Loop Drive this line will be a low-pressure, high-volume line and will be used for fire protection. The cost difference between a standard diameter water line and the required 18-inch water line is eligible for Water System Development Charge (SDC) credits. The amount of the credit provided will be based on the Water System Construction Cost Credit table in the Water System Development Charge Methodology adopted by City Council motion on September 5, 2017. The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.

70. Section 17.84.60D states, "As necessary to provide for orderly development of adjacent properties, public facilities installed concurrent with development of a site shall be extended through the site to the edge of adjacent property(ies)." The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site. **The existing 12-inch water line in Highway 26 shall be extended to the eastern boundary of the site per the requirements of Sections 17.84.60 (C) and (D).** The extension of the waterline is eligible for SDC credits for the difference in cost between the minimum required 8-inch diameter line and a 12-inch diameter line.
71. The applicant intends to install sanitary sewer lines in compliance with applicable standards in Section 17.100.240. The sanitary sewer plans will be reviewed by the City Engineer and Public Works Director. **Preliminary plat approval does not connote utility or public improvement plan approval which will be reviewed and approved separately upon submittal of public improvement construction plans.**
72. Section 17.100.250(A) details requirements for stormwater detention and treatment. A public stormwater quality and detention facility is proposed as Tract C to be located at the northwest corner of the proposed development. The proposed 10-foot-wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2). **All site runoff shall be detained such that post-development runoff does not exceed the predevelopment runoff rate for the 2, 5, 10 and 25 year storm events. Stormwater quality treatment shall be provided for all site drainage per the standards in the City of Portland Stormwater Management Manual (COP SWMM).**
73. Section 17.100.260 states that all subdivisions shall be required to install underground utilities. **The applicant shall install utilities underground with individual service to each lot.**



## **PARKLAND DEDICATION – Chapter 17.86**

74. The applicant is not proposing any parkland dedication. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and in the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. Because the Deer Meadows subdivision does not propose parkland dedication abutting Deer Pointe Park the proposed subdivision is inconsistent with the 1997 Parks Master Plan.

75. Section 17.86.10 contains a clear and objective formula for determining the amount of land required to be dedicated. The formula is acres = proposed units x (persons/unit) x 0.0043. For the 30 single family homes, acres =  $30 \times 3 \times 0.0043 = 0.39$  acres. For the maximum development of 66 multifamily units, acres =  $66 \times 2 \times 0.0043 = 0.57$  acres. Combined, this totals 0.96 acres. The dedication of 0.96 acres could expand the Deer Pointe Park to 2.36 acres if the parkland dedication abuts Deer Pointe Park. However, if the applicant does not propose abutting parkland, then the additional 0.96 acres would not be contiguous to the existing parkland.

NOTE: The number of dwelling units on the subject site does not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to parkland dedication and fee in-lieu of payment are based on unreliable assumptions.

76. The Parks and Trails Advisory Board (Board) met on August 11, 2021. The Board recommended that conditions of approval include the dedication of land for expansion of Deer Pointe Park (Exhibit O). The vision for this currently undeveloped park parcel has always included adjacent parkland dedication from the subject property. Additionally, a conceptual design has been prepared and has been through an initial public comment period as part of the updated Parks and Trails Master Plan.

77. The parks dedication requirement, and therefore any fee in-lieu payment under Section 17.86.40, is based on the impact from the number of people anticipated to live in the units in the subdivision, and a duplex includes two dwelling units, each of which can be occupied by a family (or a number of unrelated persons). Accordingly, each unit of a duplex is treated the same as a separate single-family dwelling for purposes of calculating the amount of land dedicated under Section 17.86.10 or a fee in-lieu payment under Section 17.86.40. However, the City of Sandy is not aware of any duplexes being proposed at this time. Also, the City is not aware of how many multifamily units will be proposed on the land zoned as C-3. **If any lot includes a duplex or additional multifamily dwelling units are proposed on the C-3 zoned land the applicant shall be required to pay a fee in-lieu of parkland dedication in accordance with Section 17.86.40.**

78. Section 17.86.20 has a requirement that all homes must front on the parkland. The purpose of having homes front the parkland is to provide eyes on the park and increase safety for park users. Since the applicant is not proposing parkland dedication there is nothing in the applicant's submission detailing that any houses will face Deer Pointe Park.

79. Section 17.86.30 lists the requirements of the developer prior to acceptance of required parkland dedications. Since the applicant is not proposing parkland dedication this section was not reviewed for compliance.

## **URBAN FORESTRY – 17.102**

80. Section 17.102.20 contains information on the applicability of Urban Forestry regulations. An Arborist Report is included as Exhibit F. The arborist inventoried all trees eleven inches and greater diameter at breast height (DBH) as required in 17.102.50. The inventory of trees proposed to be retained is included in Exhibit C, Sheet C3 and the proposed retention trees are shown in Exhibit C, Sheet C4.
81. The property contains 15.91 acres requiring retention of 48 trees, 11 inches and greater DBH (15.91 x 3 = 47.73). The applicant is proposing to retain all 48 trees on Lots 13, 14, and 21. One tree proposed for retention is a Grand fir and the other 47 trees are all Douglas fir. The trees range in size from 11 inches DBH to 30 inches DBH, and are in good condition as identified by the arborist.
82. Most of the proposed retention trees are located along Highway 26 on Lot 13, which is proposed to be zoned R-1, Low Density Residential. As indicated on the Preliminary Plat (Exhibit C, Sheet C2), the applicant is proposing to place a conservation easement over an area that encompasses the retention trees on Lots 13, 14, and 21 totaling 21,939 square feet. Staff believes there could be a future conflict between retention trees in this conservation easement and development of Lot 13.
83. The Arborist Report (Exhibit F) provides recommendations for protection of retained trees including identification of the recommended tree protection zone for these trees. The requirements of 17.102.50(B) shall be complied with prior to any grading or tree removal on the site. **The applicant shall install tree protection fencing at the critical root zone of 1 foot per 1-inch DBH to protect the 48 retention trees on the subject property as well as all trees on adjacent properties and shall not relocate or remove the fencing prior to certificates of occupancy. The tree protection fencing shall be 6-foot-tall chain link or no-jump horse fencing and the applicant shall affix a laminated sign (minimum 8.5 inches by 11 inches) to the tree protection fencing indicating that the area behind the fence is a tree retention area and that the fence shall not be removed or relocated. No construction activity shall occur within the tree protection zone, including, but not limited to, dumping or storage of materials such as building supplies, soil, waste items, equipment, or parked vehicles. The applicant shall request an inspection of tree protection measures prior to any tree removal, grading, or other construction activity on the site. Up to 25 percent of the area between the minimum root protection zone of 0.5 feet per 1-inch DBH and the critical root zone of 1 foot per 1-inch DBH may be able to be impacted without compromising the tree, provided the work is monitored by a qualified arborist. The applicant shall retain an arborist on site to monitor any construction activity within the critical root protection zones of the retention trees or trees on adjacent properties that have critical root protection zones that would be impacted by development activity on the subject property.**
84. The Tree Preservation Plan (Exhibit C, Sheet C3) details several trees being removed right next to the trees proposed for retention. **The trees proposed for removal that are adjacent to retention trees shall be removed in a way that does not harm or damage adjacent trees.** The Arborist Report (Exhibit F) from Teragan and Associates, Inc. includes

recommendations for tree removal. The arborist also identifies options for stumps, including retention or careful surface grinding. Staff recommends that the applicant not fully remove all the trees adjacent to the retention trees but rather leave snags. **Tree removal and/or snag creation shall be completed without the use of heavy equipment in the tree protection zone; trunks and branches of adjacent trees shall not be contacted during tree removal or snag creation. The applicant shall submit a post-construction report prepared by the project arborist or other TRAQ qualified arborist to ensure none of the retention trees were damaged during construction.**

85. **To ensure protection of the required retention trees, the applicant shall record a tree protection covenant specifying protection of trees on the subject property and limiting removal without submittal of an Arborist's Report and City approval.**

## **LANDSCAPING AND SCREENING – Chapter 17.92**

86. Section 17.92.10 contains general provisions for landscaping. As required by Section 17.92.10 (C), trees over 25-inches circumference measured at a height of 4.5 feet above grade are considered significant and should be preserved to the greatest extent practicable and integrated into the design of a development. A 25-inch circumference tree measured at 4.5 feet above grade has roughly an eight-inch diameter at breast height (DBH). Based on the Planning Commission interpretation from May 15, 2019, Subsection 17.92.10(C) does not apply to residential subdivisions. Tree protection fencing and tree retention is discussed in more detail in the Urban Forestry, Chapter 17.102 section of this document. **Per Section 17.92.10(L), all landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing.**
87. Section 17.92.20 lists the requirements for minimum landscaping improvements. **The details of this section will be considered with submittal of a design review application for the proposed multi-family units and commercial property.**
88. Section 17.92.30 specifies that street trees shall be chosen from the City-approved list. As required by Section 17.92.30, the development of the subdivision requires medium trees spaced 30 feet on center along all street frontages. Planter strips will be provided along all frontages as required in Section 17.100.290. The current street tree plan (Exhibit C, Sheet C6) does not show the distance between trees, but most trees measure approximately 30 feet on center. The applicant does not detail street trees along Street C, nor along Highway 26. **The applicant shall update the Street Tree Plan to detail trees at 30 feet on center along Street C and Highway 26. The trees along street C can be behind back of sidewalk, but the street trees along Highway 26 shall be in a planter strip per Section 17.100.290.**

The applicant is proposing to mass grade the buildable portion of the site. This will remove topsoil and heavily compact the soil. To maximize the success of the required street trees, **the applicant shall aerate and amend the soil in the planter strips to a depth of 3 feet prior to planting street trees. The applicant shall either amend and aerate the planter strip soil at the subdivision stage and install fencing around the planter strips to protect the soil from compaction or shall aerate and amend the soil at the individual home construction phase. The applicant shall submit a letter from the project landscaper confirming that the soil in the planter strips has been aerated and amended prior to planting the trees.**

**If the plans change in a way that affects the number of street trees (e.g., driveway locations), the applicant shall submit an updated street tree plan for staff review and approval. Street trees are required to be a minimum caliper of 1.5-inches measured 6 inches from grade and shall be planted per the City of Sandy standard planting detail. Trees shall be planted, staked, and the planter strip shall be graded and backfilled as necessary, and bark mulch, vegetation, or other approved material installed prior to occupancy. Tree ties shall be loosely tied twine or other soft material and shall be removed after one growing season (or a maximum of 1 year).**

89. Section 17.92.40 requires that all landscaping shall be irrigated, either with a manual or automatic system. **As required by Section 17.92.140, the developer and lot owners shall be required to maintain all vegetation planted in the development for two (2) years from the date of completion, and shall replace any dead or dying plants during that period.**
90. Section 17.92.50 specifies the types and sizes of plant materials that are required when planting new landscaping. Street trees are typically required to be a minimum caliper of 1.5-inches measured 6 inches from grade. **All street trees shall be a minimum of 1.5-inches in caliper measured 6 inches above the ground and shall be planted per the City of Sandy standard planting detail. The applicant shall submit proposed trees specifics to City staff for review and approval concurrent with construction plan review.**
91. Section 17.92.60 requires revegetation in all areas that are not landscaped or remain as natural areas. The applicant did not submit any plans for re-vegetation of areas damaged through grading/construction, although most of the areas affected by grading will be improved. **Exposed soils shall be covered by mulch, sheeting, temporary seeding or other suitable material following grading or construction to maintain erosion control for a period of two (2) years following the date of recording of the final plat associated with those improvements.**
92. Section 17.92.90 has details on screening of unsightly views or visual conflicts. While the proposed lots are not unsightly, they are a large contrast from the existing view of the existing forest. This contrast was identified at a Planning Commission hearing for Bull Run Terrace in August of 2020 and the applicant was asked to look at some additional screening measures to protect existing trees or add additional landscaping. The applicant took the comments seriously and proposed additional landscaping along the common property line with the Deer Pointe subdivision. However, in this proposed subdivision for Deer Meadows the applicant is not proposing any tree retention nor is the applicant proposing any additional landscaping along the common property line with the Deer Pointe subdivision.
93. Section 17.92.130 contains standards for a performance bond. The applicant has the option to defer the installation of street trees and/or landscaping for weather-related reasons. Staff recommends the applicant utilize this option rather than install trees and landscaping during the dry summer months. Consistent with the warranty period in Section 17.92.140, staff recommends a two-year maintenance and warranty period for street trees based on the standard establishment period of a tree. **If the applicant chooses to postpone street tree and/or landscaping installation, the applicant shall post a performance bond equal to 120 percent of the cost of the street trees/landscaping, assuring installation within 6 months. The cost of the street trees shall be based on the average of three estimates from three landscaping contractors; the estimates shall include as separate items all materials, labor, and other costs of the required action, including a two-year maintenance and warranty period.**

**HILLSIDE DEVELOPMENT AND EROSION CONTROL – Chapters 17.56, 15.44, and 17.74**

94. The applicant submitted a Geotechnical and Slope Stability Investigation (Exhibit I) showing that the subject site contains a small area of slope exceeding 25 percent. The geotechnical investigation was completed by Redmond Geotechnical Services on November 23, 2020. **All recommendations in the Geotechnical and Slope Stability Investigation (Exhibit I) shall be conditions for development.**
95. Grass seeding shall be completed as required by Section 17.100.300. The submitted preliminary Grading and Erosion Control Plan (Exhibit C, Sheet C7) provides additional details to address erosion control concerns. A separate Grading and Erosion Control Permit will be required prior to any site grading. Erosion control requirements are defined in greater detail in Chapter 15.44 of this document. Section 15.44.50 contains requirements for maintenance of a site including re-vegetation of all graded areas. **The applicant's Erosion Control Plan shall be designed in accordance with the standards of Section 15.44.50.**
96. **All the work within the public right-of-way and within the paved area should comply with American Public Works Association (APWA) and City requirements as amended. The applicant shall submit a grading and erosion control permit and request an inspection of installed devices prior to any additional grading onsite.** The grading and erosion control plan shall include a re-vegetation plan for all areas disturbed during construction of the subdivision. **All erosion control and grading shall comply with Section 15.44 of the Municipal Code. The proposed subdivision is greater than one acre which typically requires approval of a DEQ 1200-C Permit.**
97. Recent development has sparked unintended rodent issues in surrounding neighborhoods. Prior to development of the site, **the applicant shall have a licensed pest control agent evaluate the site to determine if pest eradication is needed.**
98. Section 17.74.40 specifies, among other things, retaining wall and fence height in front, side, and rear yards. Retaining walls in residential zones shall not exceed 4 feet in height in the front yard, 8 feet in height in rear and side yards abutting other lots, and 6 feet inside and rear yards abutting a street. The submitted plan set (Exhibit C, Sheet C5) details a 3-foot retaining wall at the west terminus of Street C, a 4-foot retaining wall between Tract C and Lot 26, and an 8-foot retaining wall to the west of Street A and north of Fawn Street. These three retaining walls are proposed as Keystone block and Ultra-block, and all three include notes that the heights are plus/minus the stated height on the plan set. The plan set does not detail the height of the retaining wall in Tract C for the stormwater facility. **The applicant shall submit additional details on the proposed retaining walls, including height, material, and information on the architectural finish, for staff review and approval.**

## RECOMMENDATION

Staff recommends the Planning Commission **deny** the subdivision request primarily due to the following issues:

- 1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).
- 2) The applicant's statement indicating that "Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops" is not sufficient as there were no dimensional specifications submitted by the applicant to support this statement.
- 3) The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.
- 4) The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).
- 5) The minimum 100 feet of tangent alignment required in Section 17.84.50(J)5(a) is not provided at the intersection of Street "B" (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street "B".
- 6) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.
- 7) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.
- 8) The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.
- 9) The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site consistent with the Sandy Development Code.
- 10) The proposed 10-foot-wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).
- 11) This subdivision proposal does not propose to dedicate 0.96 acres of parkland as required by Chapter 17.86. The additional .96 acres could expand Deer Pointe Park consistent with the Parks and Trails Master Plan that was adopted in 1997.





## Staff Report

### EXHIBIT TT

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**Meeting Date:** November 8, 2021  
**From** Kelly O'Neill, Development Services Director  
**SUBJECT:** Deer Meadows Subdivision Deliberation

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#### **BACKGROUND / CONTEXT:**

On September 27, 2021 the Planning Commission held a public hearing on the Deer Meadows Subdivision and decided to create an open record period prior to deliberating on the subdivision request at a special meeting scheduled for November 8, 2021. The first open record period closed on Monday, October 11 at 4 pm. During the first open record period, anyone could submit additional written information for the Planning Commission to consider. The second open record period closed on Monday, October 18 at 4 pm. During the second open record period, parties could only submit information that rebutted or responded to information that was submitted during the first open record period. The third open record period closed on Monday, October 25 at 4 pm. This third open record period was reserved solely for the applicant to submit their final written argument.

The updated exhibits list contains all information that is part of the record, including the 10 items (Exhibits HH. - QQ.) received during the open record period. This report is also supplemented by a letter from the City Attorney, David Doughman (Exhibit RR.). All exhibits through GG. were previously presented to the Planning Commission on September 27.

#### **RECOMMENDATION:**

Staff recommends the Planning Commission **deny** the subdivision request due to the reasons outlined in the staff report.

#### **SUGGESTED MOTION LANGUAGE:**

I move that the Planning Commission deny the Deer Meadows Subdivision for the reasons outlined in the staff report.

#### **LIST OF ATTACHMENTS/EXHIBITS:**

- Attachment 1: Staff Report
- Attachment 2: Exhibits A. and B.
- Attachment 3: Exhibit C.
- Attachment 4: Exhibits D. and E.
- Attachment 5: Exhibits F. - J.
- Attachment 6: Exhibits K. and L.

Attachment 7: Exhibits M. - R.  
Attachment 8: Exhibits S. - W.  
Attachment 9: Exhibits X. - Z.  
Attachment 10: Exhibits AA. - GG.  
Attachment 11: Exhibits HH. - NN. Items from Open Record Period #1  
Attachment 12: Exhibits OO. - PP. Items from Open Record Period #2  
Attachment 13: Exhibit QQ. Item from Open Record Period #3  
Attachment 14: Exhibit RR. Letter from City Attorney

**FINDINGS OF FACT and FINAL ORDER  
TYPE III DECISION**

**DATE:** November 18, 2021

**FILE NO.:** 21-014 SUB/TREE

**PROJECT NAME:** Deer Meadows Subdivision

**APPLICANT/OWNER:** Roll Tide Properties, Corp.

**PHYSICAL ADDRESS:** 40808 and 41010 Highway 26

**LEGAL DESCRIPTION:** T2 R5E Section 18CD, Tax Lots 900 and 1000

**FINDINGS OF FACT**

**GENERAL FINDINGS**

1. These findings are based on the applicant's submittals and other evidence and testimony presented to the Planning Commission. In a letter dated June 11, the applicant agreed to toll the 120-day clock until July 27, 2021. The original 120-day clock was November 24, 2021.
2. On September 27, 2021 the Planning Commission held a public hearing on the Deer Meadows Subdivision and decided to create an open record period prior to deliberating on the subdivision request at a special meeting scheduled for November 8, 2021. The first open record period closed on Monday, October 11 at 4 pm. During the first open record period, anyone could submit additional written information for the Planning Commission to consider. The second open record period closed on Monday, October 18 at 4 pm. During the second open record period, parties could only submit information that rebutted or responded to information that was submitted during the first open record period. The third open record period closed on Monday, October 25 at 4 pm. This third open record period was reserved solely for the applicant to submit their final written argument.
3. With the creation of the open record period the applicant agreed to extend the 120-day clock by an additional 42 days. The existing 120-day clock is January 5, 2022.
4. The subject site is approximately 15.91 acres. The site is located at 40808 and 41010 Highway 26.

5. The parcel has a Comprehensive Plan Map designation of Village and a Zoning Map designation of R-1, Low Density Residential; R-2, Medium Density Residential; and C-3, Village Commercial.
6. The applicant, Roll Tide Properties Corp., seeks approval for a 32-lot subdivision at 40808 and 41010 Highway 26. The development proposal included two partial street extensions and the creation of two new streets. The applicant proposed 30 lots of Low Density Residential (R-1) that would contain single family homes or duplexes, one small lot (9,023 square feet) of Medium Density Residential (R-2), and one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3). The proposed 30 lots with R-1 zoning range in size from 5,500 square feet to 32,189 square feet. The applicant proposed to retain 48 existing trees and proposed to remove the remainder of the trees from the site.
7. The exact number of multifamily units was not determined at the time of the subdivision request as the applicant wanted to process the multi-family development in a subsequent design review application. However, the applicant claimed the number of multifamily dwelling units on the R-2 zoned land would have been between 38 dwelling units and 66 dwelling units. The C-3 zoned land would have likely contained a mix of commercial and residential development.
8. Due to the interest in the previous proposal at the subject site, the Development Services Director elevated this application to a Type III decision to be heard and considered by the Planning Commission.
9. Throughout the project narrative (Exhibit B) the applicant failed to submit required information. Instead, on 14 occasions in the narrative the applicant stated that the development code is subjective (i.e., not clear and objective) and because the subdivision is a housing application the alleged subjective development code language is not applicable. Staff explained at the Planning Commission meetings that they did not agree with the applicant's interpretation of what constitutes and does not constitute subjectivity.
10. The applicant previously proposed a development at the site that was denied by the City Council (File No. 19-050 CPA/ZC/SUB/SAP/TREE Bull Run Terrace). This application was substantively different from that prior proposal. The applicant did not propose a Comprehensive Plan amendment or Zone Change amendment. The applicant chose not to expand Deer Pointe Park or connect Dubarko Road to Highway 26. The existing parks master plan details the Deer Pointe neighborhood to have a Community Park. The existing transportation system plan classifies Dubarko Road as a minor arterial and shows it connecting to Highway 26.
11. The City of Sandy provided the following notices:
  - A. A transmittal was sent to agencies asking for comment on August 2, 2021.
  - B. Notification of the proposed application was mailed to affected property owners within 300 feet of the subject property on August 10, 2021.

- C. A supplemental notice regarding the Planning Commission meeting was mailed to affected property owners within 300 feet of the subject property on August 24, 2021.
- D. A legal notice was published in the Sandy Post on September 15, 2021.

**BASIS FOR DENIAL 1: The application does not meet subdivision criteria 17.100.60(E)(1)**

12. Section 17.100.60(E)(1) requires subdivisions to be consistent with the density, setback, and dimensional standards of the base zoning district, unless modified by a Planned Development approval. Each base zoning district requires that residential development comply with Chapter 17.82. First, the Preliminary Plat Map (Exhibit C, Sheet C2) details setbacks for Lots 2, and 27-31 showing the front setback facing the local street or public access lane, instead of the Transit Street as required by Chapter 17.82. Second, Sheet C2 does not identify that lots abutting Highway 26 shall face Highway 26 as required by Chapter 17.82, nor does the plan set detail frontage improvements along Highway 26 as required by Chapter 17.86. Third, by not proposing the extension of Dubarko Road to connect with Highway 26, the lots that would otherwise abut Dubarko Road do not have the required frontage to Dubarko Road as required by Chapter 17.82. Fourth, by not proposing Dubarko Road or parkland dedication, some of the proposed lots are in the required right-of-way for Dubarko Road and also located across required parkland. Therefore, this proposal does not meet approval criteria 17.100.60 (E)(1).

**BASIS FOR DENIAL 2: The application does not meet subdivision criteria 17.100.60(E)(3)**

- 13. Section 17.100.60(E)(3) requires the proposed street pattern to be connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy. The proposed street pattern is not consistent with the Comprehensive Plan and the city's standards, including connecting Dubarko Road to Highway 26.
- 14. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan.' The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.
- 15. On pages 9, 10, and 14 of the project narrative (Exhibit B) the applicant references the City's TSP and states that the TSP identifies Dubarko Road as a minor arterial. On page 32 of the project narrative (Exhibit B) the applicant claims that subdivision approval criteria 17.100.60 (E)(3) is not clear and objective and therefore the subdivision does not need to meet the Comprehensive Plan or official street plan for the City of Sandy. The applicant also asserts that if the official street plan is in the TSP, it is not sufficiently incorporated into the development code for the purposes of limited land use decisions. However, in the narrative for Bull Run Terrace (File No. 19-050) for the same subject site the same applicant stated, "*As illustrated on the submitted Future Street Plan (Sheet C1), the proposed street system is consistent with the City's Transportation System Plan and Comprehensive Plan.*" So, with the Bull Run Terrace land use application the applicant conceded that the street system had to be consistent with the City's Transportation System Plan and Comprehensive Plan to meet criteria 17.100.60 (E)(3). The applicant's inconsistent understanding of what is the official street plan (i.e., the City's TSP) is illogical and conflicting even in the applicant's project

narrative. Additionally, in a previous TIS from Ard Engineering (dated September 28, 2020) on page 24 the applicant's traffic engineer referenced the requirement for the Dubarko Road connection by stating, "it is the completion of the city's planned connection of Dubarko Road to Highway 26." Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP. By not providing the connection of Dubarko Road to Highway 26 in the proposal the subdivision request does not meet approval criteria 17.100.60 (E)(3).

**BASIS FOR DENIAL 3: The application does not meet the parkland dedication requirements in Chapter 17.86**

16. The applicant did not propose any parkland dedication as required by Chapter 17.86 of the Sandy Development Code. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The Parks and Trails Advisory Board (Board) met on August 11, 2021. The Board recommended that conditions of approval were included that required dedication of land for expansion of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and in the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. Because the Deer Meadows subdivision did not propose parkland dedication abutting Deer Pointe Park, the proposed subdivision is inconsistent with the 1997 Parks Master Plan.

17. Section 17.86.10 contains a clear and objective formula for determining the amount of land required to be dedicated. The formula is acres = proposed units x (persons/unit) x 0.0043. For the 30 single family homes, acres = 30 x 3 x 0.0043 = 0.39 acres. For the maximum development of 66 multifamily units, acres = 66 x 2 x 0.0043 = 0.57 acres. Combined, this totals 0.96 acres. The dedication of 0.96 acres was required to meet the clear and objective criteria in Chapter 17.86. NOTE: The number of dwelling units on the subject site does not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to parkland dedication are based on unreliable assumptions.

**DECISION:** For the reasons stated above, the Planning Commission **denies** the Deer Meadows subdivision application.



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Jerry Crosby  
Planning Commission Chair

## **RIGHT OF APPEAL**

A decision on a land use proposal or permit may be appealed to the City Council by an affected party by filing an appeal with the Director within twelve (12) calendar days of notice of the decision. Any person interested in filing an appeal should contact the city to obtain the form, "*Notice of Appeal*," and Chapter 17.28 of the Sandy Development Code regulating appeals. All applications for an appeal shall indicate the nature of the interpretation that is being appealed and the matter at issue will be a determination of the appropriateness of the interpretation of the requirements of the Code.

An application for an appeal shall contain:

1. An identification of the decision sought to be reviewed, including the date of the decision;
2. A statement of the interest of the person seeking review and that he/she was a party to the initial proceedings;
3. The specific grounds relied upon for review;
4. If de novo review or review by additional testimony and other evidence is requested, a statement relating the request to the factors listed in Chapter 17.28.50; and,
5. Payment of required filing fees.

## EXHIBIT VV

**From:** Robinson, Michael C. <MRobinson@SCHWABE.com>  
**Sent:** Wednesday, November 24, 2021 5:16 AM  
**To:** David Doughman  
**Cc:** Forbes, Erin M.; Stephenson, Garrett H.; 'Dave Vandehey'  
**Subject:** RE: Deer Meadows; 120-Day Period [IWOV-pdx.FID4511155]

Good morning, David. Shown below is the revised Applicant's extension of the 120-day period in ORS 227.178(1) based on our telephone conversation yesterday.

**Michael C. Robinson**

Shareholder  
Direct: 503-796-3756  
Mobile: 503-407-2578  
[mrobinson@schwabe.com](mailto:mrobinson@schwabe.com)

**Schwabe Williamson & Wyatt**

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**From:** Robinson, Michael C.  
**Sent:** Tuesday, November 23, 2021 9:10 AM  
**To:** 'David Doughman' <david@gov-law.com>  
**Cc:** Forbes, Erin M. <EForbes@SCHWABE.com>; Stephenson, Garrett H. <GStephenson@SCHWABE.com>; 'Dave Vandehey' <dave.vandehey@rolltideproperties.com>  
**Subject:** Deer Meadows; 120-Day Period [IWOV-pdx.FID4511155]

Good morning, David. The applicant's first open record period letter extended the 120-day period to 1/5/22. The applicant proposes to extend the 120-day period another **27 days**, or until **2/1/22**, to allow the City Council to hold the appeal hearing **on 1/18/22 and to issue a final decision**. If the applicant invokes ORS 197.522, the statute allows the City to extend the 120-day period. **If the Applicant wants to submit final written argument under ORS 197.763(6)(e), the Applicant will extend the 120-day period to allow for the final written argument.**

**Michael C. Robinson**

Shareholder  
Direct: 503-796-3756  
Mobile: 503-407-2578  
[mrobinson@schwabe.com](mailto:mrobinson@schwabe.com)

**Schwabe Williamson & Wyatt**

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November 30, 2021

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

VIA E-MAIL ([PLANNING@CLSANDY.OR.US](mailto:PLANNING@CLSANDY.OR.US)) AND UPS

Mayor Stan Pulliam  
City of Sandy City Council  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: Appeal of Sandy Planning Commission (the “Planning Commission”) Final Order in Type III Decision (the “Decision”) on November 30, 2021, City of Sandy File No. 21-014 SUB/TREE (the “Application”)

Dear Mayor Pulliam and City Council Members:

This office represents Roll Tide Properties Corp. (“Roll Tide;” the “Applicant”). This letter and its exhibit are Roll Tide’s appeal of the Decision.

**1. Introduction.**

This letter addresses the requirements for the appeal of the Decision in Sandy Development Code (the “SDC”) 17.28.10 and 17.28.20. **Exhibit A** to this letter explains why the Decision is incorrect and must be reversed in order to properly apply only clear and objective provisions of the SDC, including the prohibition on the extension of Dubarko Road to a connection with U.S. Highway 26, a “highway with full access control,” which is an exemption in SDC 17.100.100.G.2 to the street connection requirement in SDC 17.100.100.F; the application of parkland dedication requirements in SDC 17.86.10 through a standardless and subjective procedure choosing between dedication and fee-in-lieu payments, a fact ignored by the Decision, in violation of ORS 197.307(4); the proper application of mandatory state law requirements that the City properly incorporate Comprehensive Plan provisions, including the Transportation System Plan (the “TSP”), under ORS 197.195(1) into the SDC in order to apply the Plan and TSP to limited land use decisions, a requirement in effect for thirty years but not yet satisfied by the City; and to properly apply only clear and objective standards, conditions and procedures to residential applications under ORS 197.307(4) and 227.175(2) in order to avoid the effect of discouraging needed housing through unreasonable cost or delay where no clear and objective approval process is available to the Applicant under ORS 197.307(6).

**2. Compliance with SDC 17.28.10.**

**A. SDC 17.28.10.A.** The Decision being appealed is Sandy File No. 21-014 SUB/TREE, the Deer Meadows Subdivision Application.

**B. SDC 17.28.10.B.** The Appeal is timely filed within twelve calendar days of the Notice of Decision. The Notice of Decision is dated November 18, 2021. Twelve calendar days from the Notice date is November 30, 2021. The Appeal is timely filed on November 30, 2021.

**3. Compliance with SDC 17.28.20.**

**A. SDC 17.28.20.A.1.** The Decision being appealed is Sandy File No. 21-014 SUB/TREE. The date of the Decision is November 18, 2021.

**B. SDC 17.28.20.A.2.** Roll Tide is the person seeking review. Roll Tide's interest is that of the Applicant. Roll Tide was a party to the initial proceedings.

**C. SDC 17.28.20.A.3.** The specific grounds for appeal are contained in the Applicant's oral and written testimony to the Planning Commission, this letter and **Exhibit A** to this letter.

**D. SDC 17.28.20.A.4.** The Applicant does not request *de novo* review. The factors for *de novo* review in SDC 17.28.20 are not clear and objective and selection of a *de novo* review violates the requirement of ORS 197.307(4)(a) that procedures be clear and objective.

**E. SDC 17.28.20.A.5.** The required filing fee is \$785.00 (City of Sandy Master Fee Schedule, July 1, 2021; "Planning Charges," Page 2, G. Appeal; Type II to Type IV, \$785.00 City Council Appeal"). The Applicant paid the full appeal fee in November 24, 2021 by credit card (**Exhibit C**, evidence of payment).

**F. SDC 17.28.20.A.6.** The name and mailing address of the entity being appealed is:

Roll Tide Properties Corp.  
P.O. Box 703  
Cornelius, OR 97113

**G.** The City's "Appeal" form is attached as **Exhibit D**.

**4. Other Issues.**

**A.** The Applicant does not waive ORS 197.522(3).

**B.** The Applicant does not waive final written argument under ORS 197.763(6)(e).

**C.** The Applicant objects to a *de novo* review by the City Council in the even the City Council elects to conduct a *de novo* review.

Mayor Stan Pulliam  
November 30, 2021  
Page 3

**D.** The only applicable clear and objective SDC standards and criteria are those in effect on the submittal date of the Application under ORS 227.178(3)(a).

**E.** The Applicant has extended the 120-day period in ORS 227.178(1) to February 1, 2022.

**F.** The Applicant is not waiving any needed housing arguments.

**G.** The Appeal addresses each basis for the Decision.

**5. Conclusion.**

The Applicant respectfully requests that the City Council reverse the Decision and approve the Application with only clear and objective conditions of approval.

Very truly yours,



Michael C. Robinson

MCR:jmhi

Enclosures: **Exhibit A** – Reasons for Appeal  
**Exhibit B** – Decision  
**Exhibit C** – Appeal Fee Receipt  
**Exhibit D** – Appeal Form

cc: Mr. Dave Vandehey (*via email*) (*w/enclosures*)  
Mr. Carey Sheldon (*via email*) (*w/enclosures*)  
Mr. Alex Reverman (*via email*) (*w/enclosures*)  
Mr. Ray Moore (*via email*) (*w/enclosures*)  
Mr. Tracy Moore (*via email*) (*w/enclosures*)  
Mr. Tyler Henderson (*via email*) (*w/enclosures*)  
Mr. Mike Ard (*via email*) (*w/enclosures*)  
Mr. Garrett Stephenson (*via email*) (*w/enclosures*)  
Ms. Erin Forbes (*via email*) (*w/enclosures*)  
Mr. David Doughman (*via email*) (*w/enclosures*)  
Mr. Kelly O'Neil, Jr. (*via email*) (*w/enclosures*)

PDX\126769\255102\MCR\32336418.1

**EXHIBIT A**

Notice of Appeal Statement; Reasons that )  
the City Council Must Reverse the Planning )  
Commission Decision and Approve the ) **STATEMENT OF SPECIFIC**  
Application with Clear and Objective ) **GROUND FORS APPEAL AS**  
Conditions of Approval (Sandy File No. 21- ) **REQUIRED BY SANDY**  
014 SUB/TREE). ) **DEVELOPMENT CODE 17.28.20.A.3**

**1. Introduction.**

This firm represents Roll Tide Properties Corp., the Applicant in the above-referenced file. This Letter serves as the Applicant’s notice of appeal of the Sandy Planning Commission’s (the “Commission”) denial (the “Decision”) of the proposed Deer Meadows Subdivision, which is to be located at 40808 and 41010 Highway 26 and consists of 32 lots (the “Project”). The Applicant’s specific bases for appeal are set forth below. This appeal is timely submitted within 12 calendar days of the Commission’s Decision, which was rendered on November 18, 2021.

**2. Legal Framework.**

Before responding to the Commission’s specific reasons for denial, we provide the Council with an overview of the legal framework that is relevant in this case, which makes this appeal a bit different from those the Council may have considered before. As the Decision explains, in 2019 the Applicant proposed a comprehensive plan/zone amendment and related subdivision application, known as “Bull Run Terrace,” in which the Applicant proposed an extension of Dubarko Road to Highway 26. However, because that prior application included a Comprehensive Plan Amendment, the Applicant was required to address the goals and policies of the Comprehensive Plan, including the City’s Transportation System Plan (“TSP”).

The Planning Commission recommended approval of the Bull Run Terrace application but the Council later denied it. The Applicant then filed a new application for a subdivision, *without* a concurrent plan amendment or zone change. Unlike the Bull Run Terrace application, a subdivision by itself is considered a “limited land use decision” under Oregon law and is subject to two statutes that were not at issue in Bull Run Terrace. First, the Application is subject to the “Needed Housing Statutes” of ORS 197.307(4). In simple terms, these provide that any application for the development of housing is subject only to clear and objective criteria and procedures. Second, the Application is subject to ORS 197.195(1), which provides that the goals and policies of the Comprehensive Plan, including the TSP, do not apply to limited land use decisions unless they have been specifically incorporated into the Sandy Development Code (“SDC”).

**A. The City may apply only clear and objective standards, conditions, and procedures to the Application.**

ORS 197.307(4) provides that local governments may “adopt and apply only clear and objective standards, conditions, and procedures regulating the development of housing, including needed housing, and precludes governments from unreasonably increasing the cost of housing or causing unreasonable delay.” ORS 227.173(2) provides that “when an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.” (Emphasis added.) ORS 197.307(6) allows a local government to use a subjective review process only if it also allows a “clear and objective” review procedure as an alternative.

Land use regulations are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or community.”<sup>1</sup> And, regardless of whether a given regulation is “designed to balance or mitigate impacts,” it must also be *both* clear *and* objective.<sup>2</sup> More fundamentally, standards that are susceptible to multiple interpretations are not clear and objective.<sup>3</sup>

ORS 197.522(2) and ORS 197.522(4) require local governments to approve applications for housing that are consistent with applicable land use regulations or can be made consistent with those regulations through reasonable conditions of approval. Relatedly, ORS 197.522(3),<sup>4</sup> allows an applicant to amend its application or to propose reasonable conditions to make its application consistent with the comprehensive plan and applicable land use regulations. What this means is that, if the Applicant proposes a condition of approval that would satisfy a given approval criterion that the Application does not otherwise meet, the City has a legal obligation to impose the condition in lieu of denying the Application.

Many of the reasons set forth in the Decision do not stand up to Oregon’s needed housing statutes. Many standards in the SDC are not clear and objective on their face or even when interpreted, and as such, cannot be applied to the Application under Oregon’s needed housing rules. Further, the City does not offer a clear and objective approval process for subdivisions as required under ORS 197.307(6).

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<sup>1</sup> *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff’d*, 158 Or App 1, 970 P2d 685, *rev den*, 328 Or 594 (1999).

<sup>2</sup> *Id.* at 155–56 (“Dictionary definitions of ‘clear’ and ‘objective’ suggest that the kinds of standards frequently found in land use regulations lack the certainty of application required to qualify as ‘clear’ or ‘objective.’”).

<sup>3</sup> *Parkview Terrace Development, LLC v. City of Grants Pass*, 70 Or LUBA 37, 52–53 (2014); *see also Walter v. City of Eugene*, 73 Or LUBA 356, 360–64 (2016) (citing a standard’s “multiple possible interpretations” as a basis to find it not clear and objective).

<sup>4</sup> “If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”

**B. The Transportation System Plan and Parks Master Plan are not adequately incorporated into the land use regulations; therefore, the City cannot require an extension of Dubarko Road or parkland required by the Parks Master Plan.**

As explained above, a subdivision is a limited land use decision as defined by ORS 197.015(12). Under ORS 197.195(1), cities are required to incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. This requirement extends to standards set forth in the TSP, parks master plan, and other elements of a city's comprehensive plan as well.<sup>5</sup> The Oregon Land Use Board of Appeals ("LUBA") has explained that adequate incorporation of a standard turns on whether the relevant land use regulations "make clear what *specific policies or standards* in the TSP [or other identified plan] apply to a limited land use decision as approval criteria."<sup>6</sup> LUBA has also explained that "ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan [or other identified plan]."<sup>7</sup> Rather, "[i]n order to 'incorporate' a comprehensive plan [or other plan] standard into a local government's land use regulations within the meaning of ORS 197.195(1), the local government must *at least* amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan [or other plan] apply to a limited land use decision as approval criteria."<sup>8</sup>

The City of Sandy's approval criteria governing review of a tentative plat for a subdivision fail to adequately incorporate the Sandy Comprehensive Plan or TSP. Specifically, SDC 17.100.60(E)(3) requires a showing that the "proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy." This is not sufficient to meet the incorporation requirements of ORS 197.195(1) because it merely refers generally to the Comprehensive Plan and the City's official street plan.<sup>9</sup> It does not "make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision."<sup>10</sup> Therefore, the Application may not be denied for lack of an extension of Dubarko Road.

The Decision also cites as a basis for denial the fact that the Application does not propose to dedicate parkland adjacent to Deer Point Park, as that park is designated on the 1997 Parks Master Plan. The Decision is incorrect in this regard because the Parks Master Plan is not applicable to the Application. This is because, as explained above, the Application is a limited land use decision, and not subject to comprehensive plans or their elements unless such provisions are expressly incorporated into a city's land use regulations. The Parks Master Plan is not incorporated into the Sandy Development Code, the City's land use regulations; nor does the

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<sup>5</sup> See *Oster v. City of Silverton*, LUBA No. 2018-103, at pp. 9-10 (Or LUBA May 7, 2019).

<sup>6</sup> *Id.* at p. 12.

<sup>7</sup> *Paterson v. City of Bend*, LUBA No. 2004-155, at p. 6 (Or. LUBA 2005).

<sup>8</sup> *Id.* at pp. 6-7.

<sup>9</sup> See *Oster* at 12.

<sup>10</sup> *Id.*

Decision assert that it is. Therefore, the Parks Master Plan may not be a basis for requiring dedication of parkland adjacent to Deer Point Park.

**C. The City cannot require dedication of parkland because the Development Code's procedures for such requirement are not clear and objective.**

Contrary to the Decision, the regulatory scheme created for park dedication is not clear and objective, and therefore is not applicable under ORS 197.307(4). SDC 17.86.10 includes a requirement that all residential development dedicate a certain amount of parkland based on the formula in SDC 17.86.10.B. Alternatively, an applicant may pay a fee-in-lieu for required parkland under SDC 17.86.40. While the Commission found that the formula for parkland dedication is clear and objective, that is not all that ORS 197.307(4) requires. It also requires that local governments "... apply only clear and objective ... procedures regulating the development of housing," and that the "standards, conditions and procedures" "may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay." (Emphasis added.)

The SDC is without any clear and objective guideposts as to whether a developer must provide a fee-in-lieu payment or parkland dedication, and neither decision can be made without consideration of the other option because SDC Chapter 17.86 provides for both. Thus, the decision maker must exercise discretion in deciding to require one or the other, and it is the required exercise of discretion that makes the parkland dedication requirement untenable under ORS 197.307(4).

**D. In order to require an extension of Dubarko Road and dedication of parkland, the City must demonstrate that those requirements have an essential nexus and are roughly proportional to the project's impacts on those facilities.**

The Decision contends that the Applicant should be required to extend Dubarko Road to Highway 26 and to dedicate certain land as parkland to expand Deer Pointe Park. Such dedications are subject to the Takings Clause of the Fifth Amendment of the U.S. Constitution.

Requiring a landowner to convey its private property rights in exchange for development approval is an unconstitutional condition unless there is an "essential nexus" between the condition and the government interest. *Nollan v. California Coastal Com.*, 483 U.S. 825, 836-37 (1987). Additionally, to withstand a legal challenge, the condition must be "roughly proportional" to the expected impacts caused by the proposed development. *Dolan v. City of Tigard*, 512 U.S. 374, 391-395 (1994). The *Nollan* and *Dolan* takings analysis must be done on a case-by-case basis, and the City carries the burden of demonstrating in the first instance that any exaction has a nexus to and is roughly proportional to the nature and degree of the projected impacts of the project. The City is required to make an "individualized determination" and "some effort to quantify" evidence in the findings to support a conclusion of rough proportionality. *Dolan*, 512 U.S. at 391. The *Nollan/Dolan* analysis applies to requirements to



pay money or make public improvements in addition to requirements to dedicate property. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013).

There is no demonstration in the record that the requirements for the Dubarko Road extension and parkland dedication have a nexus to any governmental interest other than the City's general policies showing the street extension and parkland dedications. However, such policies do not constitute the required nexus; rather, a local government must show that "the proposed project's impacts, either alone or in combination with other construction, are ones that 'substantially impede' the interest identified by the government." *Hill v. City of Portland*, 293 Or App 283, 290-291 (2018).

During the proceedings before the Commission, City staff made no attempt to identify the essential nexus between the impact of the Project on the City's park system and the dedication requirement, and no attempt to explain how the requirement is roughly proportional to the project's impacts. Instead, the Decision cites the City's parkland dedication formula as a basis for the dedication requirement. However, relying on a broadly-applicable dedication formula is insufficient because such a determination must be *individualized*. *Dolan*, 512 U.S. at 391. What is more, simply imposing the same level of exaction on all housing projects does not prove there actually is a nexus between that housing and the parks dedication requirement itself. *Hill*, 293 Or. App. at 290-291.

Finally, there is nothing in the record or the Staff Report even approaching a showing that the Dubarko Road extension and parkland dedication are "roughly proportional" to the impacts of the proposed subdivision.

**E. SDC 17.100.100.G.2 prohibits the City from require an extension of Dubarko Road through the site.**

SDC 17.100.100 governs street requirements for subdivisions. SDC 17.100.100.G provides exemptions from otherwise-applicable street requirements. Subsection G.2 provides:

*"Standards for street connections do not apply to freeways and other highways with full access control."*

As explained in ODOT's September 1, 2021 letter (which is listed as Exhibit N to the Staff Report), Highway 26 is access controlled. Therefore, the City unambiguously lacks the authority to require a connection of Dubarko Road to Highway 26.

**3. Response to Specific Findings for Denial.**

The following responds to the specific findings for denial in the Decision.

**A. SDC 17.100.60 (E)(1)**

The Decision's finding that the Application fails to satisfy SDC 17.100.60(E)(1) is incorrect for the following reasons.

- **17.100.60.E.1. "The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval."**
    - This criterion is not clear and objective as required by ORS 197.307(4) because the phrase "consistent with" is not clear and objective.
    - The Decision is incorrect that the Application fails to meet frontage and orientation requirements along Dubarko Road for the simple reason that the Application does not *propose* an extension of Dubarko Road. There is no logic in the conclusion that such setbacks and frontages to Dubarko Road could be required without the road itself having been proposed; as a practical matter, it would be impossible for the Applicant to meet such a requirement. In this regard the Decision does not make sense; one cannot plausibly argue that a plan does not meet setback requirements adjacent to a new road that is not proposed. As explained above, the City may not require an extension of Dubarko Road; therefore, the City cannot deny the Application because the proposed lots do not have a sufficient amount of frontage or orientation to a road that does not and will not exist.
    - SDC Chapter 82 requirement that homes "face a transit street" is not applicable because, as noted above, the City's Transportation System Plan and Pedestrian Mater Plans are not incorporated into the City's Land Use Regulations. ORS 197.195.
    - Pursuant to ORS 197.522(3), if the transit street orientation requirement in SDC 17.82.20.A did apply, it could be met with the following condition:

***"All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street."***
- This condition was proposed in paragraph 34 of the Staff Report to the Commission. Under ORS 197.522(3), the City is required to impose this condition in lieu of denial because it would ensure satisfaction the frontage orientation requirement.
- The Decision is also incorrect that some of the proposed lots are located in the required right-of-way for Dubarko Road and located across required parkland.

As discussed above, the Application does not propose an extension of Dubarko Road or the dedication of parkland. Without such an extension or dedication proposed, there is no right-of-way or parkland on or across which the proposed lots can be located. Indeed, no lots are proposed to be located on any right-of-way or parkland, and as such, the conclusion that the Application improperly proposes lots to be located on or across such is illogical. As explained above, the City may not require an extension of Dubarko Road nor a dedication of parkland; therefore, the City cannot deny the Application because some of the proposed lots are in the required right-of-way for Dubarko Road or across required parkland.

**B. SDC 17.100.60 (E)(3)**

The Decision's finding that the Application fails to satisfy SDC 17.100.60(E)(3) is incorrect for the following reasons.

- ***17.100.60.E.3. "The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy."***
  - As explained above, this criterion is not applicable because the City's Comprehensive Plan and Transportation System Plan have not been incorporated into the City's land use regulations as required by ORS 197.195.
  - The statement made in Paragraph 14 of the Decision ("The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan.' The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.") is not evidence that the Comprehensive Plan and TSP have been properly incorporated into the City's land use regulations as contemplated by ORS 197.195 and as further explained by *Oster* and *Paterson*. To be properly incorporated, the City's land use regulations (i.e. the Sandy Development Code) must make clear which specific sections of the Comprehensive Plan and TSP apply to the relevant approval criteria. General references to those Plans such as those made by the SDC are not sufficient. Mere adoption of the Plan by ordinance is also not enough. Further, the only mention of the "official street plan" in the SDC is a general reference to it in SDC 17.100.60.E.3, which does not specify where the official street plan is found or what portions of it are relevant to the approval criteria.

Moreover, Ordinance 2011-12 is not in the Planning Department record for this Application and as such, it cannot be a basis for the Commission's Decision.

- Even if applicable, this criterion is not clear and objective as required by ORS 197.307(4) because the phrase “consistent with” is not clear and objective.
- As explained above, the City has not demonstrated the required essential nexus and rough proportionality required by *Nollan* and *Dolan*.
- The fact that a Dubarko Road extension was proposed in the prior Bull Run Terrace application is irrelevant. Likewise, Ard Engineering’s September 28, 2020 reference to “the requirement for the Dubarko Road connection,” made as part of the prior Bull Run Terrace application, is also irrelevant. That was a different proposal and different type of application, and the City denied it. There is no legal obligation in state or local law that requires a new application for a given property to include the same elements as a prior denied application.
- The Applicant is not required to extend Dubarko Road under SDC 17.100.100.G.2 because Highway 26 is access controlled by ODOT.
- OAR 660-012-0045 does not apply to the proposed development. The Decision cites to OAR 660-012-0045 as a basis for denial. This is improper for at least two reasons. For one, this administrative rule is not an approval criterion and as such cannot be the basis for denial of the Application. Moreover, it establishes obligations for a local government’s plan and land use regulations; it does not apply directly to review of subdivision application. Even if it did, it establishes obligations that the *City* must meet, not the Applicant. As such, it cannot be used as a basis to deny the Application.

**C. Parkland Dedication Requirements in SDC 17.86.**

As explained in detail above, the City cannot require dedication of 0.96 acres to add to Deer Pointe Park for the following reasons:

- The City’s Parks and Trail Master Plan is not incorporated into the City’s land use regulations as required by ORS 197.195, and is therefore inapplicable to the Application.
- The process by which the City can require parkland dedication as opposed to a fee-in-lieu is not clear and objective; therefore, the parkland dedication requirement cannot apply under ORS 197.307(4).
- Staff has made no attempt to demonstrate an essential nexus or rough proportionality of the parkland dedication requirement, as required by *Nollan* and *Dolan*.

**4. Conclusion.**

For the above reasons, the City Council cannot require a dedication of parkland adjacent to Deer Pointe Park and may not require an extension of Dubarko Road. The City Council must approve the Application because the Decision's stated bases for denial are not permissible under applicable law.

MCR:jmhi

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**FINDINGS OF FACT and FINAL ORDER  
TYPE III DECISION**

**DATE:** November 18, 2021

**FILE NO.:** 21-014 SUB/TREE

**PROJECT NAME:** Deer Meadows Subdivision

**APPLICANT/OWNER:** Roll Tide Properties, Corp.

**PHYSICAL ADDRESS:** 40808 and 41010 Highway 26

**LEGAL DESCRIPTION:** T2 R5E Section 18CD, Tax Lots 900 and 1000

**FINDINGS OF FACT**

**GENERAL FINDINGS**

1. These findings are based on the applicant's submittals and other evidence and testimony presented to the Planning Commission. In a letter dated June 11, the applicant agreed to toll the 120-day clock until July 27, 2021. The original 120-day clock was November 24, 2021.
2. On September 27, 2021 the Planning Commission held a public hearing on the Deer Meadows Subdivision and decided to create an open record period prior to deliberating on the subdivision request at a special meeting scheduled for November 8, 2021. The first open record period closed on Monday, October 11 at 4 pm. During the first open record period, anyone could submit additional written information for the Planning Commission to consider. The second open record period closed on Monday, October 18 at 4 pm. During the second open record period, parties could only submit information that rebutted or responded to information that was submitted during the first open record period. The third open record period closed on Monday, October 25 at 4 pm. This third open record period was reserved solely for the applicant to submit their final written argument.
3. With the creation of the open record period the applicant agreed to extend the 120-day clock by an additional 42 days. The existing 120-day clock is January 5, 2022.
4. The subject site is approximately 15.91 acres. The site is located at 40808 and 41010 Highway 26.

5. The parcel has a Comprehensive Plan Map designation of Village and a Zoning Map designation of R-1, Low Density Residential; R-2, Medium Density Residential; and C-3, Village Commercial.
6. The applicant, Roll Tide Properties Corp., seeks approval for a 32-lot subdivision at 40808 and 41010 Highway 26. The development proposal included two partial street extensions and the creation of two new streets. The applicant proposed 30 lots of Low Density Residential (R-1) that would contain single family homes or duplexes, one small lot (9,023 square feet) of Medium Density Residential (R-2), and one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3). The proposed 30 lots with R-1 zoning range in size from 5,500 square feet to 32,189 square feet. The applicant proposed to retain 48 existing trees and proposed to remove the remainder of the trees from the site.
7. The exact number of multifamily units was not determined at the time of the subdivision request as the applicant wanted to process the multi-family development in a subsequent design review application. However, the applicant claimed the number of multifamily dwelling units on the R-2 zoned land would have been between 38 dwelling units and 66 dwelling units. The C-3 zoned land would have likely contained a mix of commercial and residential development.
8. Due to the interest in the previous proposal at the subject site, the Development Services Director elevated this application to a Type III decision to be heard and considered by the Planning Commission.
9. Throughout the project narrative (Exhibit B) the applicant failed to submit required information. Instead, on 14 occasions in the narrative the applicant stated that the development code is subjective (i.e., not clear and objective) and because the subdivision is a housing application the alleged subjective development code language is not applicable. Staff explained at the Planning Commission meetings that they did not agree with the applicant's interpretation of what constitutes and does not constitute subjectivity.
10. The applicant previously proposed a development at the site that was denied by the City Council (File No. 19-050 CPA/ZC/SUB/SAP/TREE Bull Run Terrace). This application was substantively different from that prior proposal. The applicant did not propose a Comprehensive Plan amendment or Zone Change amendment. The applicant chose not to expand Deer Pointe Park or connect Dubarko Road to Highway 26. The existing parks master plan details the Deer Pointe neighborhood to have a Community Park. The existing transportation system plan classifies Dubarko Road as a minor arterial and shows it connecting to Highway 26.
11. The City of Sandy provided the following notices:
  - A. A transmittal was sent to agencies asking for comment on August 2, 2021.
  - B. Notification of the proposed application was mailed to affected property owners within 300 feet of the subject property on August 10, 2021.

- C. A supplemental notice regarding the Planning Commission meeting was mailed to affected property owners within 300 feet of the subject property on August 24, 2021.
- D. A legal notice was published in the Sandy Post on September 15, 2021.

**BASIS FOR DENIAL 1: The application does not meet subdivision criteria 17.100.60(E)(1)**

12. Section 17.100.60(E)(1) requires subdivisions to be consistent with the density, setback, and dimensional standards of the base zoning district, unless modified by a Planned Development approval. Each base zoning district requires that residential development comply with Chapter 17.82. First, the Preliminary Plat Map (Exhibit C, Sheet C2) details setbacks for Lots 2, and 27-31 showing the front setback facing the local street or public access lane, instead of the Transit Street as required by Chapter 17.82. Second, Sheet C2 does not identify that lots abutting Highway 26 shall face Highway 26 as required by Chapter 17.82, nor does the plan set detail frontage improvements along Highway 26 as required by Chapter 17.86. Third, by not proposing the extension of Dubarko Road to connect with Highway 26, the lots that would otherwise abut Dubarko Road do not have the required frontage to Dubarko Road as required by Chapter 17.82. Fourth, by not proposing Dubarko Road or parkland dedication, some of the proposed lots are in the required right-of-way for Dubarko Road and also located across required parkland. Therefore, this proposal does not meet approval criteria 17.100.60 (E)(1).

**BASIS FOR DENIAL 2: The application does not meet subdivision criteria 17.100.60(E)(3)**

- 13. Section 17.100.60(E)(3) requires the proposed street pattern to be connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy. The proposed street pattern is not consistent with the Comprehensive Plan and the city's standards, including connecting Dubarko Road to Highway 26.
- 14. The 2011 Sandy Transportation System Plan (TSP) was adopted by Ordinance 2011-12 as an addendum to the Comprehensive Plan. Exhibit A of Ordinance 2011-12 is the TSP. The TSP is referenced by ordinance as 'the transportation element of the City of Sandy Comprehensive Land Use Plan.' The 2011 TSP includes the official street plan for the City of Sandy. Project M20 in the TSP is the connection of Dubarko Road to Highway 26.
- 15. On pages 9, 10, and 14 of the project narrative (Exhibit B) the applicant references the City's TSP and states that the TSP identifies Dubarko Road as a minor arterial. On page 32 of the project narrative (Exhibit B) the applicant claims that subdivision approval criteria 17.100.60 (E)(3) is not clear and objective and therefore the subdivision does not need to meet the Comprehensive Plan or official street plan for the City of Sandy. The applicant also asserts that if the official street plan is in the TSP, it is not sufficiently incorporated into the development code for the purposes of limited land use decisions. However, in the narrative for Bull Run Terrace (File No. 19-050) for the same subject site the same applicant stated, "*As illustrated on the submitted Future Street Plan (Sheet C1), the proposed street system is consistent with the City's Transportation System Plan and Comprehensive Plan.*" So, with the Bull Run Terrace land use application the applicant conceded that the street system had to be consistent with the City's Transportation System Plan and Comprehensive Plan to meet criteria 17.100.60 (E)(3). The applicant's inconsistent understanding of what is the official street plan (i.e., the City's TSP) is illogical and conflicting even in the applicant's project



narrative. Additionally, in a previous TIS from Ard Engineering (dated September 28, 2020) on page 24 the applicant's traffic engineer referenced the requirement for the Dubarko Road connection by stating, "it is the completion of the city's planned connection of Dubarko Road to Highway 26." Furthermore, the proposal is not consistent with OAR 660-012-0045, which requires that local governments implement their TSP. By not providing the connection of Dubarko Road to Highway 26 in the proposal the subdivision request does not meet approval criteria 17.100.60 (E)(3).

**BASIS FOR DENIAL 3: The application does not meet the parkland dedication requirements in Chapter 17.86**

16. The applicant did not propose any parkland dedication as required by Chapter 17.86 of the Sandy Development Code. Directly west of the subject property is undeveloped land owned by the City of Sandy that has long been reserved for the eventual development of Deer Pointe Park. The Parks and Trails Advisory Board (Board) met on August 11, 2021. The Board recommended that conditions of approval were included that required dedication of land for expansion of Deer Pointe Park. The 1997 Parks Master Plan designated Deer Pointe Park as a community park, and in the Location and Development Policies section of the Plan states that community parks should be 20 acres or more. Because the Deer Meadows subdivision did not propose parkland dedication abutting Deer Pointe Park, the proposed subdivision is inconsistent with the 1997 Parks Master Plan.

17. Section 17.86.10 contains a clear and objective formula for determining the amount of land required to be dedicated. The formula is acres = proposed units x (persons/unit) x 0.0043. For the 30 single family homes, acres = 30 x 3 x 0.0043 = 0.39 acres. For the maximum development of 66 multifamily units, acres = 66 x 2 x 0.0043 = 0.57 acres. Combined, this totals 0.96 acres. The dedication of 0.96 acres was required to meet the clear and objective criteria in Chapter 17.86. NOTE: The number of dwelling units on the subject site does not account for the additional land required to be dedicated for Dubarko Road to connect to Highway 26 or the parkland dedication, therefore the calculations related to parkland dedication are based on unreliable assumptions.

**DECISION:** For the reasons stated above, the Planning Commission **denies** the Deer Meadows subdivision application.



\_\_\_\_\_  
Jerry Crosby  
Planning Commission Chair

## **RIGHT OF APPEAL**

A decision on a land use proposal or permit may be appealed to the City Council by an affected party by filing an appeal with the Director within twelve (12) calendar days of notice of the decision. Any person interested in filing an appeal should contact the city to obtain the form, "*Notice of Appeal*," and Chapter 17.28 of the Sandy Development Code regulating appeals. All applications for an appeal shall indicate the nature of the interpretation that is being appealed and the matter at issue will be a determination of the appropriateness of the interpretation of the requirements of the Code.

An application for an appeal shall contain:

1. An identification of the decision sought to be reviewed, including the date of the decision;
2. A statement of the interest of the person seeking review and that he/she was a party to the initial proceedings;
3. The specific grounds relied upon for review;
4. If de novo review or review by additional testimony and other evidence is requested, a statement relating the request to the factors listed in Chapter 17.28.50; and,
5. Payment of required filing fees.

**From:** [noreply@openedgepay.com](mailto:noreply@openedgepay.com)  
**To:** [Hicks, Jane M.](#)  
**Subject:** City of Sandy-Sandy  
**Date:** Tuesday, November 23, 2021 10:50:47 AM

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Batch # 000097 Trans ID 00000000961 Order ID 1637693293755 Trans  
Type Purchase Date/Time 2021-11-23 10:50:09 Card Type Visa Card  
Number XXXXXXXXXXXX4414 Entry Method MANUAL Approval Code 00279D  
Total Amount USD\$785.00 Approved - Thank You  
X\_\_\_\_\_ Cardholder Signature Buyer  
agrees to pay total amount above according to cardholder's agreement  
with issuer. Please do not reply to this message. Replies to this  
message are routed to an unmonitored mailbox.

Exhibit C  
Page 1 of 1



Name of Appellant:			Phone Number:		
Email:			Address:		
Map & Tax Lot #:	T:	R:	Section:	Tax Lot(s)	

**BASIS FOR STANDING APPEAL (please check all that apply)**

Submitted written evidence during the initial review <input type="checkbox"/>
Testified orally at the hearing <input type="checkbox"/>
Participated through?

**Grounds for the Appeal:** Attach separate page(s) stating the ground for the appeal. The appeal must be based upon issues raised during the decision-making process or hearing. You must identify the issue with sufficient information so that the reviewing body understands under what the criteria within the Sandy Development Code, the Comprehensive Plan, or Statewide Land Use Goals you are appealing.

**Relevant Code Sections:** Attach separate page(s) listing the relevant code sections, which relate to the appeal application.

**Please note:**

\* If the notice fails to conform to the above requirements or is not actually received by the City (delivered to the City Manager, Development Services Director, City Recorder or their staff) within the timelines specified, the appeal is void and shall be dismissed.

\* An appeal stays an approval until resolution of the appeal.

Staff Use Only

Appeal Filed within 12 calendar days of Written Decision: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Application complete: Yes <input type="checkbox"/> No <input type="checkbox"/>			
Scheduled for review before the: Planning Commission <input type="checkbox"/> City Council <input type="checkbox"/>			
File No.:		Date of Decision:	
Appeal Fee:		Date Appeal Filed:	
		Date Notice of Decision Mailed:	
		Date Set for Hearing:	

Development Services Department, 39250 Pioneer Blvd, Sandy, OR 97055, 503.489.2160

**EXHIBIT XX**

**MEMORANDUM**

TO: Mayor Pulliam  
Sandy City Council Members

FROM: David Doughman, City Attorney's Office

SUBJECT: Scope of Review for Deer Meadows Appeal

DATE: December 21, 2021



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On January 18, 2022, the Sandy City Council will hear an appeal of the Deer Meadows subdivision, which the Sandy Planning Commission denied in November. At its January 3, 2022 meeting, the council must determine the scope of its review for the appeal.

Section 17.28.30 of the Sandy Municipal Code says:

Except where a de novo hearing is required for review of Type II (Limited Land Use) decisions, an appeal is limited to a review of the record and a hearing for receipt of oral arguments regarding the record. At its discretion and if good cause has been demonstrated by the appellant or City staff, the hearing body may allow an appeal to include new evidence based upon circumscribed issues relevant to the appeal, or it may allow a de novo hearing.

Roll Tide Properties is the applicant/appellant. The appellant has requested the council limit its review to the record of the planning commission.

Historically, the council has heard appeals "de novo." Under the city's code, a de novo hearing is one where the council is able to consider new evidence and written testimony, in addition to the evidence and testimony presented to the planning commission. When an appeal is heard "on the record," the city's code says parties may only present oral argument regarding evidence and testimony in the record. In addition, if an appeal is limited to the record, the council may not accept new evidence and may not consider any new issue that someone may raise.

In my experience, local governments are not well equipped to handle appeals on the record. It makes sense for appellate bodies such as LUBA and appellate courts to limit appeals to the record. However, in those instances, rules govern the contents of the record; parties have an opportunity to object to the contents; and, prior to the hearing, each party files written briefs that must cite to relevant portions of the record in order to demonstrate they have preserved an issue for appeal.

Page 2

Local governments are not appellate courts. Without similar procedures in place, appeals on the record can lead to arguments between parties about what issues may or may not be asserted on appeal, who may assert them and what evidence in the record supports those assertions. Significant amounts of time can be spent sorting through and making decisions concerning these issues, which then results in potential procedural errors. These potential problems are exacerbated by hybrid/remote hearings, which Oregon law will effectively require as of January 1, 2022.

**RECOMMENDATION:** For these reasons, I recommend the council choose to hold a de novo hearing for the Deer Meadows appeal on January 18, 2022.

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**BEH**



January 3, 2022

**EXHIBIT YY**

**Michael C. Robinson**

Admitted in Oregon  
T: 503-796-3756  
C: 503-407-2578  
mrobinson@schwabe.com

**VIA E-MAIL**

Mr. Stan Pulliam, Mayor  
Sandy City Council  
Sandy City Hall  
39250 Pioneer Boulevard  
Sandy, OR 97055

RE: Sandy City Council January 3, 2022 Meeting Agenda Item 8.1; Deer Meadows  
Appeal Hearing Scope of Review

Dear Mayor Pulliam and Sandy City Council Members:

This office represents the Applicant in the above-referenced matter. This letter addresses the City Council's consideration of the scope of the appeal hearing.

The City Council may consider this letter because it is argument only and contains no new evidence. City Attorney David Doughman confirmed that the Applicant may submit this letter.

The Applicant requests that the City Council hold an "on the record" appeal hearing as anticipated by Sandy Development Code ("SDC") 17.28.30 for the following reasons:

**First**, the "good cause" standard in SDC 17.28.30 is not a clear and objective procedural standard and is prohibited by ORS 197.307(4).

**Second**, while the Applicant generally agrees with the City Attorney's comments in his December 21, 2021 memorandum, the Applicant does not agree that these comments rise to "good cause" in this Application because the evidentiary record is not complex and even if it were, the comments do not show good cause where no application-specific reason for holding a *de novo* hearing has been provided.

**Third**, a *de novo* hearing prejudices the Applicant's substantial rights to a full and fair hearing by violating ORS 197.307(4).

**Finally**, ORS 197.522 allows the Applicant to modify the application or to offer a condition of approval, so a *de novo* hearing is unnecessary for the purpose of addressing relevant clear and objective approval criteria.

Thank you for considering the Applicant's arguments.

Mr. Stan Pulliam, Mayor  
January 3, 2022  
Page 2

Very truly yours,



Michael C. Robinson

MCR:jmhi

cc: Mr. Dave Vandehey (*via email*)  
Mr. Alex Reverman (*via email*)  
Mr. Carey Sheldon (*via email*)  
Mr. Tracy Brown (*via email*)  
Mr. Ray Moore (*via email*)  
Mr. Mike Ard (*via email*)  
Mr. Tyler Henderson (*via email*)  
Mr. Garrett Stephenson (*via email*)  
Ms. Erin Forbes (*via email*)  
Mr. Kelly O'Neill, Jr. (*via email*)  
Mr. David Doughman (*via email*)  
Mr. Chris Crean (*via email*)

PDX\126769\255102\MCR\32628020.1



1/11/22, 12:14 PM

City of Sandy Mail - Fwd: Deer Meadows extension request



Marisol Martinez <mmartinez@ci.sandy.or.us>

---

## Fwd: Deer Meadows extension request

1 message

---

**Kelly O'Neill Jr.** <koneill@ci.sandy.or.us>  
To: Planning <planning@ci.sandy.or.us>

Tue, Jan 11, 2022 at 11:11 AM

FYI...

----- Forwarded message -----

From: **Robinson, Michael C.** <MRobinson@schwabe.com>  
Date: Tue, Jan 11, 2022 at 10:59 AM  
Subject: RE: Deer Meadows extension request  
To: Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
Cc: Stephenson, Garrett H. <GStephenson@schwabe.com>, Chris Crean <Chris@gov-law.com>, Jeff Aprati <japrati@ci.sandy.or.us>, Hicks, Jane M. <JHicks@schwabe.com>, Robinson, Michael C. <MRobinson@schwabe.com>

Kelly, please find attached a letter authorized by the applicant to extend the 120-day period in ORS 227.178(1) in order to allow the Sandy City Council public hearing to be continued from January 18, 2022 to February 22, 2022. Please confirm receipt of this letter and that it is satisfactory.

Thanks. Mike

### **Michael C. Robinson**

Shareholder

Direct: 503-796-3756

Mobile: 503-407-2578

[mrobinson@schwabe.com](mailto:mrobinson@schwabe.com)

**Schwabe Williamson & Wyatt**

[Please visit our COVID-19 Resource page](#)

**From:** Kelly O'Neill Jr. <koneill@ci.sandy.or.us>  
**Sent:** Tuesday, January 11, 2022 10:20 AM  
**To:** Robinson, Michael C. <MRobinson@SCHWABE.com>

<https://mail.google.com/mail/u/0/?ik=256091e41c&view=pt&search=all&permthid=thread-f%3A1721686614278890535&simpl=msg-f%3A1721686614...> 1/2

1/11/22, 12:14 PM

City of Sandy Mail - Fwd: Deer Meadows extension request

**Cc:** Stephenson, Garrett H. <GStephenson@SCHWABE.com>; Chris Crean <Chris@gov-law.com>; Jeff Aprati <japrati@ci.sandy.or.us>

**Subject:** Deer Meadows extension request

Mike and Garrett - The City Manager is willing to move the hearing to February 22, 2022 as long as you submit a formal request with a 120-day extension (i.e. toll the clock) by 1:00 PM today. Thanks.

--

Kelly O'Neill Jr.

Development Services Director

City of Sandy

Development Services Department

[39250 Pioneer Blvd](#)

[Sandy, OR 97055](#)

(503) 489-2163

[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)

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--

Kelly O'Neill Jr.

Development Services Director

City of Sandy

Development Services Department

[39250 Pioneer Blvd](#)

[Sandy, OR 97055](#)

(503) 489-2163

[koneill@ci.sandy.or.us](mailto:koneill@ci.sandy.or.us)



**1.11.2022 Letter to Sandy Development Services Director O\_Neill.PDF**

24K

**EXHIBIT AAA**

COMMENT SHEET for File No. 21-061 AP:

To protect our neighborhood we feel it is important to make Dubarko a thru street to Route 26. This would allow residents to enter the new subdivision from 26 and help reduce the traffic on Dubarko.

**RECEIVED**  
JAN 11 2022

City of Sandy

Thanks

David & Nancy Allan

Your Name: **David and Nancy Allan**  
Address: **18417 Meadow Ave**  
**Sandy, OR 97055**

Phone Number  
**503-826-0282**

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.56 Hillside Development; 17.74 Accessory Development; 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.

**EXHIBIT BBB**

COMMENT SHEET for File No. 21-061 AP:

The city of Sandy has done  
admirable work on planning for  
the future, their transportation  
plan has Debarco terminating  
at Hwy 26, This will assure for  
public safety needs and growth  
in the future.

RECEIVED  
JAN 19 2022

City of Sandy

Dave Carter

Your Name

503 724 5472

Phone Number

41248 SE Vista Loop dr 97055

Address

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.56 Hillside Development; 17.74 Accessory Development; 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.

EXHIBIT CCC

COMMENT SHEET for File No. 21-061 AP:

RECEIVED  
JAN 20 2022  
CITY OF SANDY

The most important thing for us is that Dubarko needs to be a through street to 26. This will reduce the traffic thru our neighborhood by allowing people to enter the new subdivision at the new entrance.

David & Nancy Allan 503-826-0282

Your Name

Phone Number

Address



Nancy Allan & David Allan  
18417 Meadow Ave  
Sandy, OR 97055

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.56 Hillside Development; 17.74 Accessory Development; 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.

## EXHIBIT DDD

Dear Planning Commission, City Planning Staff, and City Councilors:

I have lived in the Deer Pointe neighborhood for the past 10 years. I moved to the City of Sandy because of its small town feel and the lower population compared to many other cities in the Urban Growth Boundary. We, as a community, have seen more and more cars and homeless people moving into the area. The traffic in this area has gotten severely worse over the last few years. There are times when you have to wait several minutes just to get onto 26. This is not acceptable and is only going to get worse when you add in more neighborhoods like the proposed one at the Deer Meadows Subdivision. You all need to think about the ramifications on the residents that currently live here and not the ones that will be moving here. I have no problem with the city growing, but make sure it is done correctly. Please make sure that the builders will adhere to the original plans and not build any apartment complexes. I have no problems with single family dwellings or low density housing.

Also, when we built here, we were told that the park across the street was going to be doubled in size. There was a plan to have a walking path, basketball courts, and a playground in the park. The new plans by the builders don't have a park at all and have houses built there instead. With every other neighborhood in the area, there is a park in the middle of it for the kids and families to use. The original plans should still be intact and not be replaced by more houses.

I don't understand why the citizens of the City of Sandy have to argue against building new subdivision housing areas. The amount of traffic that is going to be in the neighborhood of Deer Pointe is going to be at dangerous levels. The cars in the neighborhoods across the city are already packing the side streets to get away from Highway 26. With the new proposal of Deer Meadows it is going to be a problem with no outlet to Highway 26. All the houses in that neighborhood will have to all go through Deer Pointe. This is going to increase the traffic to an already congested neighborhood. There is no outlet on Dubarko because of the expense that the builders will have to incur. There has to be other outlets out of the neighborhood. Please take in consideration the citizens and their concerns and not just focus on the money that will be coming into the city.

Scott Ruehrdanz  
40498 Fawn Street  
Sandy, Oregon  
715-703-0839



February 22, 2022

**Garrett H. Stephenson**  
Admitted in Oregon  
T: 503-796-2893  
C: 503-320-3715  
gstephenson@schwabe.com

**VIA EMAIL**

Kelly O’Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: Roll Tide Properties Corp. / Deer Meadows Subdivision Appeal 21-061 AP  
(Appeal of File No. 21-014 SUB/TREE)

Dear Mayor Pulliam and Councilors:

This firm represents Roll Tide Properties Corp., the Applicant in the above-referenced file. This letter sets forth the Applicant’s response to the Council Staff Report for the February 22, 2021 Council hearing, which recommends denial of the Applicant’s appeal and by extension, denial of the Applicant’s subdivision application. The Applicant’s specific objections are set forth below. For the reasons below, the Council should grant the Applicant’s appeal and reverse the Planning Commission’s decision.

Please note that appended to this letter is a revised subdivision concept which demonstrates how all clear and objective criteria are satisfied, including a revision to ensure that all lots have at least 20 feet of frontage to a public right-of-way. **Exhibit 1.** ORS 197.522(3) provides as follows:

“If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”

As the revisions shown in **Exhibit 1** resolve any inconsistencies with applicable clear and objective standards and criteria, the Applicant requests that Council impose a condition of approval requiring the final subdivision plat to be consistent with **Exhibit 1** to this letter.

**1. The Application is a needed housing application and the City must treat it as such.**

**A. The City may apply only clear and objective standards, conditions, and procedures to the Application.**

The Applicant has submitted a proposal for a subdivision located at 40808 and 41010 Highway 26 in Sandy, Oregon, in an area zoned for residential use. ORS 197.307(4) provides that local governments may adopt and apply only clear and objective standards, conditions, and procedures regulating the development of housing, including needed housing, and precludes governments from unreasonably increasing the cost of housing or causing unreasonable delay. ORS 227.173(2) provides that “when an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

Land use regulations are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or community.” *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff'd*, 158 Or App 1, 970 P2d 685, *rev den*, 328 Or 594 (1999). And, regardless of whether a given regulation is “designed to balance or mitigate impacts,” it must also be *both* clear *and* objective. *Id.* at 155–56 (“Dictionary definitions of ‘clear’ and ‘objective’ suggest that the kinds of standards frequently found in land use regulations lack the certainty of application required to qualify as ‘clear’ or ‘objective.’”). More fundamentally, standards that are susceptible to multiple interpretations are not clear and objective. *Parkview Terrace Development, LLC v. City of Grants Pass*, 70 Or LUBA 37, 52–53 (2014); *see also Walter v. City of Eugene*, 73 Or LUBA 356, 360–64 (2016) (citing a standard’s “multiple possible interpretations” as a basis to find it not clear and objective).

ORS 197.522(2) and ORS 197.522(4) require local governments to approve needed housing applications that are consistent with, or can be made consistent with through reasonable conditions of approval, the comprehensive plan and applicable land use regulations, and to deny applications that are not. Relatedly, ORS 197.522(3),<sup>1</sup> allows an applicant to amend its application or to propose reasonable conditions to make its application consistent with the comprehensive plan and applicable land use regulations. What this means is that, if the Applicant proposes a condition of approval that would satisfy a given approval criterion that the Application does not otherwise meet, the Council must impose the proposed condition of approval in lieu of denying the Application.

Many of the reasons set forth in the Staff Report that form the basis of Staff’s recommendation of denial do not stand up to Oregon’s needed housing statutes. Many standards in the Sandy Development Code (“SDC”) are not clear and objective on their face or even when interpreted,

<sup>1</sup> “If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”



Kelly O'Neill, Jr.  
February 22, 2022  
Page 3

and as such, cannot be applied to the Application under Oregon's needed housing rules; examples of these standards are highlighted in the Applicant's September 24, 2021 letter to the Hearings Officer. Further, the City does not offer a clear and objective approval process for subdivisions under ORS 197.307(6). And, the Council cannot deny an application that is consistent with the comprehensive plan and applicable land use applications and/or that can be made consistent by the imposition of reasonable conditions of approval. ORS 197.522(2)-(4). Finally, under ORS 197.522(3), the Council must allow the Applicant to amend the Application or to propose reasonable conditions that will cause the Application to meet all relevant approval criteria.

**B. Staff cannot require dedication of parkland because the Development Code's procedures for such requirement are not clear and objective.**

Contrary to Staff's assertions, the regulatory scheme created for park dedication is not clear and objective, and therefore is not applicable under ORS 197.307(4). SDC 17.86.10 includes a requirement that all residential development dedicate a certain amount of parkland based on the formula in SDC 17.86.10.B. Alternatively, an applicant may pay a fee-in-lieu for required parkland under SDC 17.86.40. While Staff contends that the formula for parkland dedication is clear and objective, that is not all that ORS 197.307(4) requires. It also requires that local governments "[...] apply only clear and objective [...] procedures regulating the development of housing," and that the "standards, conditions and procedures" "may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay." (Emphasis added.)

The SDC is without any clear and objective guideposts as to whether a developer must provide a fee-in-lieu payment or parkland dedication, and neither decision can be made without the inherent consideration of the other option because SDC Chapter 17.86 provides for both. Thus, the decision maker must exercise discretion in deciding to require one or the other, and it is the required exercise of discretion that makes the parkland dedication requirement inapplicable under ORS 197.307(4). Consequently, Staff is unable to explain how its recommendation that parkland be dedicated next to Deer Pointe Park was based on a clear and objective procedure.

Relatedly, the parkland dedication requirement also violates ORS 197.307(4) because it certainly would have the effect of "discouraging needed housing through unreasonable cost and delay." This is due to Staff's and the Sandy Parks and Trails Advisory Board's (the "Board") attempt to apply the Parks Master Plan to a limited land use decision to which it is inapplicable as a matter of law.<sup>2</sup> As a practical matter, Staff and the Board's attempt to extract a park dedication in a specific area causes a number of problems. First, it represents substantial increased costs to the project, which will have the effect of increasing the costs of resulting housing. Second, Staff has not explained how a parkland dedication at the west end of the site could result in a lot arrangement that would satisfy SDC 17.86.20; the solution to that problem would require a complete re-design of the subdivision, further adding to additional costs and delay.

---

<sup>2</sup> As explained in more detail below, the Parks Master Plan is not incorporated into the City's land use regulations and is therefore inapplicable under ORS 197.195.

Finally, it is irrelevant that the proposed lots are not arranged as required by SDC 17.86.20 because there is no clear and objective method by which an applicant can predict whether park land dedication or a fee-in-lieu will be required.

**2. The City may not require extension of Dubarko Road through the Subject Property nor require a dedication of parkland.**

**A. The Transportation System Plan and Parks Master Plan are not adequately incorporated into the land use regulations, in violation of ORS 197.195.**

The Applicant has submitted an application for a subdivision, which is a limited land use decision as defined by ORS 197.015(12). Under ORS 197.195(1), cities are required to incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. This requirement extends to standards set forth in the transportation system plan (“TSP”), parks master plan, and other elements of a city’s comprehensive plan as well. *See Oster v. City of Silverton*, LUBA No. 2018-103, at pp. 9-10 (Or LUBA May 7, 2019). Whether such a standard has been properly incorporated turns on whether the land use regulations that are said to incorporate such standards “make clear what *specific policies or standards* in the TSP [or other identified plan] apply to a limited land use decision as approval criteria.” *Id.* at p. 12. “ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan [or other identified plan].” *Paterson v. City of Bend*, LUBA No. 2004-155, at p. 6 (Or. LUBA 2005). Rather, “[i]n order to ‘incorporate’ a comprehensive plan [or other plan] standard into a local government’s land use regulations within the meaning of ORS 197.195(1), the local government must *at least* amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan [or other plan] apply to a limited land use decision as approval criteria.” *Id.* at pp. 6-7.

The City of Sandy’s approval criteria governing review of a tentative plat for a subdivision fails to properly incorporate the Sandy Comprehensive Plan or TSP. Specifically, SDC 17.100.60(E)(3) requires a showing that the “proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.” This is not sufficient to meet the incorporation requirements of ORS 197.195(1) because it merely refers generally to the Comprehensive Plan and the City’s official street plan. *See Oster* at p. 12. It does not “make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision.” *Id.*

Staff also recommends denial because the Application does not propose to dedicate parkland adjacent to Deer Point Park, as that park is designated on the 1997 Parks Master Plan. Consequently, according to Staff, the Application violates SDC 17.86.10 and/or .40. Staff’s conclusions are incorrect.

Staff’s recommendation derives from and principally relies on the City’s Parks Master Plan. The Parks Master Plan is not applicable to the Application because, as explained above, the

Kelly O'Neill, Jr.  
February 22, 2022  
Page 5

Application is a limited land use decision. Limited land use decisions are not subject to comprehensive plans or their elements unless such provisions are expressly incorporated into a city's land use regulations. ORS 197.195(1). The Parks Master Plan is not incorporated into the Sandy Development Code, the City's land use regulations; nor does Staff's recommendation assert that it is. Therefore, the Parks Master Plan may not be a basis for requiring dedication of parkland adjacent to Deer Point Park.

Indeed, all references to the City's TSP, Parks Master Plan, street plans, and comprehensive plan found in Chapter 17.84 and Chapter 17.100 of the Sandy Development Code are improperly incorporated because none of them specify which policies and standards actually apply. Thus, these requirements cannot be applied to the Application.

**B. In order to require an extension of Dubarko Road and dedication of parkland, the City must demonstrate that those requirements have an essential nexus and are roughly proportional to the project's impacts on those facilities.**

The Staff Report suggests that the Applicant should be required to extend Dubarko Road to Highway 26 and to dedicate certain land as parkland to expand Deer Pointe Park. Such dedications are subject to the Takings Clause of the Fifth Amendment of the U.S. Constitution.

Requiring a landowner to convey its private property rights in exchange for development approval is a takings (unconstitutional condition) unless there is an "essential nexus" between the condition and the government interest. *Nollan v. California Coastal Com.*, 483 U.S. 825, 836-37 (1987). Additionally, to withstand a legal challenge, the condition must be "roughly proportional" to the expected impacts caused by the proposed development. *Dolan v. City of Tigard*, 512 U.S. 374, 391-395 (1994). The *Nollan* and *Dolan* takings analysis must be done on a case-by-case basis, and the City carries the burden of demonstrating in the first instance that any exaction has a nexus to and is roughly proportional to the nature and degree of the projected impacts of the project. The City is required to make an "individualized determination" and "some effort to quantify" evidence in the findings to support a conclusion of rough proportionality. *Dolan*, 512 U.S. at 391. The *Nollan/Dolan* analysis applies to requirements to pay money or make public improvements in addition to requirements to dedicate property. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013).

There is no demonstration in the record that the requirements for the Dubarko Road extension and parkland dedication have a nexus to any governmental interest other than the City's general policies showing the street extension and parkland dedications. However, such policies do not constitute the required nexus; rather, a local government must show that "the proposed project's impacts, either alone or in combination with other construction, are ones that 'substantially impede' the interest identified by the government." *Hill v. City of Portland*, 293 Or App 283, 290-291 (2018).

Despite *Hill's* requirement that the required dedications be tied to an actual potential impact from the proposed development, the Staff Report points to no evidence that the proposed development will lead to a capacity problem in the City's transportation system or parks system.

Staff has made no attempt to identify the essential nexus between the impact of the Project on the City's park system and the dedication requirement, and no attempt to explain how the requirement is roughly proportional to the project's impacts. Relying on a broadly-applicable dedication formula is insufficient because such a determination must be individualized. *Dolan*, 512 U.S. at 391. What is more, simply imposing the same level of exaction on all housing projects does not prove there actually is a nexus between that housing as the parks dedication requirement itself. *Hill*, 293 Or. App. at 290-291.

Finally, there is nothing in the record or the Staff Report even approaching a showing that the Dubarko Road extension and parkland dedication are "roughly proportional" to the impacts of the proposed subdivision.

In sum, the sole questions in the constitutional analysis in this case are as follows. First, do the road extension and parkland dedication have an "essential nexus" to the proposed development? Second, if there is a nexus, are the requirements to extend Dubarko Road and to dedicate parkland "roughly proportional" to the impacts of the proposed development? The City has the burden of proof to answer these two questions, but has utterly failed to do so.

**C. SDC 17.100.100.G.2 prohibits the City from require an extension of Dubarko Road through the site.**

SDC 17.100.100 governs street requirements with subdivisions. SDC 17.100.100.G establishes exemptions from otherwise-applicable street requirements. Subsection G.2 provides:

"Standards for street connections do not apply to freeways and other highways with full access control."

As explained in ODOT's September 1, 2021 letter (which is listed as Exhibit N to the Staff Report), Highway 26 is access controlled. Therefore, the City unambiguously lacks the authority to require a connection of Dubarko Road to Highway 26.

**D. OAR 660-012-0045 does not apply to the proposed development.**

Staff and the Planning Commission cites to OAR 660-012-0045 as a basis for denial. This is improper for at least two reasons. For one, this administrative rule is not an approval criterion and as such cannot be the basis for denial of the Application. Moreover, it establishes obligations for a local government's plan and land use regulations; it does not apply directly to review of subdivision application. Even if it did, it establishes obligations that the *City* must meet, not the Applicant. As such, it cannot be used as a basis to deny the Application.

**3. Planning Staff's recommendation for denial is inconsistent with applicable law.**

The Applicant addresses each of the twelve bases for Staff's recommendation for denial, below.

**1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- *17.100.60.E.1. "The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval."*
  - This criterion is not clear and objective as required by ORS 197.307(4) because the phrase "consistent with" is not clear and objective.
  - The Application satisfies the density requirements in the applicable zones.
  - Staff's only basis for finding that setback standards are not met is due to the Applicant's plan not to extend Dubarko Road. Staff's position does not make sense; one cannot plausibly argue that a plan does not meet setback requirements adjacent to a new road that is not proposed.
  - Chapter 82's requirement that homes "face a transit street" is not applicable because, as noted above, the City's Transportation System Plan and Pedestrian Mater Plans are not incorporated into the City's Land Use Regulations. ORS 197.195.
  - Pursuant to ORS 197.522(3), if the transit street orientation requirement in SDC 17.82.20.A did apply, it could be met with the following condition:

*"All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street."*

This condition was apparently proposed in paragraph 42 of the Staff Report. Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction the frontage orientation requirement.
  - Staff does not argue that any lots do not meet dimensional standards, except with regard to minimum street frontage. This has been corrected as shown on **Exhibit 1**, and is discussed below.

- 17.100.60.E.2. *“The proposed subdivision is consistent with the design standards set forth in this chapter.”*
  - As an initial matter, 17.100.E.2 cannot apply to the application because the phrase “consistent with” is not clear and objective as required by ORS 197.307(4) and similarly, E.2 does not identify which “design standards” apply.
  - Staff’s basis in paragraph 26 of the Staff Report for concluding that subsection E.2 is not met relies upon the following arguments:
    - That the project does not provide a Dubarko Road connection to Highway 26;
    - That the project does not meet the “Street Connectivity Principle”;
    - That the project “does not provide safe and convenient options for cars, bikes, and pedestrians”;
    - That the project “does not create a logical, recognizable pattern of circulation” and “does not provide a future street plan that promotes a logical, connected pattern of streets.”
    - That the project “does not spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened”;
    - That the project does not “provide connectivity to other streets within the development and to existing and planned streets outside the development”; and
    - That the applicant did not submit information on block lengths.
  - Staff is incorrect in the above findings for the following reasons:
    - As explained above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City’s land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT.

- The “Street Connectivity Principle”<sup>3</sup> does not apply because it is not clear and objective as required by ORS 197.307(4).
- The Application already shows the pattern of existing and proposed streets as required by SDC 17.100.100.E. Regardless, subsection E is not clear and objective because it includes the requirement that the plan “promote a logical, connected pattern,” which is not clear and objective as required ORS 197.307(4); nor is the requirement that a plan show new street extensions to adjacent parcels “where development may practically occur.” If the Council concludes that a different future street plan is required, it can require that as a condition of approval pursuant to ORS 197.522(3).
- The requirement in SDC 17.100.100.F that “all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan” is not applicable because it is not clear and objective, as required by ORS 197.307(4).
- The requirements that the project “create a logical, recognizable pattern of circulation,” “provide a future street plan that promotes a logical, connected pattern of streets,” and “spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened” are not clear and objective.
- The block length standards in SDC 17.100.120 are as follows:

“A. Blocks. Blocks shall have sufficient width to provide for two tiers of lots at appropriate depths. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.

---

<sup>3</sup> The “Street Connectivity Principle” is set forth in SDC 17.100.100.A as follows: “A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.” This is not clear and objective because it does not define the following terms: “safe and convenient,” “a logical, recognizable pattern of circulation,” “spread traffic,” “many streets,” and “overburdened.” It is also not clear and objective because it does not explain *how* a “pattern of streets” should be “connected.”

B. Residential Blocks. Blocks fronting local streets shall not exceed 400 feet in length, unless topographic, natural resource, or other similar physical conditions justify longer blocks. [...]"

These standards are not clear and objective because the terms "appropriate depths," and the phrase "unless topographic, natural resource, or other similar physical conditions" are ambiguous.

- Regardless, block length information is available because the subdivision plan sheets are to scale. This is a submittal requirement and does not provide a basis for denial of the Application.
- *17.100.60.E.3. "The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy."*
  - As explained above, this criterion is not applicable because the City's Comprehensive Plan and Transportation System Plan have not been incorporated into the City's land use regulations as required by ORS 197.195.
  - As explained above, the City has not demonstrated the required essential nexus and rough proportionality required by *Nollan* and *Dolan*.
  - The Applicant is not required to extend Dubarko Road under SDC 17.100.100.G.2 because Highway 26 is access controlled by ODOT.
- *17.100.60.E.4. "Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions."*
  - Mike Ard, the Applicant's transportation engineer, provided an updates to the existing transportation impact study (TIS) dated September 27, 2021 which demonstrates that the Application satisfies this section.
- *17.100.60.E.5. "Adequate public facilities are available or can be provided to serve the proposed subdivision."*
  - This standard is not applicable under ORS 197.307(4) because the phrase "adequate public facilities" is ambiguous and subjective.
- *17.100.60.E.6. "All proposed improvements meet City standards."*
  - In paragraph 30, Staff identified three reasons why it believed the above criterion is not met. These are (1) the lack of an extension of Dubarko Road to Highway 26, (2) the lack of frontage improvements on Highway 26, and (3) the lack of dedicated parkland. As explained above, these are not legally permissible bases for denial.



- Regardless, the above criterion is not applicable under ORS 197.307(4) because the criterion does not identify which City standards are applicable, and does not explain what is sufficient to “meet” those standards.

**2) The applicant’s statement indicating that “Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops” is not sufficient as there were no dimensional specifications submitted by the applicant to support this statement.**

RESPONSE: **Exhibit 2** provides driveway width information for the Fawn Street and Street A cul-de-sacs. This exhibit demonstrates that the sum of the driveway widths for each cul-de-sac is less than 50%. SDC 17.98.100.F is satisfied.

**3) The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.**

RESPONSE: Staff’s conclusion is incorrect for the following reasons.

- SDC 17.84.30(B) is not clear and objective and therefore inapplicable under ORS 197.307(4), for the following reasons:
  - The phrase “safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall” is ambiguous, subjective, and requires the use of discretion in its application.
  - The definition of “safe and convenient” in subsection (B)(1) does not make the phrase clear and objective because the definition itself relies on ambiguous and subjective terminology, including “reasonably free from hazards,” “interfere with or discourage travel for short trips,” “a direct route of travel between destination” and “meet the travel needs of pedestrians and bicyclists.” None of these phrases are capable of objective measurement.
- SDC 17.84.30 does not require pedestrian pathways to “streets beyond the cul-de-sacs.” Rather, it subjectively requires pedestrian and bicycle facilities “within and between new subdivisions, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks.” Staff’s conclusion is incorrect because “streets,” as a general matter, are not on this list.
- SDC 17.84.30(B)(2) does not expressly require pedestrian connections from cul-de-sacs; it only requires pedestrian connections to be a minimum of 15 feet wide where they are proposed.
- Even if this standard were clear and objective, the Council can find that it is met with the public pedestrian easements shown on **Exhibit 1**.

Kelly O'Neill, Jr.  
February 22, 2022  
Page 12

**4) The Applicant proposes Lot 12 with less than the minimum 20 feet of street frontage as required by SDC 17.36.30(C).**

RESPONSE: The Applicant has made a slight revision in the Application to ensure that this standard is met, as shown in **Exhibit 1**. Lot 12 now has 20.13 feet of street frontage; this standard is met. Pursuant to ORS 197.522(3), the Council should impose a condition of approval requiring at least 20 feet of street frontage as demonstrated on **Exhibit 1** to this letter.

**5) The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).**

RESPONSE: This is not a permissible basis for denial because the 150-foot street spacing requirement does not apply to Street C. Subsection E.2 provides as follows:

“Local streets should typically intersect in ‘T’ configurations rather than four-way intersections to minimize conflicts and discourage through traffic. Adjacent ‘T’ intersections shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply here because it applies on its face only to “local streets.” However, Dubarko Street is a major arterial and C Street is designed as a “public access lane” according to the standards in SDC 17.100.160. Therefore, there is no “adjacent ‘T’ intersection” to any local street within the Project.

Subsection J.2 provides as follows:

“As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in ‘T’ intersections are unavoidable, they shall leave a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply because there are no “staggered street alignment resulting in a ‘T’ intersection. First, there is no street intersection within 150 feet of the proposed termination of Dubarko Road; only a “public access lane.” Second, there are no proposed “staggered” intersections, as demonstrated in **Exhibit 3**.

**6) The minimum 100 feet of tangent alignment required in Section 17.84.50(J)5(a) is not provided at the intersection of Street “B” (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street “B”.**

RESPONSE: This standard is not clear and objective because, by using the word “tangent,” it is not clear whether the standard applies only to curved intersections or to roughly straight intersections (as are proposed in the Application). Therefore, it is inapplicable under ORS 197.307(4).

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February 22, 2022  
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If the Council does find that the above standard applies, pursuant to ORS 197.522(3) the Council should impose the following condition of approval:

*“The intersection of Street B and Dubarko Road shall have a minimum of 100 feet of straight (tangent) alignment perpendicular to the intersection.”*

It is feasible for the Applicant to satisfy this condition as demonstrated on **Exhibit 4**. Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.950.J.5.a.

**7) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.**

RESPONSE: As explained in detail above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City's land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT. Finally, as explained above, the City has not met its burden of demonstrating essential nexus or rough proportionality for this requirement, as required by *Nollan* and *Dolan*.

**8) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.**

RESPONSE: Under *Hill v. City of Portland*, 293 Or App 283, 290 (2018), and *Brown v. City of Medford*, 251 Or App 42, 53 (2012), the City cannot, as a matter of constitutional law, require frontage improvements to a road or highway that is not proposed for access. As the City cannot require such frontage improvements, the above statement is not a permissible reason for denial.

Regardless, if the Council believes that this requirement can pass constitutional muster, pursuant to ORS 197.522(3) the Council should impose a condition of approval requiring frontage improvements along Highway 26 consistent with the requirements of the SDC.

**9) The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- SDC 17.100.230 is not applicable under ORS 197.307(4) because the requirements that it “shall be installed to provide adequate water pressure to serve present and future consumer demand” is not clear and objective.

- The requirements of the Water Master Plan are not incorporated into the City's land use regulations as required by ORS 197.195; therefore, the Water Master Plan does not apply.
- Staff made no attempt to establish the essential nexus between the impacts of the proposed development—which does not include future multifamily dwellings—and the requirement for an 18-inch water main. Staff also makes no attempt to demonstrate how the costs of an 18-inch water main connected into the existing main in Highway 26 is roughly proportional to the impact of the proposed development on the City's water system. Both showings are required for the requirement to pass constitutional muster as required by *Nollan* and *Dolan*.
- The above notwithstanding, **Exhibit 1** demonstrates how the Applicant can construct an 18" water line. Pursuant to ORS 197.522(3), the Applicant can satisfy this standard with the following condition of approval:

*"The applicant shall install an 18-inch water line in Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26."*

While this would allow the Applicant to satisfy SDC 17.100.230, the Applicant reserves its right to challenge the constitutionality of the condition under ORS 197.796.

**10) The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site consistent with the Sandy Development Code.**

RESPONSE: This requirement is not a legally permissible basis for denial for the reasons explained under (8), above. Regardless, **Exhibit 1** demonstrates how the Applicant can construct the requested 12" water line. Pursuant to ORS 197.522(3), the Applicant can satisfy this standard with the following condition of approval:

*"The applicant shall extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site."*

While this would allow the Applicant to satisfy SDC 17.100.230, the Applicant reserves its right to challenge the constitutionality of the condition under ORS 197.796.

**11) The proposed 10-foot-wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).**

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February 22, 2022  
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RESPONSE: As demonstrated on **Exhibit 1**, the Applicant now proposes an increase in the 10-foot wide easement to 15 feet wide. Pursuant to ORS 197.522(3), the Applicant can satisfy this requirement by accepting the following condition of approval:

*“Prior to final plat, the Applicant shall grant to the City a 15-foot wide public storm drainage easement between Lots 27 and 28 and at the rear of Lots 9-13.”*

Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.90(A)(2).

**12) This subdivision proposal does not propose to dedicate 0.96 acres of parkland as required by Chapter 17.86. The additional .96 acres could expand Deer Pointe Park consistent with the Parks and Trails Master Plan that was adopted in 1997.**

RESPONSE: As explained in detail above, the City cannot require dedication of 0.96 acres to add to Deer Pointe Park for the following reasons:

- The City’s Parks and Trail Master Plan is not incorporated into the City’s land use regulations as required by ORS 197.195, and is therefore inapplicable to the Application.
- The process by which the City can require parkland dedication as opposed to a fee-in-lieu is not clear and objective; therefore, the parkland dedication requirement cannot apply under ORS 197.307(4).
- Staff has made no attempt to demonstrate an essential nexus or rough proportionality of the parkland dedication requirement, as required by *Nollan* and *Dolan*.

Regardless, **Exhibit 5** demonstrates how the Applicant could provide the minimum required park area. Pursuant to ORS 197.522(3), if the Council nonetheless concludes that it is not barred from requiring the park dedication, it can impose a condition of approval requiring a park area as shown on Exhibit 5 of this letter.

#### **4. Conclusion.**

For the above reasons, the City Council should grant this Appeal and approve the Application because Staff and Planning Commission’s asserted reasons for denial are not permissible under applicable law.

Best regards,



Garrett H. Stephenson

GST:jmhi  
Enclosures

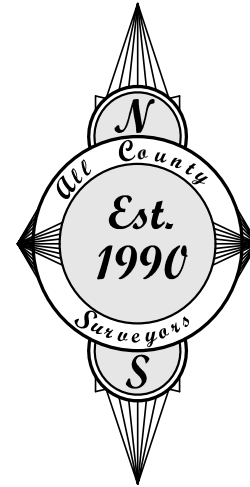
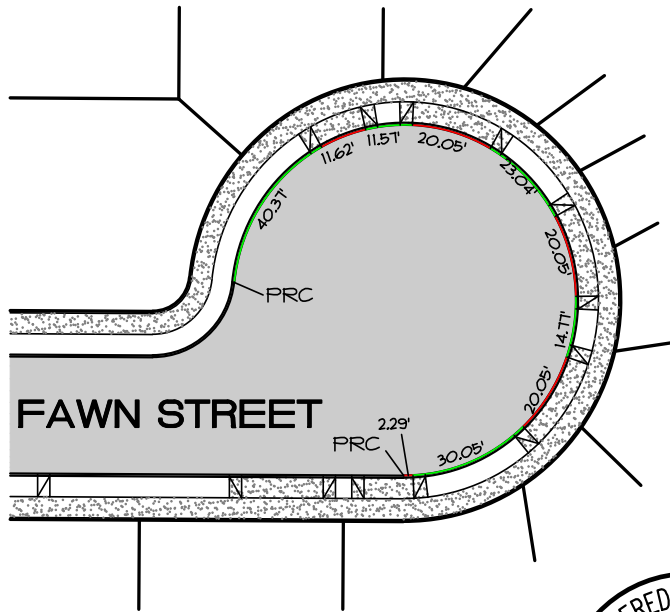
Kelly O'Neill, Jr.  
February 22, 2022  
Page 16

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Dave Vandehey (*via email*) (*w/enclosures*)  
Ray Moore (*via email*) (*w/enclosures*)  
Mike Ard (*via email*) (*w/enclosures*)  
Tracy Brown (*via email*) (*w/enclosures*)  
Tyler Henderson (*via email*) (*w/enclosures*)  
Alex Reverman (*via email*) (*w/enclosures*)  
Carey Sheldon (*via email*) (*w/enclosures*)

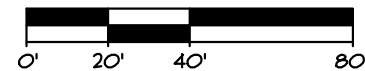
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# DEER MEADOWS CUL-DE-SAC EXHIBIT



SCALE : 1" = 40'



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.85'  
 TOTAL GAPS = 119.79' (61.80%)  
 TOTAL DRIVEWAY LENGTH = 74.06' (38.20%)  
 (38.20% IS LESS THAN 50%. MEETS CODE)



RENEWAL DATE: 12/31/2022

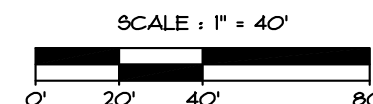
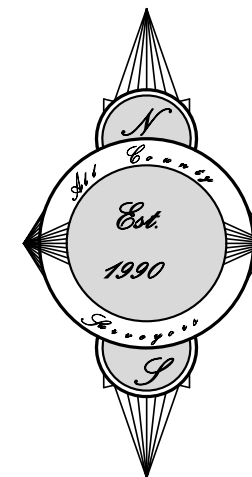
*All County*  
**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730

FILE:19-035-PARK.dwg DATE OF PLOT 2-17-22

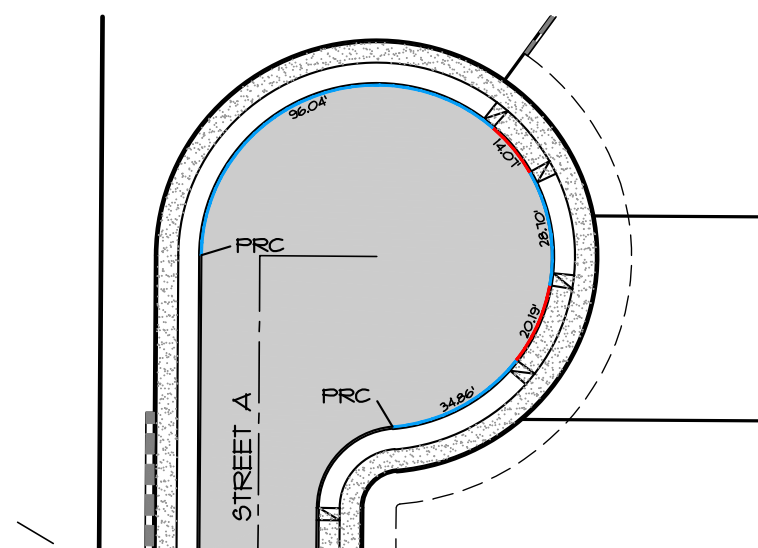
Exhibit 2 Page 1 of 2



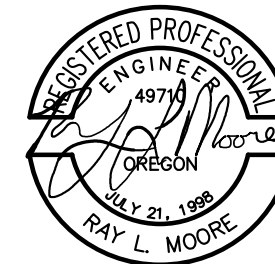
# DEER MEADOW CUL-DE-SAC EXHIBIT



## STREET A CUL-DE-SAC



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.86'  
 TOTAL GAPS = 159.60' (82.3%)  
 TOTAL DRIVEWAY LENGTH = 34.26' (17.7%)  
 (17.7% IS LESS THAN 50%. MEETS CODE)



RENEWAL DATE: 12/31/2022

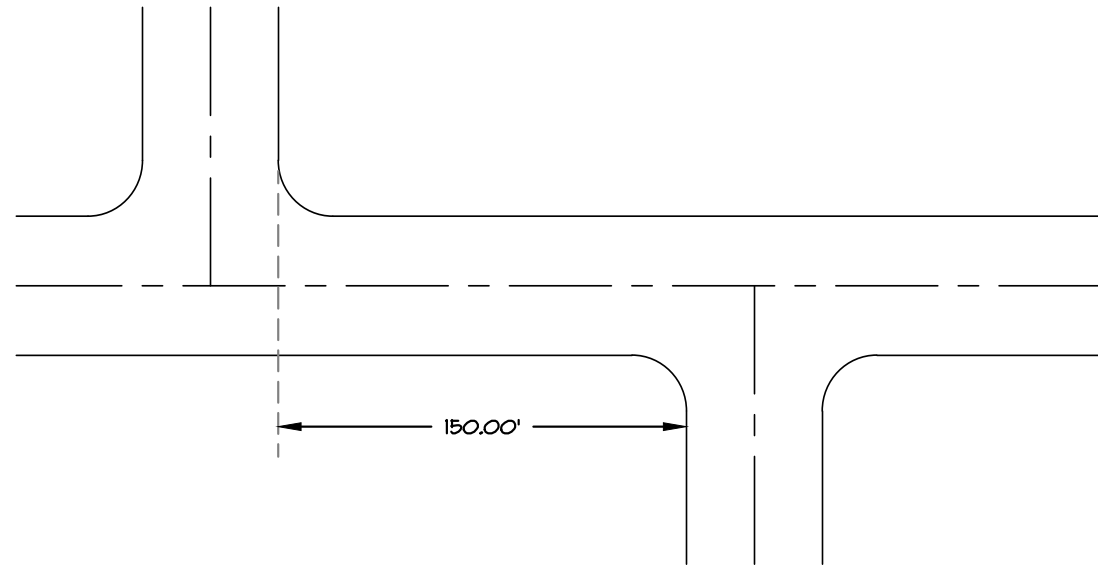
**All County**  
**Surveyors & Planners, Inc.**  
 Surveying, Planning  
 and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

19-035-Planning-B.dwg  
 DATE OF PLOT: 09/21/2021

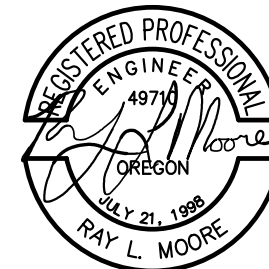
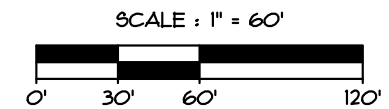
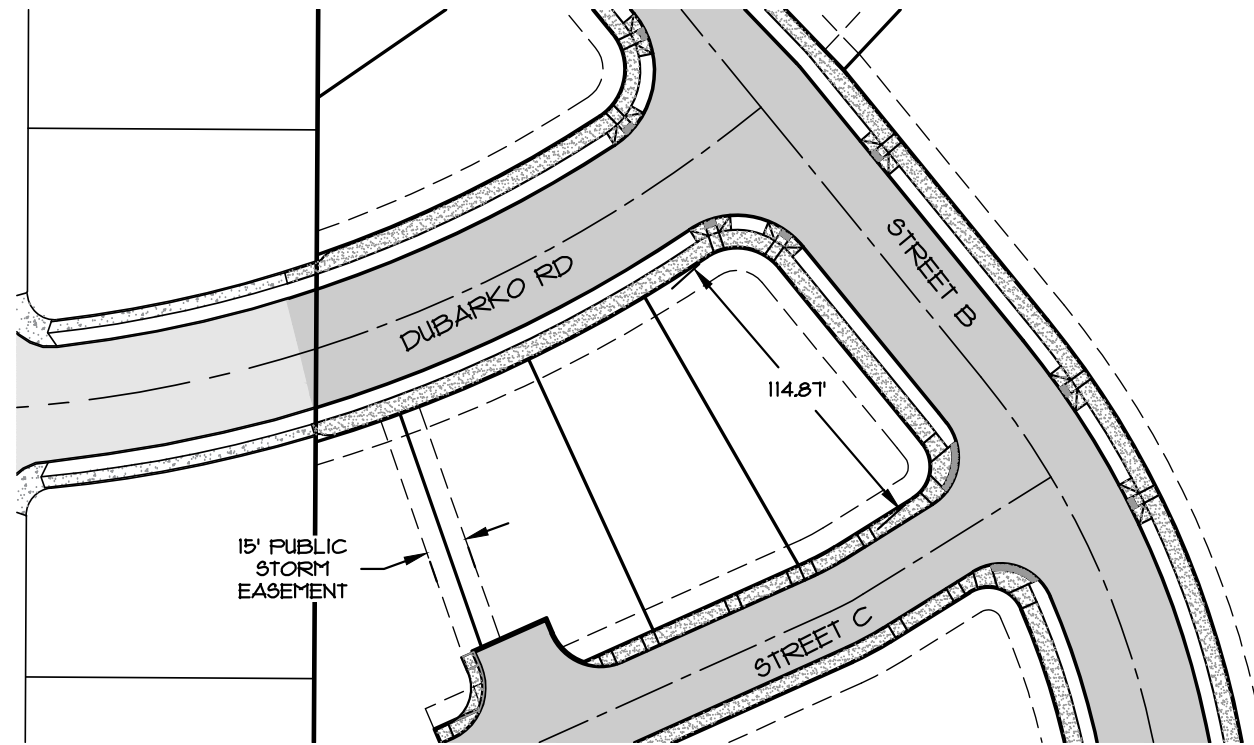
Exhibit 2 Page 2 of 2

# DEER MEADOW T-INTERSECTION EXHIBIT

## EXAMPLE OF STAGGERED T-INTERSECTION



## PROPOSED T-INTERSECTION (NOT A STAGGERED T-INTERSECTION)



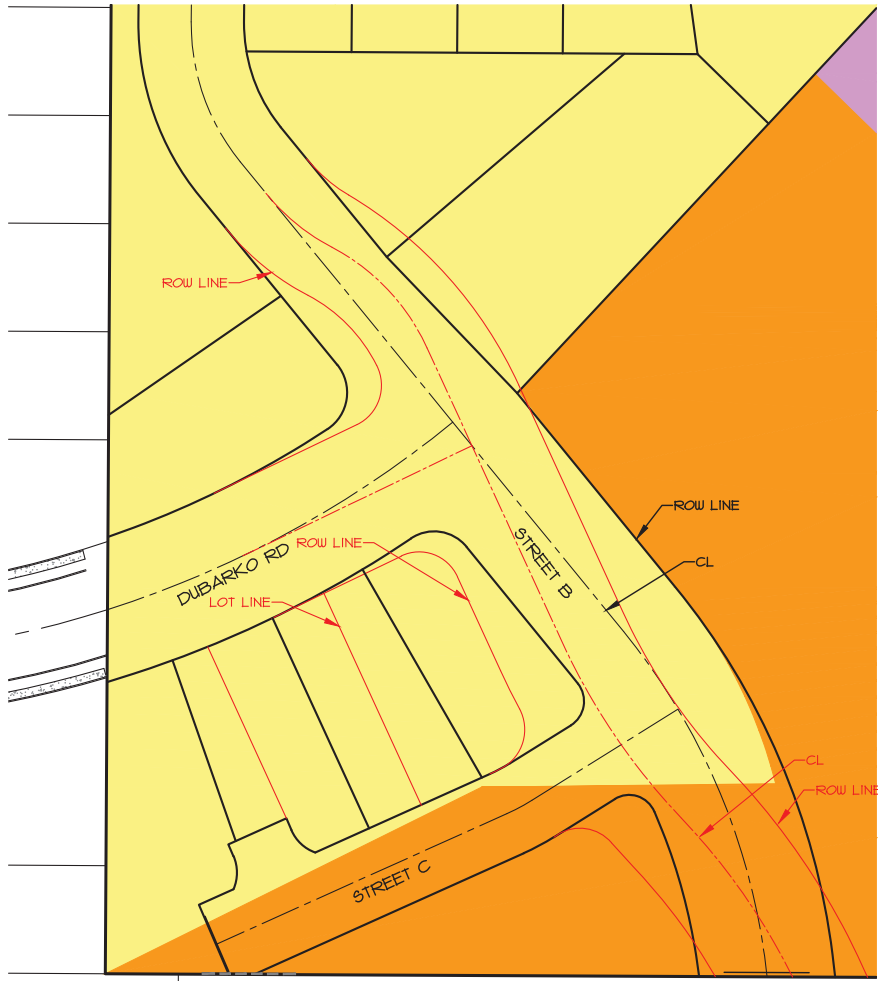
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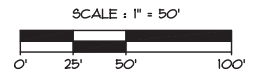
19-035-Planning-B.dwg  
DATE OF PLOT: 09/21/2021

Exhibit 3

# DUBARKO RD WITH 100' TANGENT EXHIBIT



NOTE: 100' TANGENTS CAN BE PROVIDED ON STREET B AND DUBARKO AS SHOWN. THE RESULTING ALIGNMENT WOULD MAKE LOT 32 LARGER, AND ELIMINATE ONE LOT FROM LOTS 21-30.



### LEGEND

- R-1 ZONE
- R-2 ZONE
- C-3 ZONE



RENEWAL DATE: 12/31/2022

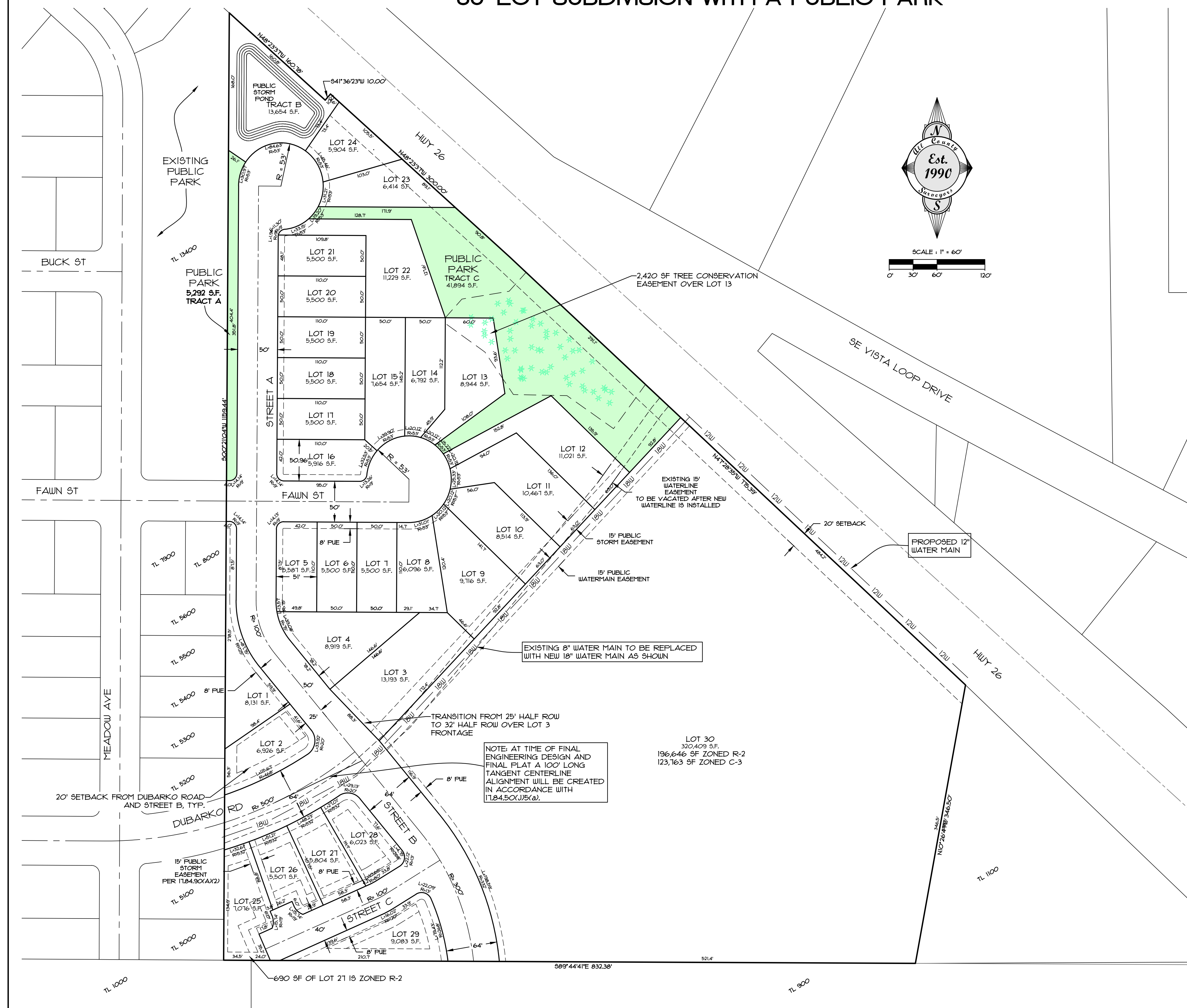
**All County Surveyors & Planners, Inc.**  
 Surveying, Planning and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

19-035-Planning-B.dwg  
 DATE OF PLOT: 09/24/2021

Exhibit 4

# DEER MEADOWS

## 30-LOT SUBDIVISION WITH A PUBLIC PARK



**CLIENT**  
 ROLL TIDE PROPERTIES CORPORATION  
 PO BOX 103  
 CORNELIUS, OR 97113

**SURVEYOR/ENGINEER**  
 ALL COUNTY SURVEYORS & PLANNERS, INC.  
 PO BOX 955  
 SANDY, OR 97055

**PLANNER**  
 TRACY BROWN PLANNING CONSULTANTS, LLC  
 17075 FIR DR.  
 SANDY, OR 97055

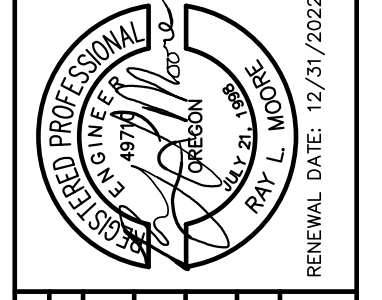
**LEGEND**

PARKLAND DEDICATION SHOWN AT 1/4-1 ACRE. MINIMUM REQUIRED AT TIME OF FINAL PLAT TO BE 0.93 ACRES (40,911 SF). ADJUSTMENTS TO LOT LINES WILL BE MADE AT TIME OF FINAL PLAT TO PROVIDE 0.93 ACRES OR MORE.

**NOTES**

- THIS IS NOT A BOUNDARY SURVEY. NO LIABILITY IS ASSUMED BY ALL COUNTY SURVEYORS AND PLANNERS FOR THE EXISTENCE OF ANY EASEMENTS, ENCUMBRANCES AND DISCREPANCIES IN BOUNDARY OR TITLE DEFECTS.
- LOT 30 TO BE DEVELOPED UNDER SEPARATE DESIGN REVIEW PROCESS AT FUTURE DATE.

BY	REVISION	SHEET
		<b>P1</b>
		OF <b>1</b>
DATE	DESIGNED: CTH	
	DRAWN: CTH	
	CHECKED: RLM	
	APPROVED: RLM	



SCALE	N/A	SECTION	1B
HORIZ.:	1"=60'	RANGE	5E
DATE:	2-11-22	TWP.	2S
FILE:	19-035-PARK-019		

**DEER MEADOWS SUBDIVISION**  
 REVISED PLAT WITH  
 PARKLAND DEDICATION

PROJECT: 40808 & 41010 HWY 26, SANDY, OR 97055

LOCATION:

**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering and  
 Construction Management  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 2-11-22

CLIENT:  
 ROLL TIDE PROPERTIES CORPORATION  
 CORNELIUS, OR 97113



**EXHIBIT FFF**

RECEIVED File # (21-061 AP)

FEB 20 2022

COMMENT SHEET for File No. 21-061 AP:

CITY OF SANDY

I am writing again to explain why we do not want any other type of homes that are not single family that is what our neighborhood is. That is what we were told when we bought our home & I expect it to stay that way. No matter how many times they ask our answer will still be the same.

Single family homes

Marilyn Euteneier 503-964-1132  
 Your Name Phone Number  
 40482 Buck St Sandy Or  
 Address

**APPLICABLE CRITERIA:** Sandy Municipal Code: 17.12 Procedures for Decision Making; 17.18 Processing Applications; 17.20 Public Hearings; 17.22 Notices; 17.28 Appeals; 17.30 Zoning District Amendments; 17.36 Low Density Residential (R-1); 17.38 Medium Density Residential (R-2); 17.46 Village Commercial (C-3); 17.56 Hillside Development; 17.74 Accessory Development; 17.80 Additional Setbacks on Collector and Arterial Streets; 17.82 Special Setbacks on Transit Streets; 17.84 Improvements Required with Development; 17.86 Parkland and Open Space; 17.92 Landscaping and Screening; 17.98 Parking, Loading, and Access Requirements; 17.100 Land Division; 17.102 Urban Forestry; 15.30 Dark Sky; and, 15.44 Erosion Control Regulations.

March 14, 2022

Kelly O'Neill, Jr.  
Development Services Director  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR. 97055

**RE: Roll Tide Properties Corp. - Deer Meadows Subdivision Revised Plan**

Dear Kelly,

This letter is written to accompany the revised Deer Meadows Subdivision preliminary plat, dated March 7, 2022. The original preliminary plat containing 32 lots has been modified to remove two lots. In addition, an approximately one acre park has been added to the design. As reviewed below, the revised plat addresses the majority of recommended "reasons for denial" contained in the City Council Appeal Staff Report. Please refer to attorney Garrett Stephenson's February 22, 2022, letter for a review of all of these recommendations. The following items are attached to this letter:

1. Revised Plat with Parkland Dedication (3/7/22)
2. Revised Cul-De-Sac Exhibit (3/7/22)
3. Garrett Stephenson Letter (2/22/22)

Review of Staff Recommendations

1. **The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).**

*Response: The Garrett Stephenson, 2/22/22 letter reviews this item.*

2. **Cul-de-sacs require less than 50% of their circumference in driveway drops.**

*Response: As shown on the revised cul-de-sac exhibit, both of the proposed cul-de-sacs are designed to contain less than 50% of their circumference in driveway drops. With this information this recommendation is no longer needed.*

3. **The two cul-de-sacs do not include pedestrian connections to streets beyond the cul-de-sacs as required by Section 17.84.30.**

*Response: The plan has been modified to include a combined tree protection tract and city park and both cul-de-sacs are designed to feature frontage on this park. A pedestrian path is shown on the plan to connect the end of each cul-de-sac through the park, to satisfy this requirement. The proposal complies with this standard and this recommendation is no longer needed.*

4. **Lot 12 contains less than 20 feet of street frontage required by Section 17.36.30(C).**  
*Response: As noted above, the revised plan features two fewer lots than the original plan. As a result, lot numbers have been changed from the original plan. Regardless, all lots in the revised plan comply with this standard and this recommendation is no longer needed.*
5. **The distance between Dubarko Road (an arterial) and Street C (a local street) are less than 150 ft apart required in Sections 17.84.50(E)(2) and 17.84.50(J)(3).**  
*Response: The original plan proposed Street C as an access lane, not a local street as reviewed in the staff report. As such, the stated code provision does not apply to this street classification. Regardless, the five lots in this area of the revised plan will now be accessed from a public alley. For this reason, this recommendation is no longer applicable or needed.*
6. **The minimum 100 feet of tangent alignment required by Section 17.84.50(J)(5)(a) is not provided at the intersection of Dubarko Road and Street “B”.**  
*Response: A note has been added to the revised plan indicating the required 100’ long tangent centerline alignment will be detailed with the final engineering design in accordance with this section. The proposal complies with this standard and this item is no longer needed.*
7. **Dubarko Road is not proposed to be extended to intersect with Highway 26.**  
*Response: The Garrett Stephenson, 2/22/22 letter reviews this item.*
8. **Highway 26 frontage improvements are not proposed.**  
*Response: The Garrett Stephenson, 2/22/22 letter reviews this item.*
9. **The plan does not clearly define if the 8-inch waterline is proposed to be replaced with an 18-inch line as detailed in the Water Master Plan.**  
*Response: The revised plan includes a note specifying, “Existing 8” water main to be replaced with new 18” water main as shown”. With this notation, this recommendation is no longer needed.*
10. **The plan does not propose to extend the existing 12-inch water main in Highway 26.**  
*Response: The revised plan now shows a new 12-inch water main is proposed along Highway 26 to the eastern property line. This recommendation is no longer needed.*
11. **The proposed 10-foot wide public storm drainage easement between Lots 27 and 28 and the rear of Lots 9-13 should be 15-feet wide.**  
*Response: As noted above, the revised plans features two fewer lots than the original plan and lot number may have changed. Regardless, all storm easements*

*shown on the revised plan are 15 feet wide as required. This recommendation is no longer needed.*

**12. The proposal does not include a 0.96 parkland dedication as required by Chapter 17.86.**

*Response: The revised plan now features a new 1.08 acre parkland dedication (Tracts A and C). Based on 30 lots in the revised plan, Chapter 17.86 requires 0.93 acres of parkland or payment of a fee in lieu. (28 single family lots x 3 x .0043 = 0.361 rounded to 0.36 acres, 66 multifamily units x 2 x .0043 = 0.567 rounded to 0.57, 0.36 + 0.57 = 0.93). The revised plan as proposed exceeds the requirements of Chapter 17.86 and this recommendation is longer needed.*

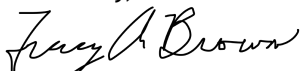
*As noted with submittal of the original Bull Run Terrace application, the applicant continues to extend their offer to assist the city with constructing park improvements in exchange for SDC credits with the current application. This arrangement should prove to be the most cost effective way for the city to complete park improvements on both the existing unimproved Deer Pointe Park and the proposed Deer Meadows Park.*

Conclusion

In conclusion, as detailed in this letter, the revised Preliminary Plat and cul-de-sac exhibit addresses the majority of the recommendations in the City Council Appeal Staff Report. The balance of these recommendations including item 1 (code criteria), 7 (Dubarko Road), and 8 (Highway 26 frontage improvement) are addressed in detail in Attorney, Garrett Stephenson's 2/22/22 letter. With this information, the applicant respectfully requests the appeal is granted and the application be approved.

Please let me know if you have any questions or require additional information.

Sincerely,



Tracy Brown

Tracy Brown Planning Consultants, LLC

cc: Chris Crean (via email)  
Dave Vandehey (via email)  
Ray Moore. (via email)  
Mike Ard (via email)  
Tyler Henderson (via email)  
Alex Reverman (via email)  
Carey Sheldon (via email)





February 22, 2022

**Garrett H. Stephenson**  
Admitted in Oregon  
T: 503-796-2893  
C: 503-320-3715  
gstephenson@schwabe.com

**VIA EMAIL**

Kelly O'Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: Roll Tide Properties Corp. / Deer Meadows Subdivision Appeal 21-061 AP  
(Appeal of File No. 21-014 SUB/TREE)

Dear Mayor Pulliam and Councilors:

This firm represents Roll Tide Properties Corp., the Applicant in the above-referenced file. This letter sets forth the Applicant's response to the Council Staff Report for the February 22, 2021 Council hearing, which recommends denial of the Applicant's appeal and by extension, denial of the Applicant's subdivision application. The Applicant's specific objections are set forth below. For the reasons below, the Council should grant the Applicant's appeal and reverse the Planning Commission's decision.

Please note that appended to this letter is a revised subdivision concept which demonstrates how all clear and objective criteria are satisfied, including a revision to ensure that all lots have at least 20 feet of frontage to a public right-of-way. **Exhibit 1.** ORS 197.522(3) provides as follows:

"If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations."

As the revisions shown in **Exhibit 1** resolve any inconsistencies with applicable clear and objective standards and criteria, the Applicant requests that Council impose a condition of approval requiring the final subdivision plat to be consistent with **Exhibit 1** to this letter.

**1. The Application is a needed housing application and the City must treat it as such.**

**A. The City may apply only clear and objective standards, conditions, and procedures to the Application.**

The Applicant has submitted a proposal for a subdivision located at 40808 and 41010 Highway 26 in Sandy, Oregon, in an area zoned for residential use. ORS 197.307(4) provides that local governments may adopt and apply only clear and objective standards, conditions, and procedures regulating the development of housing, including needed housing, and precludes governments from unreasonably increasing the cost of housing or causing unreasonable delay. ORS 227.173(2) provides that “when an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

Land use regulations are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or community.” *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff'd*, 158 Or App 1, 970 P2d 685, *rev den*, 328 Or 594 (1999). And, regardless of whether a given regulation is “designed to balance or mitigate impacts,” it must also be *both* clear *and* objective. *Id.* at 155–56 (“Dictionary definitions of ‘clear’ and ‘objective’ suggest that the kinds of standards frequently found in land use regulations lack the certainty of application required to qualify as ‘clear’ or ‘objective.’”). More fundamentally, standards that are susceptible to multiple interpretations are not clear and objective. *Parkview Terrace Development, LLC v. City of Grants Pass*, 70 Or LUBA 37, 52–53 (2014); *see also Walter v. City of Eugene*, 73 Or LUBA 356, 360–64 (2016) (citing a standard’s “multiple possible interpretations” as a basis to find it not clear and objective).

ORS 197.522(2) and ORS 197.522(4) require local governments to approve needed housing applications that are consistent with, or can be made consistent with through reasonable conditions of approval, the comprehensive plan and applicable land use regulations, and to deny applications that are not. Relatedly, ORS 197.522(3),<sup>1</sup> allows an applicant to amend its application or to propose reasonable conditions to make its application consistent with the comprehensive plan and applicable land use regulations. What this means is that, if the Applicant proposes a condition of approval that would satisfy a given approval criterion that the Application does not otherwise meet, the Council must impose the proposed condition of approval in lieu of denying the Application.

Many of the reasons set forth in the Staff Report that form the basis of Staff’s recommendation of denial do not stand up to Oregon’s needed housing statutes. Many standards in the Sandy Development Code (“SDC”) are not clear and objective on their face or even when interpreted,

<sup>1</sup> “If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”

and as such, cannot be applied to the Application under Oregon's needed housing rules; examples of these standards are highlighted in the Applicant's September 24, 2021 letter to the Hearings Officer. Further, the City does not offer a clear and objective approval process for subdivisions under ORS 197.307(6). And, the Council cannot deny an application that is consistent with the comprehensive plan and applicable land use applications and/or that can be made consistent by the imposition of reasonable conditions of approval. ORS 197.522(2)-(4). Finally, under ORS 197.522(3), the Council must allow the Applicant to amend the Application or to propose reasonable conditions that will cause the Application to meet all relevant approval criteria.

**B. Staff cannot require dedication of parkland because the Development Code's procedures for such requirement are not clear and objective.**

Contrary to Staff's assertions, the regulatory scheme created for park dedication is not clear and objective, and therefore is not applicable under ORS 197.307(4). SDC 17.86.10 includes a requirement that all residential development dedicate a certain amount of parkland based on the formula in SDC 17.86.10.B. Alternatively, an applicant may pay a fee-in-lieu for required parkland under SDC 17.86.40. While Staff contends that the formula for parkland dedication is clear and objective, that is not all that ORS 197.307(4) requires. It also requires that local governments "[...] apply only clear and objective [...] procedures regulating the development of housing," and that the "standards, conditions and procedures" "may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay." (Emphasis added.)

The SDC is without any clear and objective guideposts as to whether a developer must provide a fee-in-lieu payment or parkland dedication, and neither decision can be made without the inherent consideration of the other option because SDC Chapter 17.86 provides for both. Thus, the decision maker must exercise discretion in deciding to require one or the other, and it is the required exercise of discretion that makes the parkland dedication requirement inapplicable under ORS 197.307(4). Consequently, Staff is unable to explain how its recommendation that parkland be dedicated next to Deer Pointe Park was based on a clear and objective procedure.

Relatedly, the parkland dedication requirement also violates ORS 197.307(4) because it certainly would have the effect of "discouraging needed housing through unreasonable cost and delay." This is due to Staff's and the Sandy Parks and Trails Advisory Board's (the "Board") attempt to apply the Parks Master Plan to a limited land use decision to which it is inapplicable as a matter of law.<sup>2</sup> As a practical matter, Staff and the Board's attempt to extract a park dedication in a specific area causes a number of problems. First, it represents substantial increased costs to the project, which will have the effect of increasing the costs of resulting housing. Second, Staff has not explained how a parkland dedication at the west end of the site could result in a lot arrangement that would satisfy SDC 17.86.20; the solution to that problem would require a complete re-design of the subdivision, further adding to additional costs and delay.

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<sup>2</sup> As explained in more detail below, the Parks Master Plan is not incorporated into the City's land use regulations and is therefore inapplicable under ORS 197.195.

Finally, it is irrelevant that the proposed lots are not arranged as required by SDC 17.86.20 because there is no clear and objective method by which an applicant can predict whether park land dedication or a fee-in-lieu will be required.

**2. The City may not require extension of Dubarko Road through the Subject Property nor require a dedication of parkland.**

**A. The Transportation System Plan and Parks Master Plan are not adequately incorporated into the land use regulations, in violation of ORS 197.195.**

The Applicant has submitted an application for a subdivision, which is a limited land use decision as defined by ORS 197.015(12). Under ORS 197.195(1), cities are required to incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. This requirement extends to standards set forth in the transportation system plan (“TSP”), parks master plan, and other elements of a city’s comprehensive plan as well. *See Oster v. City of Silverton*, LUBA No. 2018-103, at pp. 9-10 (Or LUBA May 7, 2019). Whether such a standard has been properly incorporated turns on whether the land use regulations that are said to incorporate such standards “make clear what *specific policies or standards* in the TSP [or other identified plan] apply to a limited land use decision as approval criteria.” *Id.* at p. 12. “ORS 197.195(1) contemplates more than a broad injunction to comply with unspecified portions of the comprehensive plan [or other identified plan].” *Paterson v. City of Bend*, LUBA No. 2004-155, at p. 6 (Or. LUBA 2005). Rather, “[i]n order to ‘incorporate’ a comprehensive plan [or other plan] standard into a local government’s land use regulations within the meaning of ORS 197.195(1), the local government must *at least* amend its land use regulations to make clear what specific policies or other provisions of the comprehensive plan [or other plan] apply to a limited land use decision as approval criteria.” *Id.* at pp. 6-7.

The City of Sandy’s approval criteria governing review of a tentative plat for a subdivision fails to properly incorporate the Sandy Comprehensive Plan or TSP. Specifically, SDC 17.100.60(E)(3) requires a showing that the “proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.” This is not sufficient to meet the incorporation requirements of ORS 197.195(1) because it merely refers generally to the Comprehensive Plan and the City’s official street plan. *See Oster* at p. 12. It does not “make clear what specific policies, action items, or performance standards contained in the TSP apply as approval criteria for a limited land use decision.” *Id.*

Staff also recommends denial because the Application does not propose to dedicate parkland adjacent to Deer Point Park, as that park is designated on the 1997 Parks Master Plan. Consequently, according to Staff, the Application violates SDC 17.86.10 and/or .40. Staff’s conclusions are incorrect.

Staff’s recommendation derives from and principally relies on the City’s Parks Master Plan. The Parks Master Plan is not applicable to the Application because, as explained above, the

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Application is a limited land use decision. Limited land use decisions are not subject to comprehensive plans or their elements unless such provisions are expressly incorporated into a city's land use regulations. ORS 197.195(1). The Parks Master Plan is not incorporated into the Sandy Development Code, the City's land use regulations; nor does Staff's recommendation assert that it is. Therefore, the Parks Master Plan may not be a basis for requiring dedication of parkland adjacent to Deer Point Park.

Indeed, all references to the City's TSP, Parks Master Plan, street plans, and comprehensive plan found in Chapter 17.84 and Chapter 17.100 of the Sandy Development Code are improperly incorporated because none of them specify which policies and standards actually apply. Thus, these requirements cannot be applied to the Application.

**B. In order to require an extension of Dubarko Road and dedication of parkland, the City must demonstrate that those requirements have an essential nexus and are roughly proportional to the project's impacts on those facilities.**

The Staff Report suggests that the Applicant should be required to extend Dubarko Road to Highway 26 and to dedicate certain land as parkland to expand Deer Pointe Park. Such dedications are subject to the Takings Clause of the Fifth Amendment of the U.S. Constitution.

Requiring a landowner to convey its private property rights in exchange for development approval is a takings (unconstitutional condition) unless there is an "essential nexus" between the condition and the government interest. *Nollan v. California Coastal Com.*, 483 U.S. 825, 836-37 (1987). Additionally, to withstand a legal challenge, the condition must be "roughly proportional" to the expected impacts caused by the proposed development. *Dolan v. City of Tigard*, 512 U.S. 374, 391-395 (1994). The *Nollan* and *Dolan* takings analysis must be done on a case-by-case basis, and the City carries the burden of demonstrating in the first instance that any exaction has a nexus to and is roughly proportional to the nature and degree of the projected impacts of the project. The City is required to make an "individualized determination" and "some effort to quantify" evidence in the findings to support a conclusion of rough proportionality. *Dolan*, 512 U.S. at 391. The *Nollan/Dolan* analysis applies to requirements to pay money or make public improvements in addition to requirements to dedicate property. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013).

There is no demonstration in the record that the requirements for the Dubarko Road extension and parkland dedication have a nexus to any governmental interest other than the City's general policies showing the street extension and parkland dedications. However, such policies do not constitute the required nexus; rather, a local government must show that "the proposed project's impacts, either alone or in combination with other construction, are ones that 'substantially impede' the interest identified by the government." *Hill v. City of Portland*, 293 Or App 283, 290-291 (2018).

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Despite *Hill's* requirement that the required dedications be tied to an actual potential impact from the proposed development, the Staff Report points to no evidence that the proposed development will lead to a capacity problem in the City's transportation system or parks system.

Staff has made no attempt to identify the essential nexus between the impact of the Project on the City's park system and the dedication requirement, and no attempt to explain how the requirement is roughly proportional to the project's impacts. Relying on a broadly-applicable dedication formula is insufficient because such a determination must be individualized. *Dolan*, 512 U.S. at 391. What is more, simply imposing the same level of exaction on all housing projects does not prove there actually is a nexus between that housing as the parks dedication requirement itself. *Hill*, 293 Or. App. at 290-291.

Finally, there is nothing in the record or the Staff Report even approaching a showing that the Dubarko Road extension and parkland dedication are "roughly proportional" to the impacts of the proposed subdivision.

In sum, the sole questions in the constitutional analysis in this case are as follows. First, do the road extension and parkland dedication have an "essential nexus" to the proposed development? Second, if there is a nexus, are the requirements to extend Dubarko Road and to dedicate parkland "roughly proportional" to the impacts of the proposed development? The City has the burden of proof to answer these two questions, but has utterly failed to do so.

**C. SDC 17.100.100.G.2 prohibits the City from require an extension of Dubarko Road through the site.**

SDC 17.100.100 governs street requirements with subdivisions. SDC 17.100.100.G establishes exemptions from otherwise-applicable street requirements. Subsection G.2 provides:

"Standards for street connections do not apply to freeways and other highways with full access control."

As explained in ODOT's September 1, 2021 letter (which is listed as Exhibit N to the Staff Report), Highway 26 is access controlled. Therefore, the City unambiguously lacks the authority to require a connection of Dubarko Road to Highway 26.

**D. OAR 660-012-0045 does not apply to the proposed development.**

Staff and the Planning Commission cites to OAR 660-012-0045 as a basis for denial. This is improper for at least two reasons. For one, this administrative rule is not an approval criterion and as such cannot be the basis for denial of the Application. Moreover, it establishes obligations for a local government's plan and land use regulations; it does not apply directly to review of subdivision application. Even if it did, it establishes obligations that the *City* must meet, not the Applicant. As such, it cannot be used as a basis to deny the Application.

**3. Planning Staff's recommendation for denial is inconsistent with applicable law.**

The Applicant addresses each of the twelve bases for Staff's recommendation for denial, below.

**1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- *17.100.60.E.1. "The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval."*
  - This criterion is not clear and objective as required by ORS 197.307(4) because the phrase "consistent with" is not clear and objective.
  - The Application satisfies the density requirements in the applicable zones.
  - Staff's only basis for finding that setback standards are not met is due to the Applicant's plan not to extend Dubarko Road. Staff's position does not make sense; one cannot plausibly argue that a plan does not meet setback requirements adjacent to a new road that is not proposed.
  - Chapter 82's requirement that homes "face a transit street" is not applicable because, as noted above, the City's Transportation System Plan and Pedestrian Mater Plans are not incorporated into the City's Land Use Regulations. ORS 197.195.
  - Pursuant to ORS 197.522(3), if the transit street orientation requirement in SDC 17.82.20.A did apply, it could be met with the following condition:

*"All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street."*

This condition was apparently proposed in paragraph 42 of the Staff Report. Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction the frontage orientation requirement.
  - Staff does not argue that any lots do not meet dimensional standards, except with regard to minimum street frontage. This has been corrected as shown on **Exhibit 1**, and is discussed below.

- 17.100.60.E.2. *“The proposed subdivision is consistent with the design standards set forth in this chapter.”*
  - As an initial matter, 17.100.E.2 cannot apply to the application because the phrase “consistent with” is not clear and objective as required by ORS 197.307(4) and similarly, E.2 does not identify which “design standards” apply.
  - Staff’s basis in paragraph 26 of the Staff Report for concluding that subsection E.2 is not met relies upon the following arguments:
    - That the project does not provide a Dubarko Road connection to Highway 26;
    - That the project does not meet the “Street Connectivity Principle”;
    - That the project “does not provide safe and convenient options for cars, bikes, and pedestrians”;
    - That the project “does not create a logical, recognizable pattern of circulation” and “does not provide a future street plan that promotes a logical, connected pattern of streets.”
    - That the project “does not spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened”;
    - That the project does not “provide connectivity to other streets within the development and to existing and planned streets outside the development”; and
    - That the applicant did not submit information on block lengths.
  - Staff is incorrect in the above findings for the following reasons:
    - As explained above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City’s land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT.



- The “Street Connectivity Principle”<sup>3</sup> does not apply because it is not clear and objective as required by ORS 197.307(4).
- The Application already shows the pattern of existing and proposed streets as required by SDC 17.100.100.E. Regardless, subsection E is not clear and objective because it includes the requirement that the plan “promote a logical, connected pattern,” which is not clear and objective as required ORS 197.307(4); nor is the requirement that a plan show new street extensions to adjacent parcels “where development may practically occur.” If the Council concludes that a different future street plan is required, it can require that as a condition of approval pursuant to ORS 197.522(3).
- The requirement in SDC 17.100.100.F that “all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan” is not applicable because it is not clear and objective, as required by ORS 197.307(4).
- The requirements that the project “create a logical, recognizable pattern of circulation,” “provide a future street plan that promotes a logical, connected pattern of streets,” and “spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened” are not clear and objective.
- The block length standards in SDC 17.100.120 are as follows:

“A. Blocks. Blocks shall have sufficient width to provide for two tiers of lots at appropriate depths. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.

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<sup>3</sup> The “Street Connectivity Principle” is set forth in SDC 17.100.100.A as follows: “A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.” This is not clear and objective because it does not define the following terms: “safe and convenient,” “a logical, recognizable pattern of circulation,” “spread traffic,” “many streets,” and “overburdened.” It is also not clear and objective because it does not explain *how* a “pattern of streets” should be “connected.”

B. Residential Blocks. Blocks fronting local streets shall not exceed 400 feet in length, unless topographic, natural resource, or other similar physical conditions justify longer blocks. [...]"

These standards are not clear and objective because the terms "appropriate depths," and the phrase "unless topographic, natural resource, or other similar physical conditions" are ambiguous.

- Regardless, block length information is available because the subdivision plan sheets are to scale. This is a submittal requirement and does not provide a basis for denial of the Application.
- 17.100.60.E.3. *"The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy."*
  - As explained above, this criterion is not applicable because the City's Comprehensive Plan and Transportation System Plan have not been incorporated into the City's land use regulations as required by ORS 197.195.
  - As explained above, the City has not demonstrated the required essential nexus and rough proportionality required by *Nollan* and *Dolan*.
  - The Applicant is not required to extend Dubarko Road under SDC 17.100.100.G.2 because Highway 26 is access controlled by ODOT.
- 17.100.60.E.4. *"Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions."*
  - Mike Ard, the Applicant's transportation engineer, provided an updates to the existing transportation impact study (TIS) dated September 27, 2021 which demonstrates that the Application satisfies this section.
- 17.100.60.E.5. *"Adequate public facilities are available or can be provided to serve the proposed subdivision."*
  - This standard is not applicable under ORS 197.307(4) because the phrase "adequate public facilities" is ambiguous and subjective.
- 17.100.60.E.6. *"All proposed improvements meet City standards."*
  - In paragraph 30, Staff identified three reasons why it believed the above criterion is not met. These are (1) the lack of an extension of Dubarko Road to Highway 26, (2) the lack of frontage improvements on Highway 26, and (3) the lack of dedicated parkland. As explained above, these are not legally permissible bases for denial.

- Regardless, the above criterion is not applicable under ORS 197.307(4) because the criterion does not identify which City standards are applicable, and does not explain what is sufficient to “meet” those standards.

**2) The applicant’s statement indicating that “Both of the proposed cul-de-sacs have less than 50% of their circumference covered by driveway drops” is not sufficient as there were no dimensional specifications submitted by the applicant to support this statement.**

RESPONSE: **Exhibit 2** provides driveway width information for the Fawn Street and Street A cul-de-sacs. This exhibit demonstrates that the sum of the driveway widths for each cul-de-sac is less than 50%. SDC 17.98.100.F is satisfied.

**3) The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.**

RESPONSE: Staff’s conclusion is incorrect for the following reasons.

- SDC 17.84.30(B) is not clear and objective and therefore inapplicable under ORS 197.307(4), for the following reasons:
  - The phrase “safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall” is ambiguous, subjective, and requires the use of discretion in its application.
  - The definition of “safe and convenient” in subsection (B)(1) does not make the phrase clear and objective because the definition itself relies on ambiguous and subjective terminology, including “reasonably free from hazards,” “interfere with or discourage travel for short trips,” “a direct route of travel between destination” and “meet the travel needs of pedestrians and bicyclists.” None of these phrases are capable of objective measurement.
- SDC 17.84.30 does not require pedestrian pathways to “streets beyond the cul-de-sacs.” Rather, it subjectively requires pedestrian and bicycle facilities “within and between new subdivisions, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks.” Staff’s conclusion is incorrect because “streets,” as a general matter, are not on this list.
- SDC 17.84.30(B)(2) does not expressly require pedestrian connections from cul-de-sacs; it only requires pedestrian connections to be a minimum of 15 feet wide where they are proposed.
- Even if this standard were clear and objective, the Council can find that it is met with the public pedestrian easements shown on **Exhibit 1**.

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**4) The Applicant proposes Lot 12 with less than the minimum 20 feet of street frontage as required by SDC 17.36.30(C).**

RESPONSE: The Applicant has made a slight revision in the Application to ensure that this standard is met, as shown in **Exhibit 1**. Lot 12 now has 20.13 feet of street frontage; this standard is met. Pursuant to ORS 197.522(3), the Council should impose a condition of approval requiring at least 20 feet of street frontage as demonstrated on **Exhibit 1** to this letter.

**5) The distance between the two nearest edges of the right-of-way between Dubarko Road (an arterial) and Street C (a local street) is less than the minimum 150 ft. dimension in Sections 17.84.50(E)(2) and 17.84.50(J)(3).**

RESPONSE: This is not a permissible basis for denial because the 150-foot street spacing requirement does not apply to Street C. Subsection E.2 provides as follows:

“Local streets should typically intersect in ‘T’ configurations rather than four-way intersections to minimize conflicts and discourage through traffic. Adjacent ‘T’ intersections shall maintain a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply here because it applies on its face only to “local streets.” However, Dubarko Street is a major arterial and C Street is designed as a “public access lane” according to the standards in SDC 17.100.160. Therefore, there is no “adjacent ‘T’ intersection” to any local street within the Project.

Subsection J.2 provides as follows:

“As far as practical, arterial streets and collector streets shall be extended in alignment with existing streets by continuation of the street centerline. When staggered street alignments resulting in ‘T’ intersections are unavoidable, they shall leave a minimum of 150 feet between the nearest edges of the two rights-of-way.”

This standard does not apply because there are no “staggered street alignment resulting in a ‘T’ intersection. First, there is no street intersection within 150 feet of the proposed termination of Dubarko Road; only a “public access lane.” Second, there are no proposed “staggered” intersections, as demonstrated in **Exhibit 3**.

**6) The minimum 100 feet of tangent alignment required in Section 17.84.50(J)5(a) is not provided at the intersection of Street “B” (a collector) and Dubarko Road (an arterial) or at the intersection of Dubarko Road and Street “B”.**

RESPONSE: This standard is not clear and objective because, by using the word “tangent,” it is not clear whether the standard applies only to curved intersections or to roughly straight intersections (as are proposed in the Application). Therefore, it is inapplicable under ORS 197.307(4).

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If the Council does find that the above standard applies, pursuant to ORS 197.522(3) the Council should impose the following condition of approval:

*“The intersection of Street B and Dubarko Road shall have a minimum of 100 feet of straight (tangent) alignment perpendicular to the intersection.”*

It is feasible for the Applicant to satisfy this condition as demonstrated on **Exhibit 4**. Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.950.J.5.a.

**7) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.**

RESPONSE: As explained in detail above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City's land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT. Finally, as explained above, the City has not met its burden of demonstrating essential nexus or rough proportionality for this requirement, as required by *Nollan* and *Dolan*.

**8) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.**

RESPONSE: Under *Hill v. City of Portland*, 293 Or App 283, 290 (2018), and *Brown v. City of Medford*, 251 Or App 42, 53 (2012), the City cannot, as a matter of constitutional law, require frontage improvements to a road or highway that is not proposed for access. As the City cannot require such frontage improvements, the above statement is not a permissible reason for denial.

Regardless, if the Council believes that this requirement can pass constitutional muster, pursuant to ORS 197.522(3) the Council should impose a condition of approval requiring frontage improvements along Highway 26 consistent with the requirements of the SDC.

**9) The applicant's proposal does not clearly define if they propose to replace the 8-inch diameter water line and/or install an 18-inch water line in conformance with the Water Master Plan.**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- SDC 17.100.230 is not applicable under ORS 197.307(4) because the requirements that it “shall be installed to provide adequate water pressure to serve present and future consumer demand” is not clear and objective.

- The requirements of the Water Master Plan are not incorporated into the City's land use regulations as required by ORS 197.195; therefore, the Water Master Plan does not apply.
- Staff made no attempt to establish the essential nexus between the impacts of the proposed development—which does not include future multifamily dwellings—and the requirement for an 18-inch water main. Staff also makes no attempt to demonstrate how the costs of an 18-inch water main connected into the existing main in Highway 26 is roughly proportional to the impact of the proposed development on the City's water system. Both showings are required for the requirement to pass constitutional muster as required by *Nollan* and *Dolan*.
- The above notwithstanding, **Exhibit 1** demonstrates how the Applicant can construct an 18" water line. Pursuant to ORS 197.522(3), the Applicant can satisfy this standard with the following condition of approval:

*"The applicant shall install an 18-inch water line in Dubarko Rd. connected to the existing 18-inch water line at the west end of the site and the existing 12-inch line on Highway 26."*

While this would allow the Applicant to satisfy SDC 17.100.230, the Applicant reserves its right to challenge the constitutionality of the condition under ORS 197.796.

**10) The applicant does not propose to extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site consistent with the Sandy Development Code.**

RESPONSE: This requirement is not a legally permissible basis for denial for the reasons explained under (8), above. Regardless, **Exhibit 1** demonstrates how the Applicant can construct the requested 12" water line. Pursuant to ORS 197.522(3), the Applicant can satisfy this standard with the following condition of approval:

*"The applicant shall extend the existing 12-inch water main in Highway 26 east from the required intersection of Dubarko Road and Highway 26 to the east boundary of the site."*

While this would allow the Applicant to satisfy SDC 17.100.230, the Applicant reserves its right to challenge the constitutionality of the condition under ORS 197.796.

**11) The proposed 10-foot-wide public storm drainage easements depicted between Lots 27 and 28 and at the rear of Lots 9-13 do not meet the minimum dimensional requirement for public facility easements in Section 17.84.90(A)(2).**

Kelly O'Neill, Jr.  
February 22, 2022  
Page 15

RESPONSE: As demonstrated on **Exhibit 1**, the Applicant now proposes an increase in the 10-foot wide easement to 15 feet wide. Pursuant to ORS 197.522(3), the Applicant can satisfy this requirement by accepting the following condition of approval:

*“Prior to final plat, the Applicant shall grant to the City a 15-foot wide public storm drainage easement between Lots 27 and 28 and at the rear of Lots 9-13.”*

Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction of SDC 17.84.90(A)(2).

**12) This subdivision proposal does not propose to dedicate 0.96 acres of parkland as required by Chapter 17.86. The additional .96 acres could expand Deer Pointe Park consistent with the Parks and Trails Master Plan that was adopted in 1997.**

RESPONSE: As explained in detail above, the City cannot require dedication of 0.96 acres to add to Deer Pointe Park for the following reasons:

- The City’s Parks and Trail Master Plan is not incorporated into the City’s land use regulations as required by ORS 197.195, and is therefore inapplicable to the Application.
- The process by which the City can require parkland dedication as opposed to a fee-in-lieu is not clear and objective; therefore, the parkland dedication requirement cannot apply under ORS 197.307(4).
- Staff has made no attempt to demonstrate an essential nexus or rough proportionality of the parkland dedication requirement, as required by *Nollan* and *Dolan*.

Regardless, **Exhibit 5** demonstrates how the Applicant could provide the minimum required park area. Pursuant to ORS 197.522(3), if the Council nonetheless concludes that it is not barred from requiring the park dedication, it can impose a condition of approval requiring a park area as shown on Exhibit 5 of this letter.

#### **4. Conclusion.**

For the above reasons, the City Council should grant this Appeal and approve the Application because Staff and Planning Commission’s asserted reasons for denial are not permissible under applicable law.

Best regards,



Garrett H. Stephenson

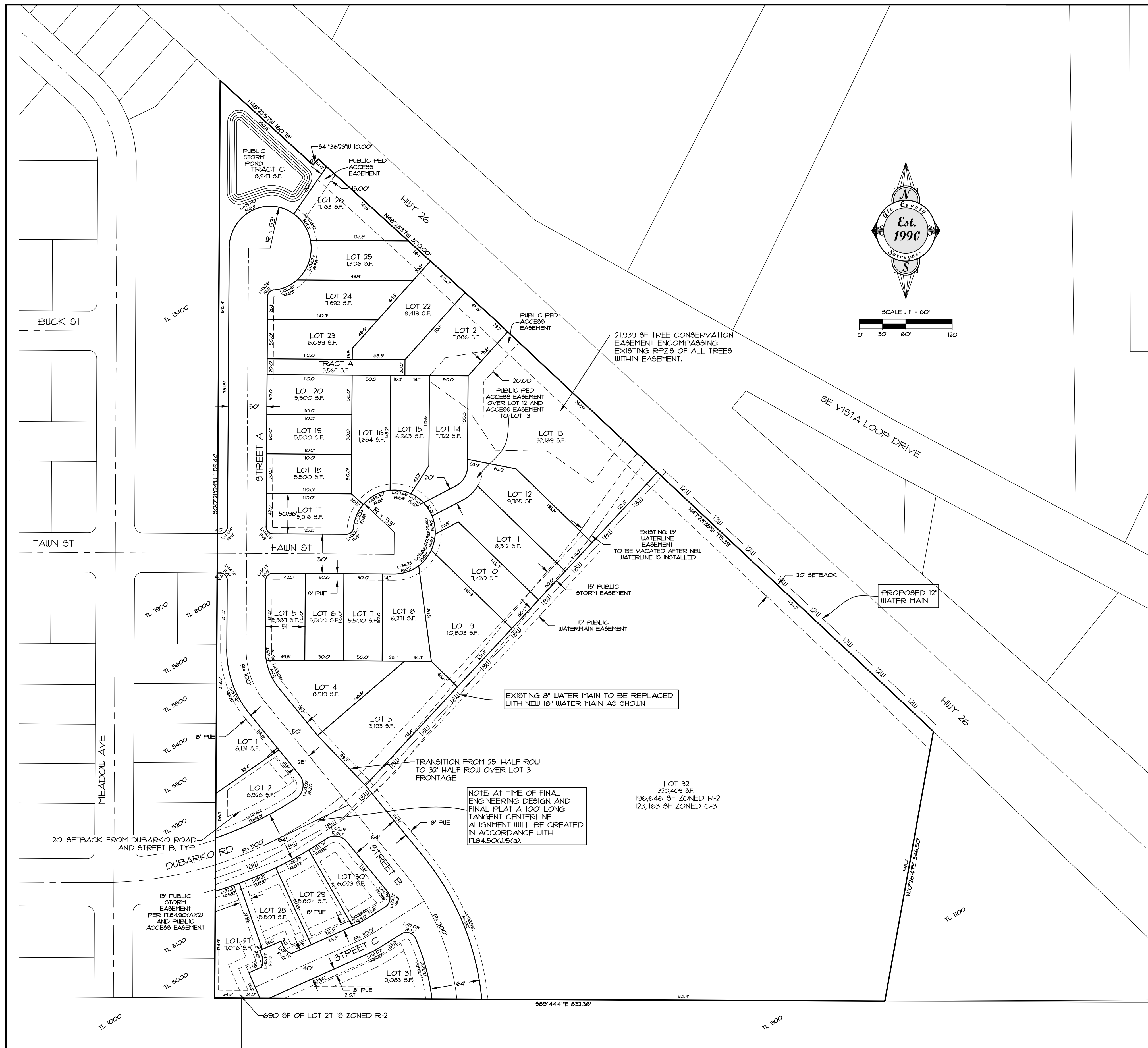
GST:jmhi  
Enclosures

Kelly O'Neill, Jr.  
February 22, 2022  
Page 16

cc: David Doughman (*via email*) (*w/enclosures*)  
Dave Vandehey (*via email*) (*w/enclosures*)  
Ray Moore (*via email*) (*w/enclosures*)  
Mike Ard (*via email*) (*w/enclosures*)  
Tracy Brown (*via email*) (*w/enclosures*)  
Tyler Henderson (*via email*) (*w/enclosures*)  
Alex Reverman (*via email*) (*w/enclosures*)  
Carey Sheldon (*via email*) (*w/enclosures*)

PDX\126769\255102\GST\33027063.1





**CLIENT**  
 ROLL TIDE PROPERTIES CORPORATION  
 PO BOX 103  
 CORNELIUS, OR 97113

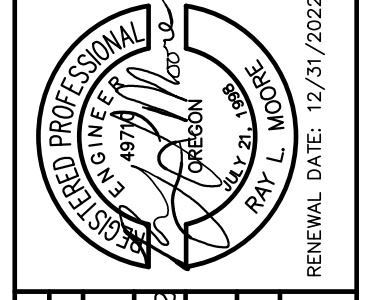
**SURVEYOR/ENGINEER**  
 ALL COUNTY SURVEYORS & PLANNERS, INC.  
 PO BOX 955  
 SANDY, OR 97055

**PLANNER**  
 TRACY BROWN PLANNING CONSULTANTS, LLC  
 17075 FIR DR.  
 SANDY, OR 97055

**NOTES**

- THIS IS NOT A BOUNDARY SURVEY. NO LIABILITY IS ASSUMED BY ALL COUNTY SURVEYORS AND PLANNERS FOR THE EXISTENCE OF ANY EASEMENTS, ENCUMBRANCES AND DISCREPANCIES IN BOUNDARY OR TITLE DEFECTS.
- LOT 32 TO BE DEVELOPED UNDER SEPARATE DESIGN REVIEW PROCESS AT FUTURE DATE.

BY	REVISION	SHEET
1		91
OF		1
DESIGNED:	CTH	
DRAWN:	CTH	
CHECKED:	RLM	
APPROVED:	RLM	



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DATE	07/26/2018	HORIZ.	1"=60'
FILE	19-035-Planning-B2.dwg	LEGAL	
SECTION	1B	RANGE	5E
TWP.	25		

PROJECT: **DEER MEADOWS SUBDIVISION**

**PRELIMINARY PLAT MAP (REVISED 2-18-22)**

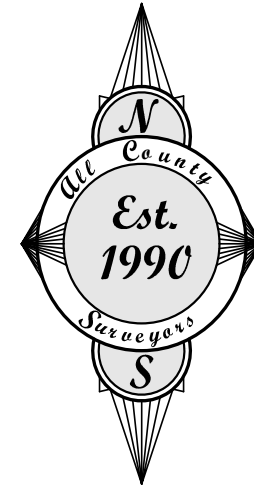
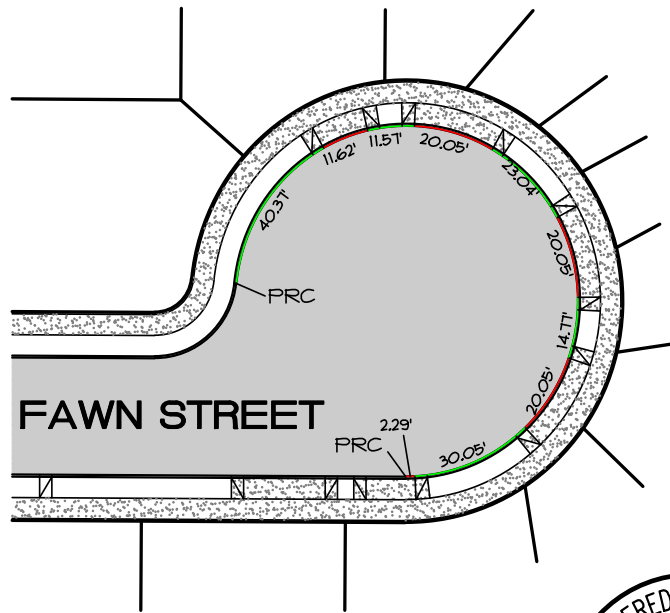
LOCATION: **40808 & 41010 HWY 26, SANDY, OR 97055**

**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering and  
 Construction Management  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 2-18-22

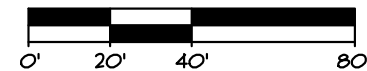
CLIENT: **ROLL TIDE PROPERTIES CORPORATION  
 CORNELIUS, OR 97113**

Exhibit 1

# DEER MEADOWS CUL-DE-SAC EXHIBIT



SCALE : 1" = 40'



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.85'  
 TOTAL GAPS = 119.79' (61.80%)  
 TOTAL DRIVEWAY LENGTH = 74.06' (38.20%)  
 (38.20% IS LESS THAN 50%. MEETS CODE)

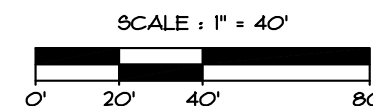
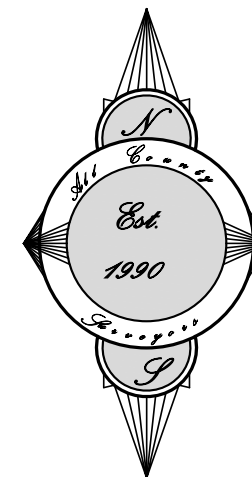


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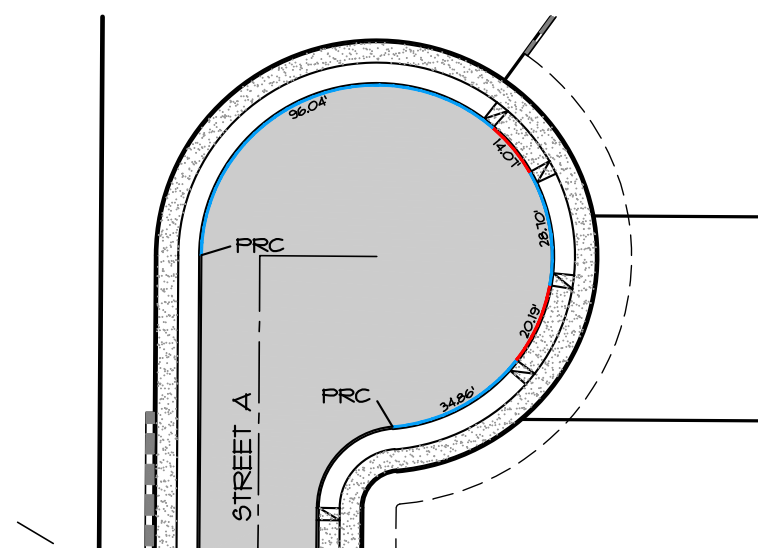
*All County*  
**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730

FILE:19-035-PARK.dwg DATE OF PLOT 2-17-22

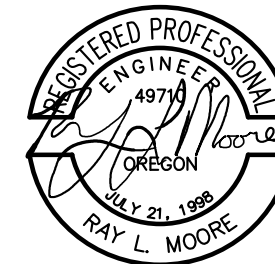
# DEER MEADOW CUL-DE-SAC EXHIBIT



## STREET A CUL-DE-SAC



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 TOTAL GAPS = 159.60' (82.3%)  
 TOTAL DRIVEWAY LENGTH = 34.26' (17.7%)  
 (17.7% IS LESS THAN 50%. MEETS CODE)



RENEWAL DATE: 12/31/2022

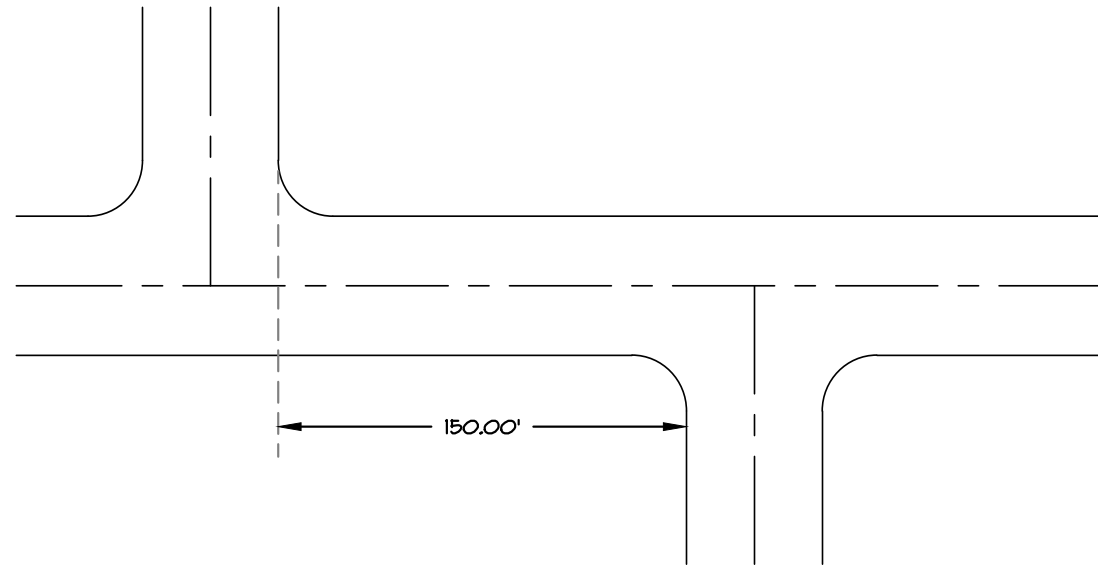
**All County**  
**Surveyors & Planners, Inc.**  
 Surveying, Planning  
 and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

19-035-Planning-B.dwg  
 DATE OF PLOT: 09/21/2021

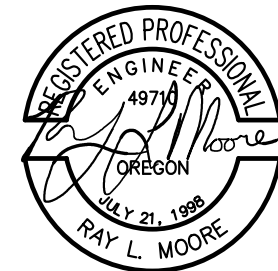
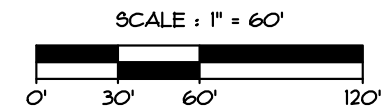
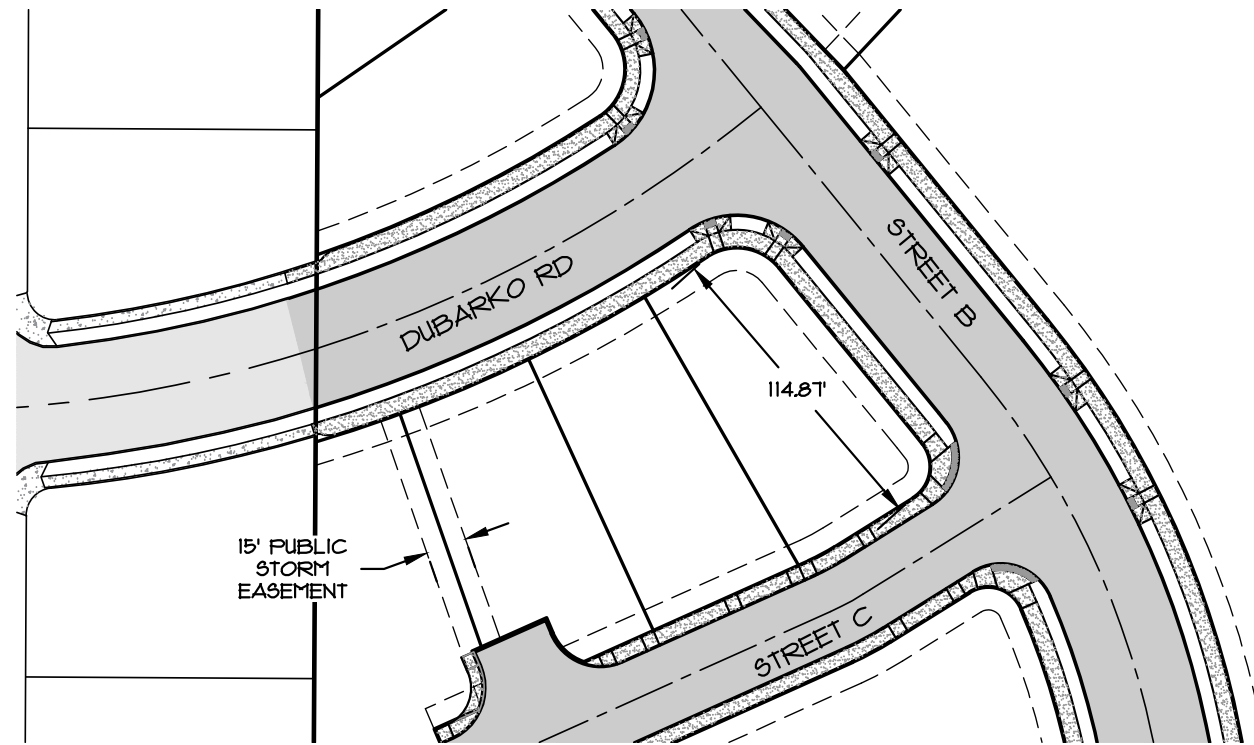
Exhibit 2 Page 2 of 2

# DEER MEADOW T-INTERSECTION EXHIBIT

## EXAMPLE OF STAGGERED T-INTERSECTION



## PROPOSED T-INTERSECTION (NOT A STAGGERED T-INTERSECTION)



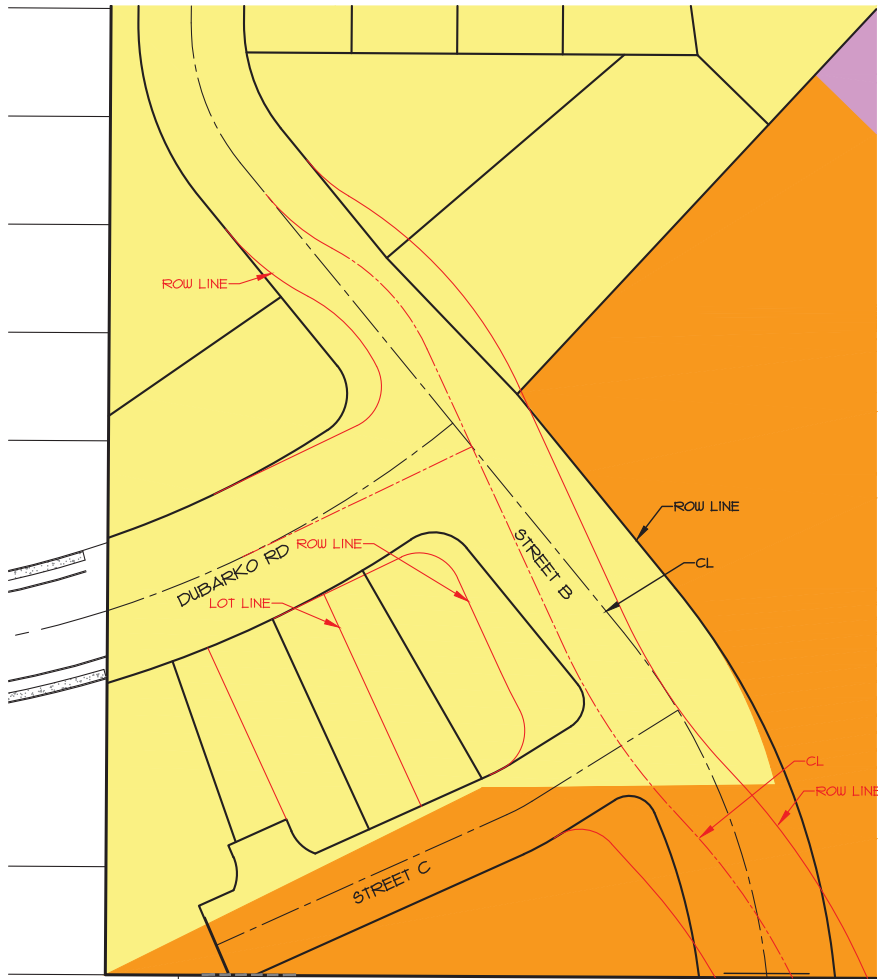
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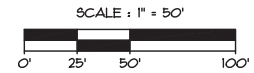
19-035-Planning-B.dwg  
DATE OF PLOT: 09/21/2021

Exhibit 3

# DUBARKO RD WITH 100' TANGENT EXHIBIT



NOTE: 100' TANGENTS CAN BE PROVIDED ON STREET B AND DUBARKO AS SHOWN. THE RESULTING ALIGNMENT WOULD MAKE LOT 32 LARGER, AND ELIMINATE ONE LOT FROM LOTS 21-30.



## LEGEND

- R-1 ZONE
- R-2 ZONE
- C-3 ZONE



RENEWAL DATE: 12/31/2022

**All County Surveyors & Planners, Inc.**  
 Surveying, Planning and Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730  
 Subject to General Conditions 2006 ©

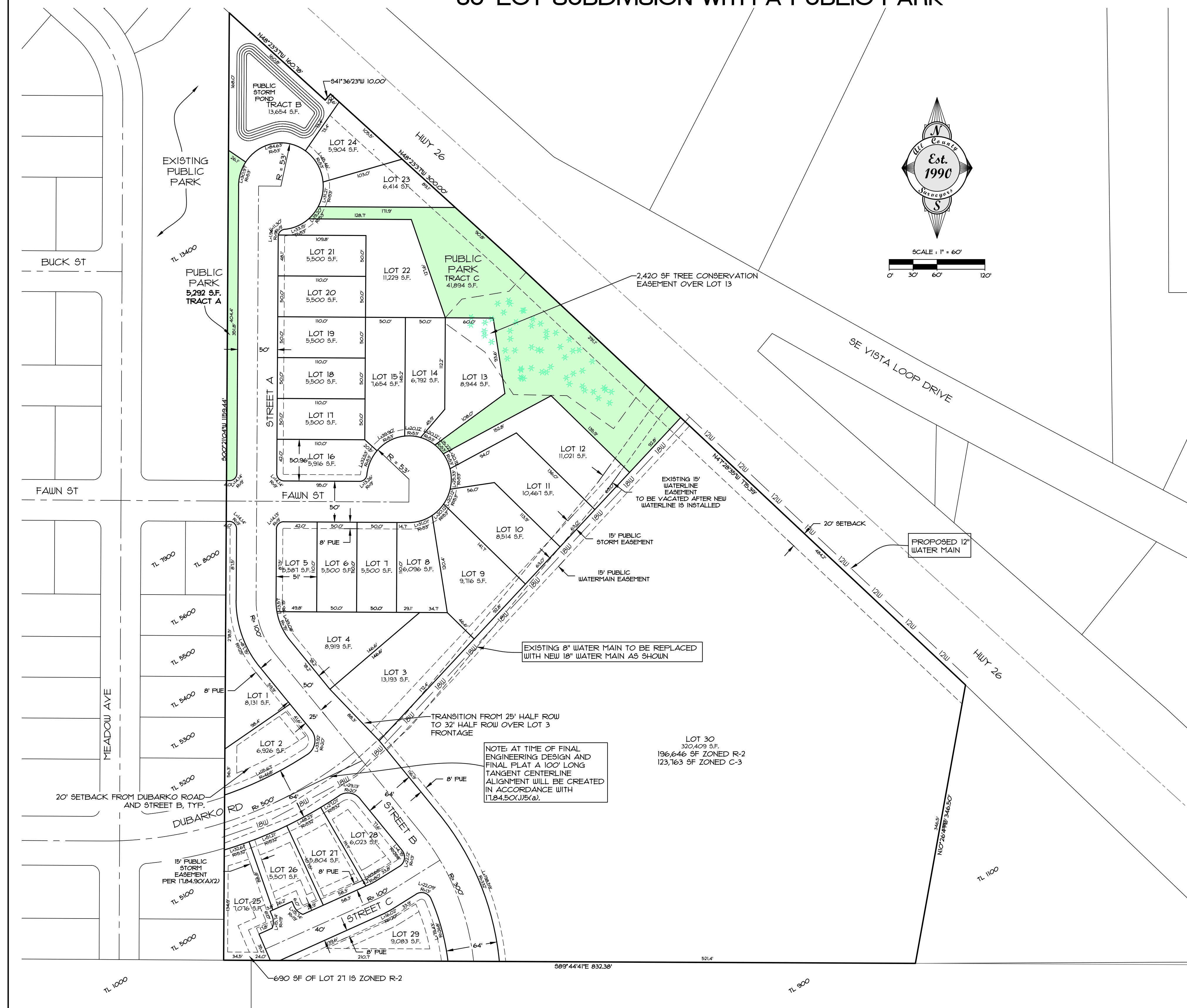
19-035-Planning-B.dwg  
 DATE OF PLOT: 09/24/2021

Exhibit 4



# DEER MEADOWS

## 30-LOT SUBDIVISION WITH A PUBLIC PARK



**CLIENT**  
 ROLL TIDE PROPERTIES CORPORATION  
 PO BOX 103  
 CORNELIUS, OR 97113

**SURVEYOR/ENGINEER**  
 ALL COUNTY SURVEYORS & PLANNERS, INC.  
 PO BOX 955  
 SANDY, OR 97055

**PLANNER**  
 TRACY BROWN PLANNING CONSULTANTS, LLC  
 17075 FIR DR.  
 SANDY, OR 97055

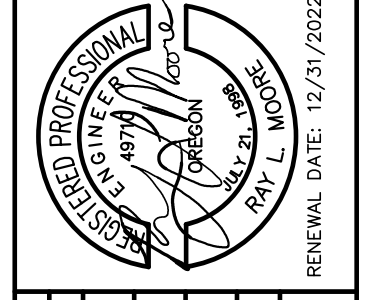
**LEGEND**

PARKLAND DEDICATION SHOWN AT 1/4-1 ACRE. MINIMUM REQUIRED AT TIME OF FINAL PLAT TO BE 0.93 ACRES (40,911 SF). ADJUSTMENTS TO LOT LINES WILL BE MADE AT TIME OF FINAL PLAT TO PROVIDE 0.93 ACRES OR MORE.

**NOTES**

- THIS IS NOT A BOUNDARY SURVEY. NO LIABILITY IS ASSUMED BY ALL COUNTY SURVEYORS AND PLANNERS FOR THE EXISTENCE OF ANY EASEMENTS, ENCUMBRANCES AND DISCREPANCIES IN BOUNDARY OR TITLE DEFECTS.
- LOT 30 TO BE DEVELOPED UNDER SEPARATE DESIGN REVIEW PROCESS AT FUTURE DATE.

BY	REVISION	SHEET
		<b>P1</b>
		OF <b>1</b>
DATE	DESIGNED: CTH	
	DRAWN: CTH	
	CHECKED: RLM	
	APPROVED: RLM	



SCALE	N/A	SECTION	1B	RANGE	25	5E
HORIZ.	1"=60'	LEGAL				
DATE	2-11-22	FILE	19-035-PARK-019			

**DEER MEADOWS SUBDIVISION**  
 REVISED PLAT WITH  
 PARKLAND DEDICATION

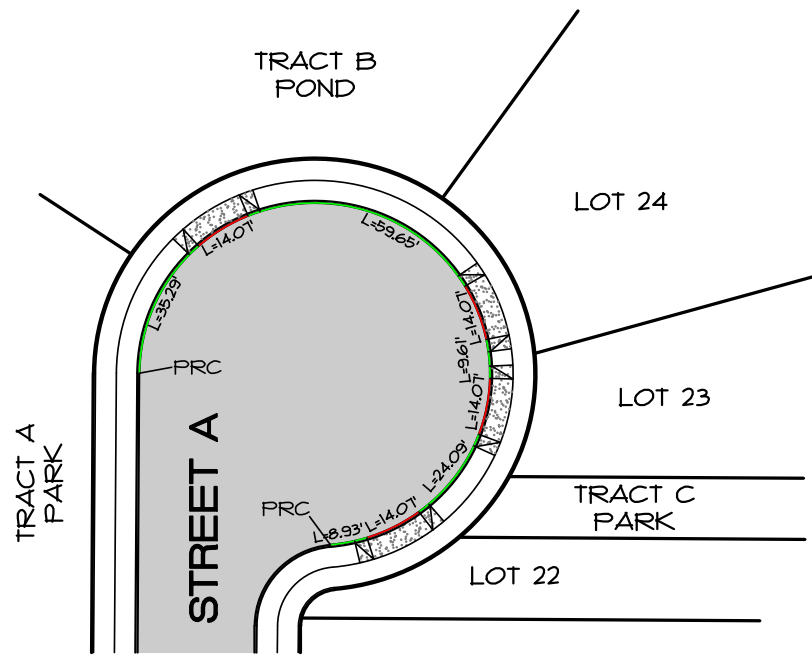
PROJECT: 40808 & 41010 HWY 26, SANDY, OR 97055

LOCATION:

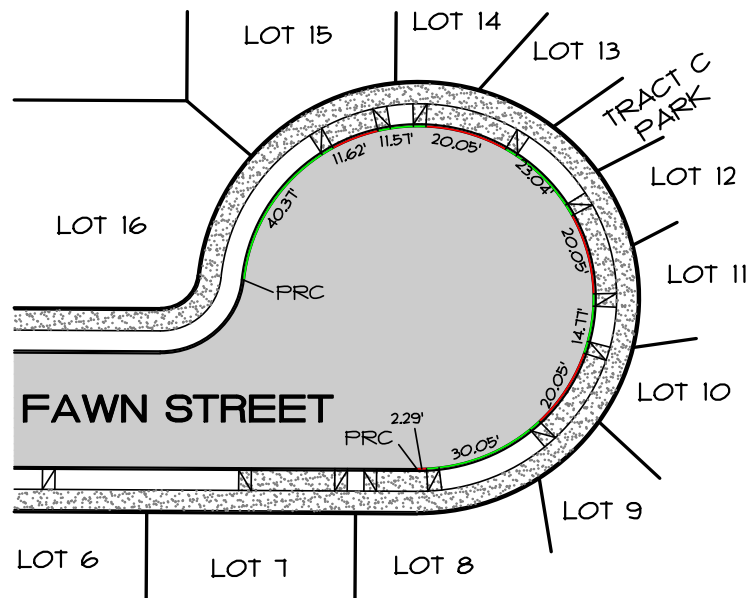
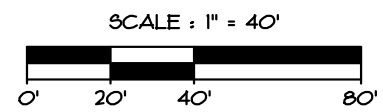
**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 2-11-22

CLIENT:  
 ROLL TIDE PROPERTIES CORPORATION  
 CORNELIUS, OR 97113

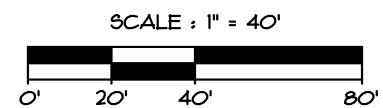
# DEER MEADOWS CUL-DE-SAC EXHIBIT



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.85'  
 TOTAL GAPS = 137.51' (70.97%)  
 TOTAL DRIVEWAY LENGTH = 56.28' (29.03%)  
 (29.03% IS LESS THAN 50%.) MEETS CODE



TOTAL CIRCUMFERENCE FROM PRC TO PRC = 193.85'  
 TOTAL GAPS = 119.79' (61.80%)  
 TOTAL DRIVEWAY LENGTH = 74.06' (38.20%)  
 (38.20% IS LESS THAN 50%.) MEETS CODE



RENEWAL DATE: 12/31/2022

**All County**

**Surveyors & Planners, Inc.**

Surveying, Planning and  
Civil Engineering

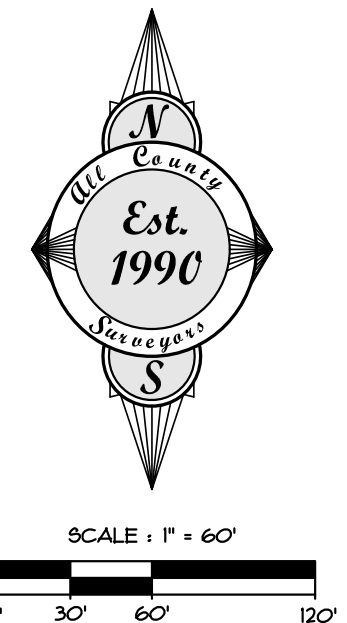
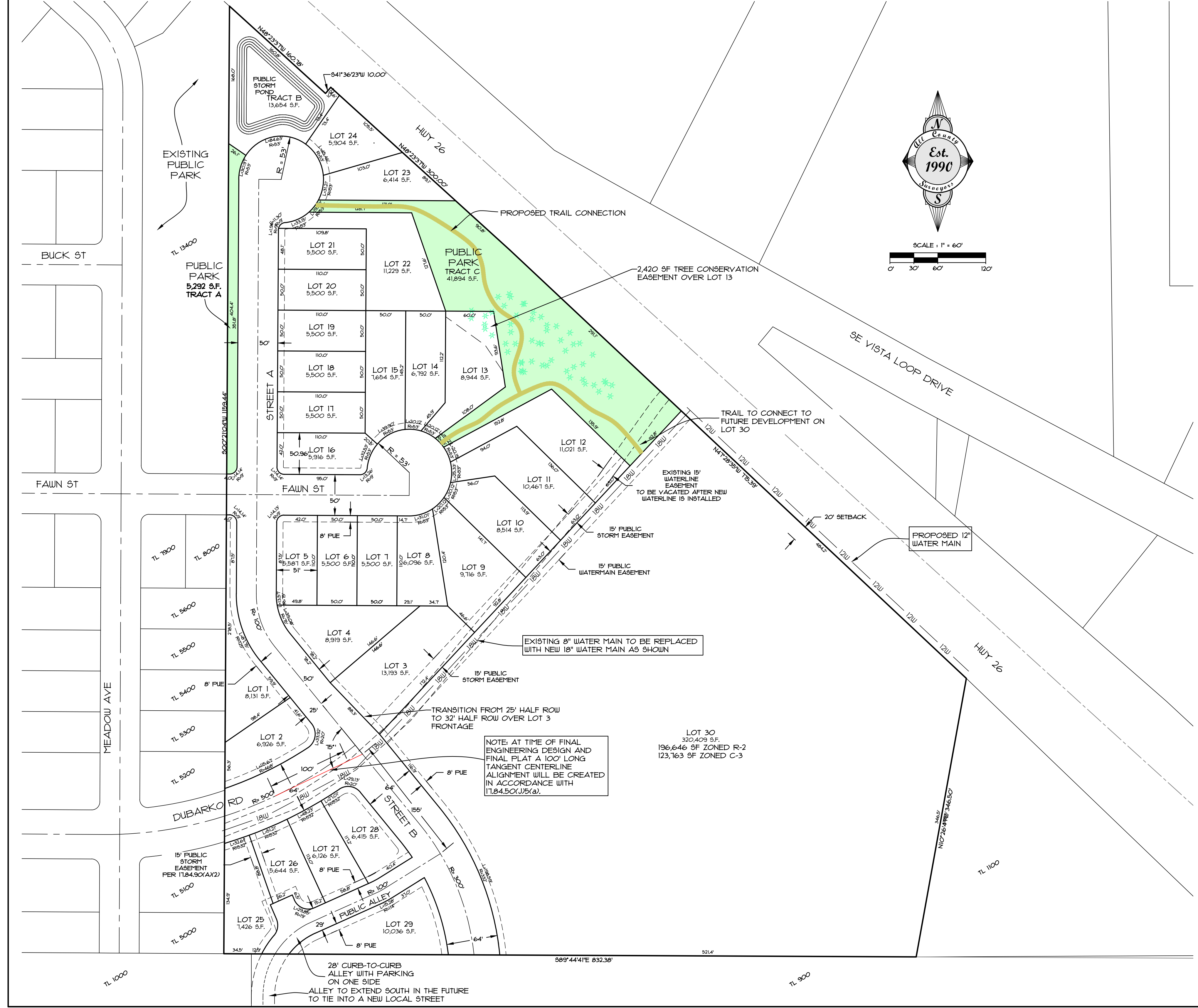
P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-3151  
 Fax: (503) 668-4730

FILE:19-035-PARK-B.dwg DATE OF PLOT 3-7-22



# DEER MEADOWS

## 30-LOT SUBDIVISION WITH A PUBLIC PARK



**CLIENT**  
 ROLL TIDE PROPERTIES CORPORATION  
 PO BOX 103  
 CORNELIUS, OR 97113

**SURVEYOR/ENGINEER**  
 ALL COUNTY SURVEYORS & PLANNERS, INC.  
 PO BOX 955  
 SANDY, OR 97055

**PLANNER**  
 TRACY BROWN PLANNING CONSULTANTS, LLC  
 17075 FIR DR.  
 SANDY, OR 97055

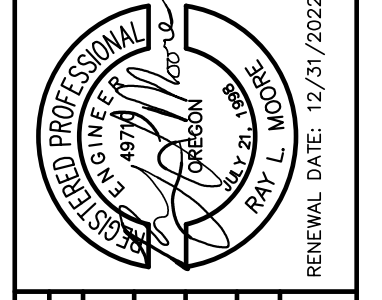
**LEGEND**

PARKLAND DEDICATION SHOWN AT +/- 1 ACRE. MINIMUM REQUIRED AT TIME OF FINAL PLAT TO BE 0.93 ACRES (40,911 SF). ADJUSTMENTS TO LOT LINES WILL BE MADE AT TIME OF FINAL PLAT TO PROVIDE 0.93 ACRES OR MORE.

**NOTES**

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- LOT 30 TO BE DEVELOPED UNDER SEPARATE DESIGN REVIEW PROCESS AT FUTURE DATE.

BY	REVISION	SHEET
		<b>P1</b>
		OF <b>1</b>
DATE	DESIGNED: CTH	
NO.	DRAWN: CTH	
	CHECKED: RLM	
	APPROVED: RLM	



SCALE	VERT.	N/A	SECTION	1B
HORIZ.	FILE:	19-0395-PARK-PL.dwg	RANGE	5E
DATE:	TWP.			
3-1-22				

**DEER MEADOWS SUBDIVISION**  
 REVISED PLAT WITH  
 PARKLAND DEDICATION

PROJECT: 40808 & 41010 HWY 26, SANDY, OR 97055

LOCATION:

**All County Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering  
 P.O. Box 955 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 3-1-22

CLIENT:  
 ROLL TIDE PROPERTIES CORPORATION  
 CORNELIUS, OR 97113



## EXHIBIT KKK



April 15, 2022

**Garrett H. Stephenson**

Admitted in Oregon

T: 503-796-2893

C: 503-320-3715

gstephenson@schwabe.com

**VIA EMAIL**

Hon. Stan Pulliam  
c/o Kelly O'Neill, Jr.  
Development Services Director  
City of Sandy  
Sandy City Hall  
39250 Pioneer Blvd.  
Sandy, OR 97055

RE: Roll Tide Properties Corp. / Deer Meadows Subdivision Appeal 21-061 AP  
(Appeal of File No. 21-014 SUB/TREE)

Dear Mayor Pulliam and Councilors:

This firm represents Roll Tide Properties Corp., the Applicant in the above-referenced file. This letter sets forth the Applicant's response to the Council Staff Report for the April 18, 2021 Council hearing, which recommends denial of the Applicant's appeal and by extension, denial of the Applicant's subdivision application. For the reasons below, the Council should grant the Applicant's appeal and reverse the Planning Commission's decision.

On February 22, 2022, the Applicant requested and the Council granted a continuance to April 18, 2022 to allow the Applicant and staff to work together on an updated design that would address some of staff's concerns regarding dimensional standards and which would propose a parkland dedication to satisfy the City's stated requirement for 0.93 acres of parkland. The Applicant and staff did, in fact, work together to reduce the number of compliance issues that staff had identified in its original Staff Report. Attached is revised subdivision concept which demonstrates how all clear and objective criteria can be satisfied, which the Applicant offers as a proposed condition of approval. **Exhibit 1.** The proposed concept also shows how the Applicant could dedicate 1.08 acres of new parkland, which would connect to the existing Deer Pointe Park via pathways through the property and across proposed Street A, as well as some additional parkland directly abutting the Deer Pointe Park property.

ORS 197.522(3) provides as follows:

"If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations."

Hon. Stan Pulliam  
April 15, 2022  
Page 2

As the revisions shown in **Exhibit 1** resolve any inconsistencies with applicable clear and objective standards and criteria, the Council should impose a condition of approval requiring the final subdivision plat to be consistent with **Exhibit 1** to this letter. And, while the Applicant does not concede that the City's park dedication requirements are either clear and objective or sustainable without just compensation, the Applicant offers the proposed condition requiring the parkland shown on **Exhibit 1** pursuant to ORS 197.522(3) in order to satisfy the City's request for parkland dedication, regardless of the City's justification for that requirement.

**Exhibit 1** does not show an extension of Dubarko Road to Highway 26 for two reasons, one practical and the other legal. The first reason is that the Council and public raised concerns regarding a Dubarko Road extension during its consideration of the prior plan amendment and subdivision for this property (known as "Bull Run Terrace"). The second reason, which has been explained in the Applicant's prior arguments and summarized below, is that the City lacks a legal basis to require a Dubarko Road extension under the applicable standards and criteria.

Thus, the revisions shown on **Exhibit 1** represent a genuine effort on the part of the Applicant to propose a condition on the Application that will make the Application desirable to the Council and the City while also resolving as many of Staff's concerns as is feasible. In fact, of the twelve issues identified in the original Staff Report, only four remain, which are entirely derivative of the key issues discussed below. The Applicant sincerely appreciates the hard work of City Staff on these revisions and the additional time staff took to revise the Staff Report to reflect them.

**1. Key issues.**

As noted above, with many of the Staff's concerns resolved with the updated subdivision proposal, there remain two primary issues and one secondary issue. These are summarized and addressed below.

**A. Parkland dedication.**

According to City Staff, the proposed development requires approximately .93 acres of parkland based on the City's dedication methodology set forth in Sandy Development Code ("SDC") 17.86.10. The Application now proposes 1.08 acres of parkland, which is approximately 14 percent above the minimum under the City's current dedication formula, and would meet SDC 17.86.10.

The remaining concerns about parkland stated in the Staff Report for the April 18<sup>th</sup> hearing appear to be that the parkland does not abut the Deer Pointe Park property. Locating the park improvements here would prevent much of the property from being developed for single family uses and would make the project financially infeasible. The additional public parkland shown in **Exhibit 1** would be connected to the existing Deer Pointe Park property with a pedestrian trail that can be easily accessed from the park across proposed Street A; this also has the advantage of creating a public park access to Highway 26.

Hon. Stan Pulliam  
April 15, 2022  
Page 3

The proposed parkland represents the best possible accommodation of parkland that the Applicant can offer while still maintaining a feasible development. While the Applicant does not concede or waive any arguments regarding the inapplicability of the parkland dedication requirement, the Council can find that the proposed public park tract is sufficient to satisfy the City's parkland dedication requirements as stated in SDC 17.86.10.

The proposed parkland would meet the standards of SDC 17.86.20 because homes front on the parkland, because the parkland is proposed as a contiguous unit, and because the parkland is sufficiently large to meet the active use requirements of SDC 17.86.20.C.

Finally, despite any recommendations from the City's Parks and Trails Advisory Board, the City's 1997 Parks and Trails Master Plan has not been incorporated into the SDC and is therefore inapplicable under ORS 197.195(1). Even if it were, there is no provision in that plan that specifically requires the Applicant to dedicate additional parkland at this, or any other, particular location on the subject property. That said, the Applicant has laid out the proposed park to provide the maximum connectivity and synergy with the Deer Pointe Park property.

**B. Dubarko Road.**

The updated subdivision proposal does not include an extension of Dubarko Road, which is the key issue animating Staff's findings nos. 19–22, 28–30, 30.A and .C, 33, and 51. As stated above, the prior application (Bull Run Terrace) was denied by the Council largely because of the then-proposed Dubarko Road extension. While an applicant may voluntarily construct such an improvement, in this limited-land use decision context the City lacks a clear and objective mechanism in the SDC to force the Applicant to make such a connection.

**C. House orientation and frontage improvements on Highway 26.**

There are serious livability downsides to orienting dwellings to face Highway 26. The proposed public park tract would provide a meaningful buffer between dwellings and the highway. For these reasons, the Applicant does not propose to place single-family lots directly on Highway 26, except for Lots 23 and 24, which must abut Highway 26 due to the triangular shape of the subject property. The Application can meet SDC 17.82.20 by orienting homes on those lots to Highway 26 and there is no evidence in the record that the Application cannot meet that standard. Pursuant to ORS 197.522(3), the Council should impose a condition to meet this standard if the Council finds that it applies.

The Applicant does not propose frontage improvements on Highway 26 because the proposed development will not utilize Highway 26 for access. The legal aspects of requiring such frontage improvements are discussed in detail, below.

**D. The City may apply only clear and objective standards, conditions, and procedures to the Application.**

ORS 197.307(4) provides that local governments may adopt and apply only clear and objective standards, conditions, and procedures regulating the development of housing, including needed

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housing, and precludes governments from unreasonably increasing the cost of housing or causing unreasonable delay. ORS 227.173(2) provides that “when an ordinance establishing approval standards is required under ORS 197.307 to provide only clear and objective standards, the standards must be clear and objective on the face of the ordinance.”

Land use regulations are not clear and objective if they impose “subjective, value-laden analyses that are designed to balance or mitigate impacts of the development on (1) the property to be developed or (2) the adjoining properties or community.” *Rogue Valley Assoc. of Realtors v. City of Ashland*, 35 Or LUBA 139, 158 (1998), *aff’d*, 158 Or App 1, 970 P2d 685, *rev den*, 328 Or 594 (1999). And, regardless of whether a given regulation is “designed to balance or mitigate impacts,” it must also be *both* clear *and* objective. *Id.* at 155–56 (“Dictionary definitions of ‘clear’ and ‘objective’ suggest that the kinds of standards frequently found in land use regulations lack the certainty of application required to qualify as ‘clear’ or ‘objective.’”). More fundamentally, standards that are susceptible to multiple interpretations are not clear and objective. *Parkview Terrace Development, LLC v. City of Grants Pass*, 70 Or LUBA 37, 52–53 (2014); *see also* *Walter v. City of Eugene*, 73 Or LUBA 356, 360–64 (2016) (citing a standard’s “multiple possible interpretations” as a basis to find it not clear and objective).

The Application is for needed housing.<sup>1</sup> ORS 197.522(2) and ORS 197.522(4) require local governments to approve needed housing applications that are consistent with, or can be made consistent with through reasonable conditions of approval, the comprehensive plan and applicable land use regulations, and to deny applications that are not. Relatedly, ORS 197.522(3),<sup>2</sup> allows an applicant to amend its application or to propose reasonable conditions to make its application consistent with the comprehensive plan and applicable land use regulations. What this means is that, if the Applicant proposes a condition of approval that would satisfy a given approval criterion that the Application does not otherwise meet, the Council must impose the proposed condition of approval in lieu of denying the Application.

Many of the reasons set forth in the Staff Report that form the basis of Staff’s recommendation of denial do not stand up to Oregon’s needed housing statutes. Many standards in the SDC are not clear and objective on their face or even when interpreted, and as such, cannot be applied to the Application under Oregon’s needed housing rules; examples of these standards are highlighted in the Applicant’s September 24, 2021 letter to the Planning Director. Further, the City does not offer a clear and objective approval process for subdivisions under ORS 197.307(6). And, the Council cannot deny an application that is consistent with the comprehensive plan and applicable land use applications and/or that can be made consistent by

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<sup>1</sup> This Application is a “needed housing application” because a need has been shown for additional dwelling units at all density levels in the planning period between 2014 and 2034. This is reflected in the City’s Urbanization Study adopted in Jan. 2015 (Rod. 2015-01). **Exhibit 2** includes excerpts of this study which identify the City’s additional housing need.

<sup>2</sup> “If an application is inconsistent with the comprehensive plan and applicable land use regulations, the local government, prior to making a final decision on the application, shall allow the applicant to offer an amendment or to propose conditions of approval that would make the application consistent with the plan and applicable regulations.”

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the imposition of reasonable conditions of approval. ORS 197.522(2)-(4). Finally, under ORS 197.522(3), the Council must allow the Applicant to amend the Application or to propose reasonable conditions that will cause the Application to meet all relevant approval criteria.

**E. The City cannot require dedication of parkland because the Development Code's procedures for such requirement are not clear and objective.**

The regulatory scheme created for park dedication is not clear and objective, and therefore is not applicable under ORS 197.307(4). SDC 17.86.10 includes a requirement that all residential development dedicate a certain amount of parkland based on the formula in SDC 17.86.10.B. Alternatively, an applicant may pay a fee-in-lieu for required parkland under SDC 17.86.40. While Staff contends that the formula for parkland dedication is clear and objective, that is not all that ORS 197.307(4) requires. It also requires that local governments “[...] apply only clear and objective [...] procedures regulating the development of housing,” and that the “standards, conditions and procedures...may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.” Emphasis added.

The SDC is without any clear and objective guideposts as to whether a developer must provide a fee-in-lieu payment or parkland dedication, and neither decision can be made without the inherent consideration of the other option because SDC Chapter 17.86 provides for both. Thus, the decision maker must exercise discretion in deciding to require one or the other, and it is the required exercise of discretion that makes the parkland dedication requirement inapplicable under ORS 197.307(4). Consequently, Staff is unable to explain how its recommendation that parkland be dedicated next to Deer Pointe Park was based on a clear and objective procedure. It is also worth noting that City staff now proposes to amend this section to make it clear and objective, which supports the Applicant's point that it is currently not. See **Exhibit 3**.

Finally, it is irrelevant that the proposed lots are not arranged as required by SDC 17.86.20 because there is no clear and objective method by which an applicant can predict whether parkland dedication or a fee-in-lieu will be required. More importantly, it is not clear how any parcel that is not a perfect square could be laid out as shown in 17.86.20.A, nor whether higher- or lower-density zoning could allow parkland development “as shown” in that section. As such, there is no way, as a practical matter, for Subsection A to be applied in a clear and objective manner. Subsection B is not clear and objective because there is no definition of “continuous unit” in the SDC. Subsection C is not clear and objective because it provides no objective benchmarks for determining how parkland can “accommodate place structures, play fields, picnic areas, or other active park use facilities. **Exhibit 3** provides evidence that at least City Staff agrees that these standards are not clear and objective and cannot be enforced.

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**2. The City may not require dedication of parkland, extension of Dubarko Road through the Subject Property, or frontage improvements on Highway 26.**

**A. The Transportation System Plan (“TSP”) and Parks and Trails Master Plan are not expressly incorporated into the land use regulations.**

The Applicant has submitted an application for a subdivision, which is a limited land use decision as defined by ORS 197.015(12). Under ORS 197.195(1), cities are required to incorporate all comprehensive plan standards applicable to limited land use decisions into their land use regulations. The City of Sandy’s approval criteria governing review of a tentative plat for a subdivision fails to expressly incorporate the Sandy Comprehensive Plan or TSP. Specifically, SDC 17.100.60(E)(3) requires a showing that the “proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.” This is not sufficient to meet the incorporation requirements of ORS 197.195(1) because it merely refers generally to the Comprehensive Plan and the City’s official street plan.

Staff also recommends denial because the Application does not propose to dedicate parkland adjacent to Deer Point Park, as that park is designated on the 1997 Parks Master Plan. Consequently, according to Staff, the Application violates SDC 17.86.10 and/or 17.86.40. Staff’s conclusions are incorrect. The Parks Master Plan is not applicable to the Application because, as explained above, the Application is a limited land use decision. Limited land use decisions are not subject to comprehensive plans or their elements unless such provisions are expressly incorporated into a city’s land use regulations. ORS 197.195(1). As evidenced by **Exhibit 3**, the Parks Master Plan is not incorporated into the SDC. Therefore, the Parks Master Plan does not supply any criteria or standards applicable to the Application.

Indeed, all references to the City’s TSP, Parks Master Plan, street plans, and Comprehensive Plan found in Chapter 17.84 and Chapter 17.100 of the SDC are not incorporated because none specify which policies and standards actually apply. Thus, these requirements cannot be applied to the Application.

**B. In order to require dedication of parkland, an extension of Dubarko Road and or frontage improvements along Highway 26, the City must demonstrate that those requirements have an essential nexus and are roughly proportional to the project’s impacts on those facilities.**

The Staff Report suggests that the Applicant should be required to dedicate certain land as parkland to expand Deer Pointe Park, to extend Dubarko Road to Highway 26, and to provide frontage improvements on Highway 26. Such dedications are subject to the Takings Clause of the Fifth Amendment of the U.S. Constitution.

Requiring a landowner to convey its private property rights in exchange for development approval is a takings (unconstitutional condition) unless there is an “essential nexus” between the condition and the government interest. *Nollan v. California Coastal Com.*, 483 U.S. 825, 836-37 (1987). Additionally, to withstand a legal challenge, the condition must be “roughly

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proportional” to the expected impacts caused by the proposed development. *Dolan v. City of Tigard*, 512 U.S. 374, 391-395 (1994). The *Nollan* and *Dolan* takings analysis must be done on a case-by-case basis, and the City carries the burden of demonstrating in the first instance that any exaction has a nexus to and is roughly proportional to the nature and degree of the projected impacts of the project. The City is required to make an “individualized determination” and “some effort to quantify” evidence in the findings to support a conclusion of rough proportionality. *Dolan*, 512 U.S. at 391. The *Nollan/Dolan* analysis applies to requirements to pay money or make public improvements in addition to requirements to dedicate property. *Koontz v. St. Johns River Water Management District*, 570 U.S. 595 (2013).

There is no demonstration in the record that the requirements for the Dubarko Road extension and parkland dedication have a nexus to any governmental interest other than the City’s general policies showing the street extension and parkland dedications. However, such policies do not constitute the required nexus; rather, a local government must show that “the proposed project’s impacts, either alone or in combination with other construction, are ones that ‘substantially impede’ the interest identified by the government.” *Hill v. City of Portland*, 293 Or App 283, 290-291 (2018).

Staff has made no attempt to identify the essential nexus between the impact of the project on the City’s park system and the dedication requirement, and no attempt to explain how the requirement is roughly proportional to the project’s impacts. Relying on a broadly-applicable dedication formula is insufficient because such a determination must be individualized. *Dolan*, 512 U.S. at 391. Moreover, simply imposing the same level of exaction on all housing projects does not prove there actually is a nexus between that housing as the parks dedication requirement itself. *Hill*, 293 Or. App. at 290-291.

The City’s requirement for frontage improvements on Highway 26 also fails to pass constitutional muster. Even with the proposed revised plan, the Application does not propose any direct vehicular, bike, or pedestrian access to Highway 26. Under *Hill v. City of Portland*, 293 Or App 283, 290 (2018), and *Brown v. City of Medford*, 251 Or App 42, 53 (2012), the City cannot, as a matter of constitutional law, require frontage improvements to a road or highway that is not to be used for access.

Finally, there is nothing in the record or the Staff Report even approaching a showing that the parkland dedication, Dubarko Road extension, and Highway 26 frontage improvements are “roughly proportional” to the impacts of the proposed development.

**C. SDC 17.100.100.G.2 prohibits the City from requiring an extension of Dubarko Road through the site.**

SDC 17.100.100 governs street requirements for subdivisions. SDC 17.100.100.G establishes exemptions from otherwise-applicable street requirements. Subsection G.2 provides:

“Standards for street connections do not apply to freeways and other highways with full access control.”

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As explained in ODOT's September 1, 2021 letter (which is listed as Exhibit N to the original Staff Report), Highway 26 is access controlled. Therefore, the City unambiguously lacks the authority to require a connection of Dubarko Road to Highway 26.

**D. OAR 660-012-0045 does not apply to the proposed development.**

Staff and the Planning Commission cite to OAR 660-012-0045 as a basis for denial. This is improper for at least two reasons. For one, this administrative rule is not an approval criterion and as such cannot be the basis for denial of the Application. Moreover, it establishes obligations for a local government's plan and land use regulations; it does not apply directly to review of subdivision application. Even if it did, it establishes obligations that the *City* must meet, not the Applicant. As such, it cannot be used as a basis to deny the Application.

**3. Planning Staff's recommendation for denial is inconsistent with applicable law.**

The original Staff Report identified twelve reasons for denial. With the Applicant's revisions, Staff has reduced its original list to only four reasons for denial. The Applicant addresses each of the four bases for Staff's recommendation for denial, below, and uses the numbering used in the updated Staff Report.

**1) The subdivision proposal does not meet subdivision Criteria 17.100.60 (E)(1), (2), (3), (4), (5), and (6).**

RESPONSE: Staff's conclusion is incorrect for the following reasons.

- *17.100.60.E.1. "The proposed subdivision is consistent with the density, setback and dimensional standards of the base zoning district, unless modified by a Planned Development approval."*
  - This criterion is not clear and objective as required by ORS 197.307(4) because the phrase "consistent with" is not clear and objective.
  - The Application satisfies the density requirements in the applicable zones.
  - Staff's only basis for finding that frontage standards are not met is due to the Applicant's plan not to extend Dubarko Road. Staff's position does not make sense because there is no basis within the SDC to require frontage improvements along a street that is not actually proposed by the Application.
  - Chapter 82's requirement that homes "face a transit street" is not applicable because, as noted above, the City's TSP and Pedestrian Mater Plans are not incorporated into the City's Land Use Regulations. ORS 197.195.
  - Pursuant to ORS 197.522(3), if the transit street orientation requirement in SDC 17.82.20.A did apply, it could be met with the following condition:



*“All residential structures on lots abutting Highway 26, Dubarko Road, and Street B shall have their primary entrances oriented to Highway 26, Dubarko Road, or Street B. If a lot abuts two or more of these streets the residential structure shall be oriented to the highest classification of street.”*

This condition was apparently proposed in paragraph 42 of the original Staff Report. Under ORS 197.522(3), the Council is required to impose this condition in lieu of denial because it would ensure satisfaction the frontage orientation requirement.

- 17.100.60.E.2. *“The proposed subdivision is consistent with the design standards set forth in this chapter.”*
  - As an initial matter, 17.100.60.E.2 cannot apply to the application because the phrase “consistent with” is not clear and objective as required by ORS 197.307(4) and similarly, E.2 does not identify which “design standards” apply.
  - Staff’s basis in finding 29 of the revised Staff Report for concluding that subsection E.2 is not met relies upon the following arguments:
    - That the project does not provide a Dubarko Road connection to Highway 26;
    - That the project does not meet the “Street Connectivity Principle”;
    - That the project “does not provide safe and convenient options for cars, bikes, and pedestrians”;
    - That the project “does not create a logical, recognizable pattern of circulation” and “does not provide a future street plan that promotes a logical, connected pattern of streets.”
    - That the project “does not spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened”;
    - That the project does not “provide connectivity to other streets within the development and to existing and planned streets outside the development”; and
    - That the applicant did not submit information on block lengths.
  - Staff is incorrect in the above findings for the following reasons:

- As explained above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City’s land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT.
- The “Street Connectivity Principle”<sup>3</sup> does not apply because it is not clear and objective as required by ORS 197.307(4).
- The Application already shows the pattern of existing and proposed streets as required by SDC 17.100.100.E. Regardless, subsection E is not clear and objective because it includes the requirement that the plan “promote a logical, connected pattern,” which is not clear and objective as required ORS 197.307(4); nor is the requirement that a plan show new street extensions to adjacent parcels “where development may practically occur.” If the Council concludes that a different future street plan is required, it can require that as a condition of approval pursuant to ORS 197.522(3).
- The requirement in SDC 17.100.100.F that “all streets, alleys and pedestrian walkways shall connect to other streets within the development and to existing and planned streets outside the development and to undeveloped properties that have no future street plan” is not applicable because it is not clear and objective, as required by ORS 197.307(4). Even if it were, the plan clearly demonstrates how the proposed internal street systems connect with other streets in the vicinity.
- The requirements that the project “create a logical, recognizable pattern of circulation,” “provide a future street plan that promotes a logical, connected pattern of streets,” and “spread traffic over many streets so that key streets such as Langensand Road and Highway 211 are not overburdened” are not clear and objective.

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<sup>3</sup> The “Street Connectivity Principle” is set forth in SDC 17.100.100.A as follows: “A. Street Connectivity Principle. The pattern of streets established through land divisions should be connected to: (a) provide safe and convenient options for cars, bikes and pedestrians; (b) create a logical, recognizable pattern of circulation; and (c) spread traffic over many streets so that key streets (particularly U.S. 26) are not overburdened.” This is not clear and objective because it does not define the following terms: “safe and convenient,” “a logical, recognizable pattern of circulation,” “spread traffic,” “many streets,” and “overburdened.” It is also not clear and objective because it does not explain *how* a “pattern of streets” should be “connected.”

- The block length standards in SDC 17.100.120 are as follows:
  - “A. Blocks. Blocks shall have sufficient width to provide for two tiers of lots at appropriate depths. However, exceptions to the block width shall be allowed for blocks that are adjacent to arterial streets or natural features.
  - B. Residential Blocks. Blocks fronting local streets shall not exceed 400 feet in length, unless topographic, natural resource, or other similar physical conditions justify longer blocks. [...]”
- These standards are not clear and objective because the terms “appropriate depths,” and the phrase “unless topographic, natural resource, or other similar physical conditions” are ambiguous.
- Regardless, block length information is available because the subdivision plan sheets are to scale. This is a submittal requirement and does not provide a basis for denial of the Application. **Exhibit 1** demonstrates how block length standards are met.
- *17.100.60.E.3. “The proposed street pattern is connected and consistent with the Comprehensive Plan or official street plan for the City of Sandy.”*
  - As explained above, this criterion is not applicable because the City’s Comprehensive Plan and TSP have not been incorporated into the City’s land use regulations as required by ORS 197.195.
  - As explained above, the City has not demonstrated the required essential nexus and rough proportionality required by *Nollan* and *Dolan*.
  - The Applicant is not required to extend Dubarko Road under SDC 17.100.100.G.2 because Highway 26 is access controlled by ODOT.
  - The Bull Run Terrace application materials are not in the record of this Application; therefore any Applicant statements in those materials are not relevant to the approval criteria. Regardless, that application was for a post-acknowledgement plan amendment which is not subject to ORS 197.195.
- *17.100.60.E.4. “Traffic volumes shall not exceed average daily traffic (ADT) standards for local streets as detailed in Chapter 17.10, Definitions.”*
  - Mike Ard, the Applicant’s transportation engineer, provided an updates to the existing transportation impact study (TIS) dated September 27, 2021 which demonstrates that the Application satisfies this section.

- *17.100.60.E.5. “Adequate public facilities are available or can be provided to serve the proposed subdivision.”*
  - This standard is not applicable under ORS 197.307(4) because the phrase “adequate public facilities” is ambiguous and subjective.
  - The Applicant incorporates in its response to this argument its above responses to the requirements for parkland dedication, an extension of Dubarko Road, and the requirement for frontage improvements along Highway 26.
- *17.100.60.E.6. “All proposed improvements meet City standards.”*
  - In finding 33 of the revised Staff Report, Staff identified three reasons why it believed the above criterion is not met. These are (1) the lack of an extension of Dubarko Road to Highway 26, (2) the lack of frontage improvements on Highway 26, and (3) the lack of dedicated parkland. As explained above, these are not legally permissible bases for denial.
  - Regardless, the above criterion is not applicable under ORS 197.307(4) because the criterion does not identify which City standards are applicable, and does not explain what is sufficient to “meet” those standards.

**7) The applicant does not propose to extend Dubarko Road to intersect with Highway 26 consistent with the requirements of the Sandy Development Code or the 2011 Transportation System Plan.**

RESPONSE: As explained in detail above, the City cannot require an extension of Dubarko Road to Highway 26 because such a requirement is not incorporated into the City’s land use regulations. Moreover, SDC 17.100.100.G.2 provides that “standards for street connections do not apply to freeways and other highways with full access control.” Highway 26 is access controlled by ODOT. Finally, as explained above, the City has not met its burden of demonstrating an essential nexus or rough proportionality for this requirement, as required by *Nollan* and *Dolan*.

**8) The applicant does not include highway frontage improvements along Highway 26 consistent with the Sandy Development Code.**

RESPONSE: Under *Hill v. City of Portland*, 293 Or App 283, 290 (2018), and *Brown v. City of Medford*, 251 Or App 42, 53 (2012), the City cannot, as a matter of constitutional law, require frontage improvements to a road or highway that is not proposed for access. As the City cannot require such frontage improvements, the above statement is not a permissible reason for denial.

Regardless, if the Council believes that this requirement can pass constitutional muster, pursuant to ORS 197.522(3) the Council should impose a condition of approval requiring frontage improvements along Highway 26 consistent with the requirements of the SDC.

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**12) This subdivision proposal does not propose to dedicate 0.93 acres of parkland as required by Chapter 17.86. The additional .96 acres could expand Deer Pointe Park consistent with the Parks and Trails Master Plan that was adopted in 1997.**

RESPONSE: As explained in detail above, the City cannot *require* dedication of 0.93 acres to add to Deer Pointe Park for the following reasons:

- The City’s Parks and Trail Master Plan is not incorporated into the City’s land use regulations as required by ORS 197.195, and is therefore inapplicable to the Application.
- The process by which the City can require parkland dedication as opposed to a fee-in-lieu is not clear and objective; therefore, the parkland dedication requirement cannot apply under ORS 197.307(4).
- Staff has made no attempt to demonstrate an essential nexus or rough proportionality of the parkland dedication requirement, as required by *Nollan* and *Dolan*.

Regardless, **Exhibit 1** demonstrates how the Applicant could provide the minimum required park area. Pursuant to ORS 197.522(3), if the Council nonetheless concludes that it is not barred from requiring the park dedication, it can impose a condition of approval requiring a park area as shown on **Exhibit 1** of this letter. The proposed park area consists of 1.08 acres, which exceeds the minimum parkland dedication amount by 14 percent. As explained above, there is no enforceable requirement that the park be dedicated to abut the existing Deer Pointe Park property.

**4. Response to Additional Staff Findings.**

Staff made some additional findings in its revised Staff Report which, while not stated as bases for denial, the Applicant responds to, below.

- A. The applicant proposes two cul-de-sacs but does not propose a pedestrian connection to streets beyond the cul-de-sacs as required by Section 17.84.30.**

RESPONSE: Staff’s conclusion in finding 64 is incorrect for the following reasons.

- SDC 17.84.30(B) is not clear and objective and therefore inapplicable under ORS 197.307(4), for the following reasons:
  - The phrase “safe and convenient pedestrian and bicyclist facilities that strive to minimize travel distance to the extent practicable shall” is ambiguous, subjective, and requires the use of discretion in its application.
  - The definition of “safe and convenient” in subsection (B)(1) does not make the phrase clear and objective because the definition itself relies on ambiguous

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and subjective terminology, including “reasonably free from hazards,” “interfere with or discourage travel for short trips,” “a direct route of travel between destination” and “meet the travel needs of pedestrians and bicyclists.” None of these phrases are capable of objective measurement.

- SDC 17.84.30 does not require pedestrian pathways to “streets beyond the cul-de-sacs.” Rather, it subjectively requires pedestrian and bicycle facilities “within and between new subdivisions, commercial developments, industrial areas, residential areas, public transit stops, school transit stops, and neighborhood activity centers such as schools and parks.” Staff’s conclusion is incorrect because “streets,” as a general matter, are not on this list.
- SDC 17.84.30(B)(2) does not expressly require pedestrian connections from cul-de-sacs; it only requires pedestrian connections to be a minimum of 15 feet wide where they are proposed.
- There is no specific requirement in the SDC for the Applicant to provide a pedestrian path directly from the cul-de-sacs to Highway 26 because the SDC does not specifically require pedestrian paths between cul-de-sacs and streets which do not abut cul-de-sacs.
- Even if this standard were clear and objective, the Council can find that it is met with the public pedestrian easements to the proposed parkland shown on **Exhibit 1**, which abuts Highway 26.

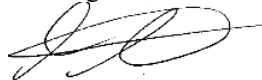
**B. The revisions do not include a revised street parking plan.**

RESPONSE: This is a submittal requirement, not a criterion. Staff has not argued that a lack of a revised street parking plan causes the Application to not comply with any applicable criterion or standard.

**5. Conclusion.**

For the above reasons, the City Council should grant this Appeal and approve the Application with a condition requiring the tentative subdivision plan to be consistent with **Exhibit 1**.

Best regards,



Garrett H. Stephenson

GST:jmhi  
Enclosures

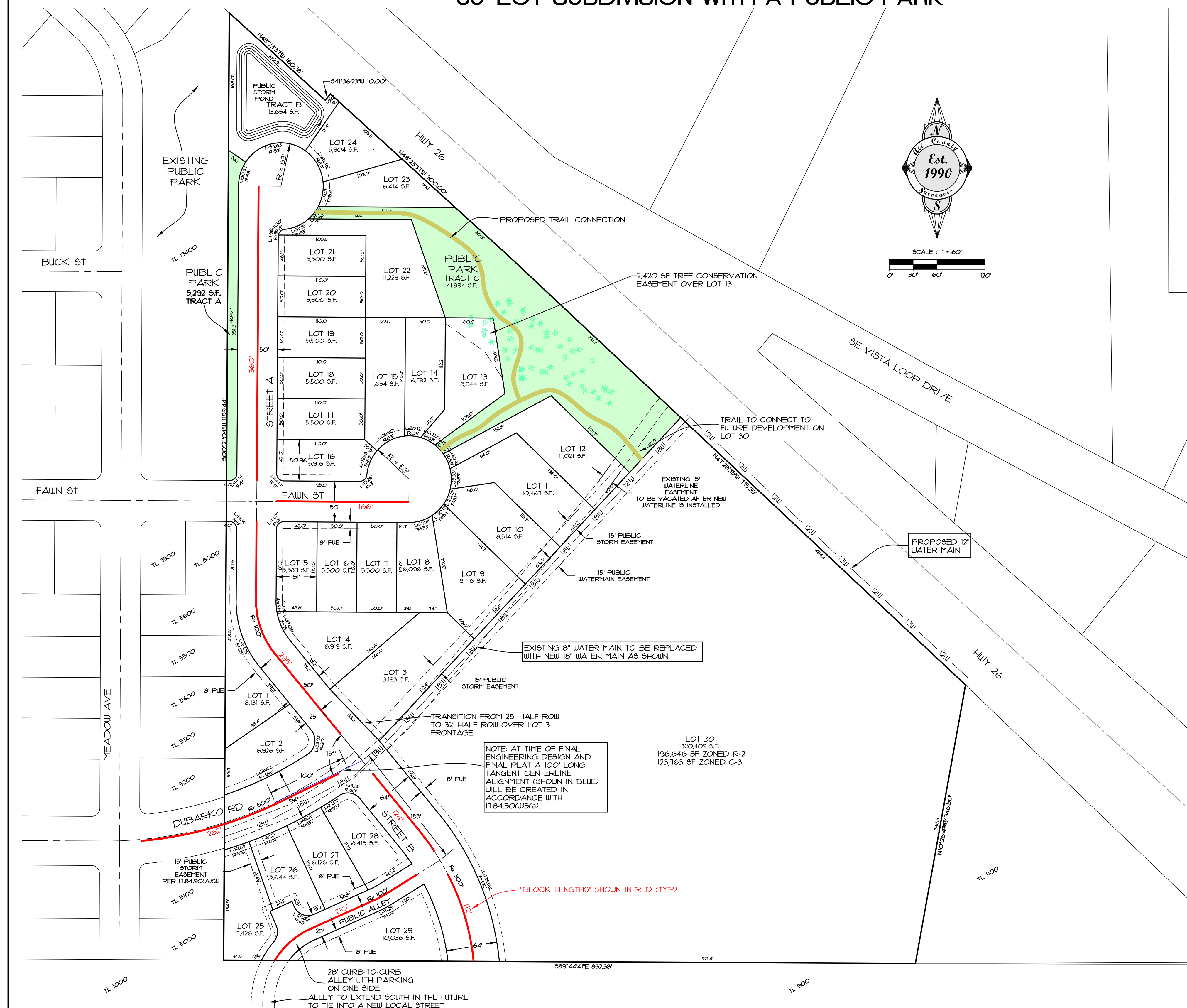
cc: Chris Crean (via email) (w/enclosures)

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Dave Vandehey (*via email*) (*w/enclosures*)  
Ray Moore (*via email*) (*w/enclosures*)  
Mike Ard (*via email*) (*w/enclosures*)  
Tracy Brown (*via email*) (*w/enclosures*)  
Tyler Henderson (*via email*) (*w/enclosures*)  
Alex Reverman (*via email*) (*w/enclosures*)  
Carey Sheldon (*via email*) (*w/enclosures*)

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# DEER MEADOWS 30-LOT SUBDIVISION WITH A PUBLIC PARK



**CLIENT**  
ROLL TIDE PROPERTIES CORPORATION  
PO BOX 103  
CORNELIUS, OR 97113

**SURVEYOR/ENGINEER**  
ALL COUNTY SURVEYORS & PLANNERS, INC.  
PO BOX 955  
SANDY, OR 97055

**PLANNER**  
TRACY BROWN PLANNING CONSULTANTS, LLC  
17075 FIR DR.  
SANDY, OR 97055

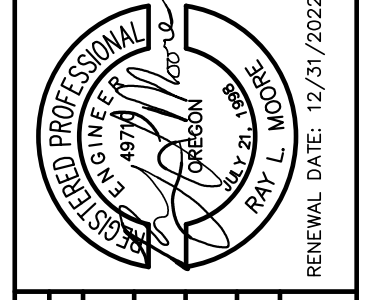
**LEGEND**

PARKLAND DEDICATION SHOWN AT 1/4-1 ACRE. MINIMUM REQUIRED AT TIME OF FINAL PLAT TO BE 0.93 ACRES (40,911 SF). ADJUSTMENTS TO LOT LINES WILL BE MADE AT TIME OF FINAL PLAT TO PROVIDE 0.93 ACRES OR MORE.

**NOTES**

- THIS IS NOT A BOUNDARY SURVEY. NO LIABILITY IS ASSUMED BY ALL COUNTY SURVEYORS AND PLANNERS FOR THE EXISTENCE OF ANY EASEMENTS, ENCUMBRANCES AND DISCREPANCIES IN BOUNDARY OR TITLE DEFECTS.
- LOT 30 TO BE DEVELOPED UNDER SEPARATE DESIGN REVIEW PROCESS AT FUTURE DATE.

BY	REVISION	SHEET
		<b>P1</b>
		OF 1
DATE	DESIGNED: CTH	
	DRAWN: CTH	
	CHECKED: RLM	
	APPROVED: RLM	



SCALE	VERT.	N/A	SECTION	1B
HORIZ.	1"=60'	DATE:	RANGE	5E
		3-1-22	TWP.	2S
		FILE: 19-035-PARK-PLD-11		

**DEER MEADOWS SUBDIVISION**  
**REVISED PLAT WITH**  
**PARKLAND DEDICATION**

40808 & 41010 HWY 26, SANDY, OR 97055

**Surveyors & Planners, Inc.**  
Surveying, Planning and  
Civil Engineering and  
P.L.L.C.  
P.O. Box 955 Sandy, OR 97055  
Phone: (503) 668-4730  
Fax: (503) 668-4730  
DATE OF PLOT: 4-13-22

CLIENT:  
ROLL TIDE PROPERTIES CORPORATION  
CORNELIUS, OR 97113

Exhibit 1





# City of Sandy Urbanization Study

Prepared by the City of Sandy  
Planning Department

## Final Report

January 2015

*Adopted: February 2015  
Ordinance 2015-01*

## How much buildable land does Sandy currently have?

The Sandy Urban Growth Boundary (UGB) currently contains about 2,110 acres of land (Table S-2). It is estimated that about 345 acres of this land contains development constraints resulting in about 1,765 net acres of buildable land.

**Table S-2. Total land, gross acres, Sandy UGB, 2014**

Zone	Tax Lots	Gross Acres	Constrained Acres	Net Acres	Percent of Total
LDR	1,891	844.7	194.0	650.7	36.9%
MDR	430	249.5	50.3	199.2	11.3%
HDR	564	177.0	27.0	150.0	8.5%
C	331	295.8	25.4	270.4	15.3%
I	68	220.1	29.2	191.0	10.8%
Village C	8	10.7	0.0	10.7	0.6%
Village LDR	583	256.3	17.1	239.2	13.5%
Village MDR	174	47.1	1.6	45.6	2.6%
Village HDR	134	8.9	0.4	8.5	0.5%
<b>Total</b>	<b>4,183</b>	<b>2,110.1</b>	<b>344.8</b>	<b>1,765.3</b>	<b>100.0%</b>

Source: City of Sandy

## How many dwelling units will Sandy have?

Sandy will need to provide about 3,180 dwelling units to accommodate growth between 2014 and 2034. Approximately 2,188 dwelling units (68.8 percent) will be single-family types, including single-family detached and attached dwellings, manufactured dwellings, row homes, and condos. Approximately 992 dwelling units (31.2 percent) will be multi-family housing. The density percentage for the residential plan designation is based on the existing land classification breakdown, with 68.8 percent designated Low Density Residential (LDR), 18.9 percent Medium Density Residential (MDR), and 12.3 percent High Density Residential (HDR). The proposed housing mix allows for up to 31.2 percent multi-family and a minimum of 68.8 percent single-family.

## How much land will be required for housing?

Table S-3 shows the forecast of needed acreage for the 3,180 dwelling units for the 2014 to 2034 period. Semi-public uses are projected to locate within land designated for residential uses. The results lead to the following findings:

- ≠ The current UGB has the capability of supplying 341.3 net acres for residential uses.
- ≠ 575.7 net acres are needed to accommodate projected housing needs for the planning period.

**Table S-3. Residential land needed for housing, Sandy UGB, 2014-2034**

Zones	Percent	Units Needed	Net Acres	ROW Acres	Gross Acres
LDR (SFR density)	52.4%	1,666	395.3	78.4	473.7
LDR (R-1 density)	16.4%	522	80.2	13.4	93.6
MDR	18.9%	601	60.9	10.7	71.6
HDR	12.3%	391	39.3	7.5	46.8
<b>Total</b>	<b>100.0%</b>	<b>3,180</b>	<b>575.7</b>	<b>110.0</b>	<b>685.7</b>

Source: City of Sandy

Table S-4 shows the residential land needed for the projected land capacity deficit. The results show the net and gross residential acres needed.

**Table S-4. Residential land needed for housing capacity deficit, Sandy UGB, 2014-2034**

Zone	Units Needed	Supply Units	Replacement Units	Unit Surplus (Deficit)	Net Acres	ROW Acres	Gross Acres
LDR (SFR density)	1,666	770	35	(931)	(211.6)	(42.3)	(253.9)
LDR (R-1 density)	522	421	23	(124)	(19.1)	(3.8)	(22.9)
MDR	601	579	19	(41)	(3.7)	(0.7)	(4.5)
HDR	391	632	32	209	13.9	---	13.9
I/C	---	34	34	---	---	---	---
<b>Total</b>	<b>3,180</b>	<b>2,436</b>	<b>143</b>				

Source: City of Sandy

## How many employees will Sandy have?

Employment forecasts indicate that Sandy will add 3,719 jobs between 2014 and 2034. About 2,789 employees (75 percent) will be retail/service, 558 employees (15 percent) will be industrial, and 372 employees (10 percent) will be government.

## How much land will be required for employment?

Table S-5 shows the forecast of needed net acres for employment growth and existing net acres for employment lands within the Sandy UGB for the 2014 to 2034 period. The results lead to the following findings:

- ≠ The Sandy UGB has the capability of supplying 241.1 net acres for employment uses. The growth industry breakdown is 132.0 net acres for retail/service, 91.5 net acres for industrial, and 17.6 net acres for government.
- ≠ The Sandy UGB needs 244.1 net acres to accommodate employment uses. The growth industry breakdown is 174.3 net acres for retail/service, 46.5 net acres for industrial, and 23.3 net acres for government.

## Dwelling unit and land deficiency, 2014 - 2034

Supply for needed dwelling units and needed land is based on comparing the existing land supply to the land demand for the planning period. The following sections step through that logic and describe the deficiency for dwelling units and land in the Sandy UGB.

### Existing dwelling unit capacity

The final step in the housing needs analysis is to allocate housing needs by plan designation to determine the number of needed housing units and gross acres required to meet identified housing needs for the 20-year period. It also provides an estimate of the net acres required in each zone to accommodate needed housing units. Table 3-18 shows net acres by Comprehensive Plan designation and by buildable lands classification.

**Table 3-18. Net acres by Comprehensive Plan designation and by buildable lands classification, Sandy UGB, March 2014**

Zone	Net Vacant Acres	Significant Redevelopment Acres	Moderate Redevelopment Acres	Total Net Acres
LDR	85.8	14.0	7.9	107.7
MDR	20.9	5.2	1.2	27.3
HDR	24.6	4.7	0.4	29.7
Village LDR	42.1	28.0	5.1	75.2
Village MDR	8.2	3.6	0.8	12.6
Village HDR	0.0	0.0	0.4	0.5
<b>Total</b>	<b>181.6</b>	<b>55.5</b>	<b>15.9</b>	<b>253.0</b>

Source: City of Sandy

Sandy will need to accommodate 3,180 dwelling units for the planning period. Table 3-18 shows that existing residential land within the UGB that is not platted or tentatively platted can supply 253.0 net acres. There is an additional 88.3 net acres of platted or tentatively platted land that is planned to accommodate an additional 621 dwelling units. Table 3-19 provides the total number of housing units that can be provided on the 341.3 acres of land, including 2,197 new dwelling units and 143 replacement dwelling units. As explained earlier in this chapter, approximately 109 replacement dwelling units are located on residential zoned land, while 34 replacement dwelling units are located on commercial and industrial zoned lands. Replacement units are not counted as fulfilling demand for residential dwelling units as they are assumed to replace existing dwellings at the same site, or in the case of commercial/industrial land in conjunction with adjacent residential development.

In addition, this analysis assumes that 34 additional dwelling units will be constructed in the mixed-use downtown Central Business District (C-1). The C-1 zoning district currently contains 10 mixed-use dwelling units and it is anticipated an additional 34 units will be constructed from 2014 to 2034 to offset the number of dwelling units removed from employment lands.

**Table 3-19. Dwelling units accommodated on residential lands, Sandy UGB, 2014-2034**

Zone	Platted/ Tentative Vacant	Platted/ Tentative Redevelop- ment	Vacant	Significant Redevelop- ment	Moderate Redevelop- ment	Total
LDR	143	50	378	62	35	668
MDR	56	0	230	57	13	356
HDR	102	29	368	70	6	575
Village LDR	82	25	206	174	32	519
Village MDR	84	0	90	40	9	223
Village HDR	50	0	0	1	6	57
<b>Total Dwellings</b>	<b>517</b>	<b>104</b>	<b>1,272</b>	<b>403</b>	<b>101</b>	<b>2,398</b>

Source: City of Sandy

**Dwelling Unit Calculations:**

- $2,255$  (new dwelling unit capacity) +  $143$  (replacement dwelling units) =  $2,398$  *dwelling unit capacity in residential land classifications*
- $2,398$  (dwelling unit capacity on residential land) –  $143$  (replacement dwelling units) +  $34$  (new C-1 mixed-use dwelling units) +  $4$  (vacant lots identified by Filter 2) =  $2,293$  *dwelling unit capacity in all land classifications*
- $3,180$  (needed dwelling units) –  $2,293$  (dwelling unit capacity in all land classifications) = *minimum of 887 additional dwelling units needed*

The 3,180 needed dwelling units require approximately 685.7 gross residential acres. The density percentage for the residential plan designation is based on the existing land classification breakdown, with 68.8 percent designated Low Density Residential (LDR), 18.9 percent Medium Density Residential (MDR), and 12.3 percent High Density Residential (HDR). This analysis combines non-Village and Village Plan Designations together as density requirements are the same.

**Table 3-20. Residential land needed for housing, Sandy UGB, 2014-2034**

Zones	Percent	Units Needed	Net Acres	ROW Acres	Gross Acres
LDR (SFR density)	52.4%	1,666	395.3	78.4	473.7
LDR (R-1 density)	16.4%	522	80.2	13.4	93.6
MDR	18.9%	601	60.9	10.7	71.6
HDR	12.3%	391	39.3	7.5	46.8
<b>Total</b>	<b>100.0%</b>	<b>3,180</b>	<b>575.7</b>	<b>110.0</b>	<b>685.7</b>

Source: City of Sandy

Table 3-21 details the amount of residential land needed to accommodate the identified housing capacity deficit. Table 3-21 includes the 143 replacement dwelling units that add to the deficit and the 34 mixed-use dwelling units in the C-1 zoning district that reduce the overall deficit, as explained above. Based on the housing mix of 68.8 percent single-family and 31.2 percent multi-family within the land classifications at the identified percentages, the deficit of 1,055 dwelling units in the LDR land classification, the deficit of 41 dwelling units in the MDR land classification, and the surplus of 209 dwelling units in the HDR land classification requires an additional 281.3 gross acres to accommodate residential land needs (Table 3-21). The acreage deficit is a portion of the required 685.7 acres identified in Table 3-20.

Based on the above analysis, the existing residential land within the UGB can only supply the needed land for 2,293 dwelling units. As detailed in Table 3-21, the dwelling unit shortage of 1,096 dwelling units need an additional 281.3 gross acres of land. Because land classifications are separate from one another the LDR and MDR lands require an additional 209 dwelling units above the minimum 887 additional dwelling units needed.

**Table 3-21. Residential land needed for housing capacity deficit, Sandy UGB, 2014-2034**

Zones	Units Needed	Supply Units*	Replacement Units	Unit Surplus (Deficit)	Net Acres	ROW Acres	Gross Acres
LDR (SFR density)	1,666	770	35	(931)	(211.6)	(42.3)	(253.9)
LDR (R-1 density)	522	421	23	(124)	(19.1)	(3.8)	(22.9)
MDR	601	579	19	(41)	(3.7)	(0.7)	(4.5)
HDR	391	632	32	209	13.9	---	13.9
I/C	---	34	34	---	---	---	---
<b>Total</b>	<b>3,180</b>	<b>2,436</b>	<b>143</b>				

Source: City of Sandy

Note: \*The supply units include the four dwelling units on vacant lots that were identified by Filter 2.

Based on the housing needs analysis, the following assumptions were made for housing by plan designation and type:

- 68.8 percent of housing will be single-family (including manufactured, condos and townhomes) and 31.2 percent multi-family. This proportion is consistent with the findings in this chapter.
- 52.4 percent of needed dwelling units will locate in the Single Family Residential zoning district within the LDR Plan Designation which allows single-family detached, single-family manufactured outright, and single-family attached or duplexes with an approved minor conditional use permit.
- 16.4 percent of needed dwelling units will locate in the Low Density Residential zoning district within the LDR Plan Designation which allows single-family detached, single-family attached, single-family manufactured (on individual lots and in manufactured home parks), row houses, and duplexes outright.
- 18.9 percent of needed dwelling units will locate in the Medium Density Residential Plan Designation which allows single-family detached, single-family attached, single-

family manufactured (on individual lots and in manufactured home parks), row houses, duplexes, and multi-family outright.

- 12.3 percent of needed dwelling units will locate in the High Density Residential Plan Designation which allows single-family detached (in conjunction with a planned development), single-family attached, manufactured home parks, row houses, duplexes, multi-family, boarding houses, and residential facilities.
- A portion of the land within the Urban Reserve Boundary has the Village designation. The Village designation allows all housing types allowed in the R-1, R-2, and R-3 zones, including single-family detached, single-family attached, row homes, manufactured homes in parks, duplexes, and multi-family dwellings. The percentage of land designated with the Village designation will be determined during the future UGB expansion process.

## Summary

The conclusions of the housing needs analysis for Sandy for the 2014 to 2034 planning period include the following:

- 3,180 new dwelling units will be needed for the planning period in a range of housing types including: single-family attached and detached, manufactured homes, duplexes, multi-family, and government assisted housing.
- Housing is needed to accommodate a range of income-levels, especially those types affordable to low-income households.
- The housing mix is 68.8 percent single-family (including manufactured, condos and townhomes) and 31.2 percent multi-family with 63.7 percent owner-occupied and 36.3 percent renter occupied.
- Housing development will result in an average density of 5.52 dwellings per net buildable acre.
- The safe harbor approach allows local government to estimate that the 20-year land needs for rights-of-way, schools, and park land will together require an additional amount of land equal to 25 percent of the net buildable acres for residential zoning designations.
- The existing UGB contains 341.3 net acres of residentially designated land.
- To accommodate projected housing for the planning period 575.7 net acres or 685.7 gross acres of residentially designated land are needed.
- The current Sandy UGB contains a gross acre deficit of 276.8 acres of low density residential land, a deficit of 4.5 acres of medium density residential land, and a surplus of 13.9 acres of high density residential land to accommodate housing and other public land needs for the 2014 to 2034 period.



City of Sandy  
39250 Pioneer Blvd.,  
Sandy, OR 97055

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**Meeting Date:** April 13, 2022  
**To:** Parks and Trails Advisory Board  
**From:** Rochelle Anderholm-Parsch, Parks and Recreation Director  
**Subject:** Revised code to Chapters 17.32 and 17.86

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**DECISION TO BE MADE:**

Understand the proposed code changes to Chapters 17.32 Parks and Open Space (POS), and 17.86 Parkland and Open Space of the Sandy Development Code and provide any final comments before the edits are brought to the Planning Commission on April 25, 2022.

**PURPOSE / OBJECTIVE:**

Support the revised code as presented in order to facilitate successful implementation of the Parks and Trails Master Plan.

**BACKGROUND / CONTEXT:**

In conjunction with the adoption of the new Parks and Trails Master Plan, the City is revising two municipal code chapters that regulate parkland and open space development. The two development code chapters that are proposed to be modified are Chapter 17.32, Parks and Open Space (POS) and Chapter 17.86, Parkland and Open Space.

The code modifications will remove antiquated requirements, add 21st century industry terminology and best practices, solidify clear and objective code requirements, and incorporate recommendations from the new Parks and Trails Master Plan.

Staff met all noticing requirements by sending a post-acknowledgement plan amendment (PAPA) to DLCD on March 21, 2022, and by publishing a legal notice in the Sandy Post.

In addition, the code amendments include grammatical edits as well as the incorporation of gender-neutral terminology, as requested by the Planning Commission.

The following is a list of some of the most significant changes\*:

Chapter 17.32<sup>1</sup>

1. Removed the references to public and private ownership in the intent statement as there is no need to distinguish between public and private parks and open space, or those that are “designated or proposed.” Our legal counsel has informed staff that this is uncommon in

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<sup>1</sup> \*Full revised code edits are located in the attachments.



an 'intent' statement, and it is enough to say that the chapter is intended to provide for parks and open space.

2. Added an applicability section.
3. Added additional clarity to the primary permitted uses and accessory permitted uses.

Chapter 17.86<sup>2</sup>

1. Added clarity to Section 17.86.10 to expressly incorporate the 2022 Amended Parks and Trails Master Plan by reference for limited land use decisions.
2. Increased the ratio to 0.0068 of an acre of parkland per person as recommended by ESA.
3. Added section 17.86.10 (C) specifies when an applicant shall pay a fee in lieu as it relates to the size of dedicated land.
4. Added additional clear and objective requirements for minimum parkland development standards in Section 17.86.20.
5. Removed the diagram in Section 17.86.20 as it was not clear and objective. It also set burdensome precedent by requiring streets around all sides of parks which is expensive to construct as the Parks SDC account has to pay for half street improvements along parkland.
6. Modified Section 17.86.30 to make the dedication process clear and objective and to better define the environmental testing requirements.
7. Added additional clear and objective requirements for fee in lieu of dedication in Section 17.86.40, including a level of service reference and stated that the City of Sandy does not want parkland less than one-quarter of an acre unless for trail needs.

Previous meetings and discussions include the following. The Planning Commission held two hearings (August 23, 2021 and September 27, 2021) to discuss the code amendments. The Parks and Trails Advisory Board held a meeting on October 6, 2021 to discuss the amendments. A memo dated October 7, 2021 that includes the Parks Board comments is attached. Staff has worked closely with the Parks and Trails Master Plan consultant, Environmental Science Associates (ESA), the city attorney's office, the Parks and Trails Advisory Board Chair, and former Parks and Trails Advisory Board Chair / current City Councilor on the proposed amendments.

**RECOMMENDATION:**

Staff recommends the Parks and Trails Advisory Board review the proposed code amendments and make a recommendation to the Planning Commission.

**BUDGETARY IMPACT:**

1. Likely a cost savings for Parks SDCs with removal of the requirement to require streets around all sides of parks.
2. Likely additional parkland dedication or fee in lieu of land will be collected as the acre of parkland per person is proposed to increase.
3. Likely a reduction in legal costs by having an updated municipal code that is easier for staff to enforce.

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<sup>2</sup> \*Full revised code edits are located in the attachments.

**SUGGESTED MOTION LANGUAGE:**

I move that the Parks and Trails Advisory Board forward a recommendation of approval to the Planning Commission on the proposed code modifications to Chapters 17.32 and 17.86 of the Sandy Development Code.

**LIST OF ATTACHMENTS / EXHIBITS:**

- Chapter 17.32 - Edits for 21-032 DCA revised for April 13 Parks Board
- Chapter 17.86 - Edits for 21-032 DCA revised for April 13 Parks Board
- Memo from Sarah Richardson on behalf of the Parks and Trails Advisory Board

**STAFF CONTACT:**

Kelly O'Neill Jr.  
Development Services Director  
503-489-2160  
[koniel@ci.sandy.or.us](mailto:koniel@ci.sandy.or.us)

Rochelle Anderholm-Parsch  
Parks and Recreation Director  
503-489-2157  
[randholmparsch@cityofsandy.com](mailto:randholmparsch@cityofsandy.com)

## CHAPTER 17.32 PARKS AND OPEN SPACE (POS)<sup>1</sup>

### Sec. 17.32.00. Intent.

This ~~district~~ chapter is intended to ~~provide for~~ recognize those publicly owned lands designated or proposed for parks and open spaces. Parks include ~~publicly developed parks, and undeveloped park land~~ open space, and natural areas where typical uses include both active and passive outdoor recreation activities, trails, open space, cultural activities, park buildings and structures, concessions, general park operations and maintenance, and storm drainage facilities. Open space includes ~~publicly developed and undeveloped lands and sensitive natural areas where uses include passive recreation activities such as trails, interpretive displays, viewpoints, picnic and seating areas, as well as environmentally sensitive areas such as wildlife habitats, wetlands, riparian corridors, steep slopes, forested areas, and stream corridors, and areas that support unique and/or endangered plant and animal species.~~

### Sec. 17.32.10. Applicability

This chapter applies to all land designated or proposed for parks and open spaces. Where land is subject to a specific park master plan, such as Bornstedt Park or Sandy River Park, compliance with the specific master plan is required.

### Sec. 17.32.1020. Permitted uses.

#### A. Primary Uses Permitted Outright:

1. Parks, natural areas and open space, and special use areas ~~improvements identified in Map 5 Existing Park Inventory, Map 8 Proposed Park System, Table 12 Tier 1 Capital Improvement Plan, or Table A-3 Proposed Park Capital Improvement Plan of the 2022 Parks and Trails Master Plan; or Park Specific Master Plans adopted by the City Council.~~
2. Trails identified in Map 6 Existing Trail Inventory, Map 14 Proposed Trail System, Table 12 Tier 1 Capital Improvement Plan, or Table A-4 Proposed Trail Capital Improvement Plan; in otherwise undeveloped open space.
3. Other uses similar in nature as listed in the 2022 Parks and Trails Master Plan.

#### B. Accessory Uses Permitted Outright:

1. Accessory structures, detached or attached~~;~~
2. Educational activities in accordance with the primary purposes of the zone~~;~~
3. Interpretive displays~~;~~

#### 4. Skate parks;

<sup>1</sup>Editor's note(s)—Pre-republication, this chapter was last revised by Ord. No. 2013-11, effective December 18, 2013. Any amendments occurring post-republication have a history note in parenthesis at the bottom of the amended section.

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- 5. Splash pads;
- 6. Community gardens;
- 7. Disc golf courses;
- 8. Pump tracks;
- 9. Climbing walls;
- 10. Off-leash dog parks;
- 11. Sports fields and courts;
- 411. Park furnishings, including arbors, barbeques, benches, bicycle racks, drinking fountains, gazebos, kiosks, picnic tables, play equipment and signage--;
- 512. Public driveways and parking areas for uses permitted in this zone--;
- 613. Public restroom facilities--;
- 14. Other uses similar in nature as listed in the 2022 Parks and Trails Master Plan.

**Sec. 17.32.~~20~~30. Minor conditional uses and conditional uses.**

- A. *Minor Conditional Uses:* None
- B. *Conditional Uses:*
  - 1. Campgrounds;
  - 2. Swimming pools and aquatic facilities;
  - 3. Community centers;
  - 43. Other uses similar in nature.

**Sec. 17.32.~~30~~40. Sandy River Park.**

The above uses are inapplicable to the Sandy River Park property owned by the City of Sandy. This section contains requirements specific to Sandy River Park. Development of the Sandy River Park is guided by and limited to the uses identified in the Sandy River Park Master Plan dated June 3, 2010, and any future Sandy River Park Master Plan amendments adopted by the City Council. The primary uses specified in the plan include hiking, nature study, and habitat restoration and the construction of a trail system to facilitate this ~~these~~ uses. Accessory structures identified in the plan include installation of interpretative signage, benches, picnic tables, restroom facilities, and limited parking.

**Sec. 17.32.~~40~~50. Development standards.**

Parks and Open Space	
Lot Area	No minimum
Lot Dimension	No minimum
Setbacks	No minimum or maximum
Lot Coverage	No maximum
Structure Height	35 ft. maximum
Off-Street Parking	See Chapter 17.98
Design Review Standards	See Section 17.90.120

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(Supp. No. 1, Update 2)

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**Sec. 17.32.5060. Additional requirements.**

- A. ~~Where applicable, p~~ Park improvements shall comply with ~~city design standards,~~ [Chapter 17.90 Design Standards](#).
- B. Provisions for pedestrian and vehicular off-street access ~~to adjoining properties~~ shall be included in [individual](#) park [specific](#) master plans.

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(Supp. No. 1, Update 2)

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## CHAPTER 17.86 PARKLAND AND OPEN SPACE<sup>1</sup>

### Sec. 17.86.00. Intent.

The availability of parkland and open space is a critical element in maintaining and improving the quality of life in Sandy. Land that features trees, grass and vegetation provides not only an aesthetically pleasing landscape but also buffers incompatible uses, and preserves sensitive environmental features and important resources. Parks and open space, together with support facilities, also help to meet the active and passive recreational needs of the population of Sandy residents. This chapter implements policies of Goal 5 and Goal 8 of the Comprehensive Plan and the 2022 Parks and Trails Master Plan by outlining provisions for parks and open space in the City of Sandy.

### Sec. 17.86.10. Minimum parkland dedication requirements.

Parkland Dedication: ~~New residential subdivisions, planned developments, Residential subdivisions and partitions, single-family or multi-family developments, or~~ manufactured home park developments shall be required to provide parkland to serve ~~existing and future~~ residents of those developments. ~~Congregate~~ multi-family ~~housing~~ developments which ~~that~~ provides some "congregate" services and/or facilities, ~~such as group transportation, dining halls, emergency monitoring systems, etc., but which have individual dwelling units rather than sleeping quarters only, as defined in Chapter 17.10 of the City's Municipal Code,~~ are considered to be multi-family developments for the purpose of parkland dedication. Licensed adult congregate ~~care~~ living facilities, nursing homes, and all other ~~similar residential care~~ facilities which ~~that~~ provide ~~their~~ clients with individual beds and sleeping quarters, but in which all other care and services are communal and provided by facility employees, are ~~specifically~~ exempt from parkland dedication, ~~and system development fee requirements. The dedication or provision of parks, open space, trails, and amenities shall comply with the 2022 Parks and Trails Master Plan, dedicated pursuant to the formula in Section 17.86.10 (B), and in compliance with the improvement standards in Section 17.86.20. The level of service standards as well as the park and trail level of service needs as identified in Chapter 4, Table 10, of the 2022 Parks and Trails Master Plan are specifically incorporated by this reference.~~

- A. The required parkland shall be dedicated as a condition of approval for the following:
1. ~~Single-family and duplex building permits;~~
  2. Tentative plat for a subdivision or partition;
  2. ~~Planned Development conceptual or detailed development plan;~~
  3. Design review for a multi-family development or manufactured home park; and
  4. Replat or amendment of any site plan for multi-family development or manufactured home park where dedication has not previously been made or where the density of the development involved will be increased.
- B. Calculation of Required Dedication: The required parkland acreage to be dedicated ~~is~~ shall be based on ~~a calculation of~~ the following formula:

<sup>1</sup>Editor's note(s)—Pre-republication, this chapter was last revised by Ord. No. 2013-03, effective July 3, 2013. Any amendments occurring post-republication have a history note in parenthesis at the bottom of the amended section.

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Required parkland dedication (acres) = (proposed dwelling units) x (persons/dwelling unit) x 0.00430.0068 (per person park land dedication factor)

1. Population Formula: The following table shall be used to determine the number of persons per unit to be used in calculating required parkland dedication:

Type of Unit	Total Persons Per Dwelling Unit
Single family dwelling unit	3.0
Duplex dwelling unit	3.0*
Standard multi-family unit	2.0
Manufactured dwelling unit	2.0
Congregate multi-family unit	1.5

\* The total persons per unit for the entire duplex (both units) would be six.

~~Persons per unit, age distribution, and local conditions change with time.~~ The specific formula for the dedication of land will, therefore, be subject to periodic review and amendment. ~~The A~~ fee-in-lieu under Section 17.86.40 shall be based on the number and type of dwelling units proposed at time of plat, but an additional fee in-lieu will be necessary required and calculated on a per lot basis if any lots are constructed or converted to add additional dwelling units. For example, if an existing single family dwelling unit is converted into a duplex dwelling unit the existing single family ~~home dwelling unit~~ shall receive a credit, but the new dwelling unit shall pay the difference in persons per dwelling unit. This would equate to one proposed dwelling unit multiplied by three additional persons multiplied by 0.00430.0068 for the above example.

2. Per Person Parkland Dedication Factor: The total parkland dedication requirement shall be 0.00430.0068 of an acre per person based on the adopted standard of 4.36.8 acres of land per 1,000 of ~~ultimate~~ population per the 2022 Parks and Trails Master Plan.<sup>2</sup> This standard represents the citywide land-to-population ratio for city parks at 5.25 acres of land per 1,000 of population, and land for trails at 1.55 acres of land per 1,000 of population, and may be adjusted periodically through amendments to the Parks Master Plan.

(Ord. No. 2021-03 , § 8(Exh. H), 5-17-2021)

C. Notwithstanding Section 17.86.10 (A) above, when the amount of land to be dedicated is less than one quarter acre, or the level of service standards for mini parks in the 2022 Parks and Trails Master Plan have been met for the subject site, the applicant shall pay a fee in lieu of dedication as provided in Section 17.86.40 (B), with the following exceptions:

1. When the land to be dedicated is for a trail identified in Map 14 Proposed Trail System, Table 12 Tier 1 Capital Improvement Plan, or Table A-4 Proposed Trail Capital Improvement Plan of the 2022 Parks and Trails Master Plan;
2. When the land to be dedicated abuts existing or planned parkland that necessitates additional acreage to meet the identified parkland acreage needs as identified in Map 8 Proposed Park

<sup>2</sup>Editor's note(s)—~~Parks Master Plan, Implementation Plan section, Pages 4 and 5 indicate a required park acreage total of 64.5 acres. This number, divided by population (2015) of 15,000 equates to 4.3 acres per 1000 population or 0.0043 per person.~~ 2022 Parks and Trails Master Plan, Section 4.2, Park and Trail Needs, Table 10 (Park and Trail Needs Analysis).

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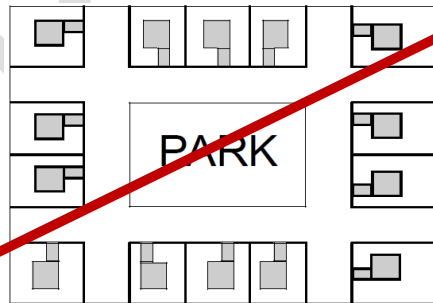
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System, Table 12 Tier 1 Capital Improvement Plan, or Table A-3 Proposed Park Capital Improvement Plan of the 2022 Parks and Trails Master Plan.

**Sec. 17.86.20. Minimum parkland standards.**

Land required or proposed for parkland dedication shall be contained within a continuous unit and ~~must shall be suitable for active~~ accommodate use as a ~~mini\_~~ neighborhood, or ~~mini\_~~ community-park, as defined in the 2022 Parks and Trails Master Plan, based on the following criteria:

- A. ~~Homes must~~ The primary entrance of single-family homes and duplexes front shall face towards parkland when separated by street right-of-way, on the parkland as shown in the example below: Residential through lots or corner lots that abut more than one street with one of the streets defined as an arterial or collector street shall have the front door face the arterial or collector street as defined by Chapter 17.82.
- B. On the sides of the parkland not fronting onto a street, a pedestrian and bicycle access way shall be provided with a minimum improved surface of ten feet within a 15-foot right-of-way or tract. If the parkland abuts land to be developed for multi-family development or a manufactured home park the multi-family development or manufactured home park shall include a pedestrian and bicycle access way in a public easement from any abutting street right-of-way through the property with multi-family development or a manufactured home park to the parkland.
- C. In all zones where property abuts parkland, a fence no higher than six feet shall separate the use from the parkland. Barbed wire is not permitted on fences abutting parks.
- D. ~~Any~~ retaining wall constructed at the perimeter of ~~the a~~ park adjacent to a public right-of-way or private street shall not exceed four (4) feet in height.
- E. The required parkland dedication for parks one acre or greater shall be abutted by street right-of-way for at least 400 linear feet, with the following exceptions for trails and parks less than one acre:
  - 1. Land dedicated for trails as identified in the 2022 Parks and Trails Master Plan only need to abut street right-of-way for a total of 15 linear feet.
  - 2. If the land dedication is between half-acre and one-acre the parkland shall be abutted by street right-of-way for at least 200 linear feet.
  - 3. If the land dedication is less than half-acre the parkland shall be abutted by street right-of-way for at least 100 linear feet.



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~~BE.~~ The required dedication shall be contained as a contiguous unit and not separated into pieces or divided by ~~roadways, streets or other pedestrian barriers.~~

~~CG.~~ The parkland ~~must shall be able to accommodate provide for park facilities, such as~~ play structures ~~and~~ play fields, ~~picnic areas, or other active park use facilities, as described in the 2022 Parks and Trails Master Plan, subject to the following standards:~~ The average slope of the active use parkland shall not exceed 15 percent.

~~1. Neighborhood Parks or Community Parks: Not more than 20 percent of the park may exceed 15 percent slope. Zero percent of the park shall include wetlands.~~

~~1-2. Mini Parks: Not more than 10 percent of the park may exceed 15 percent slope. Zero percent of the park shall include wetlands.~~

~~E. Once dedicated, the City will assume maintenance responsibility for the neighborhood or mini-parkland.~~

### **Sec. 17.86.30. Dedication procedures.**

~~Land dedicated to the City as parkland shall be dedicated on the final plat, or by recording a deed, easement, or other appropriate document when there is not a plat. Prior to approval of the final plat, the developer shall dedicate the land as previously determined by the City in conjunction with approval of the tentative plat.~~  
Dedication of land in conjunction with multi-family development shall be required prior to issuance of building permits, ~~and commencement of construction.~~

A. Prior to ~~acceptance of required parkland dedication;~~ final plat approval, the applicant/~~developer~~ shall complete the following items for all proposed dedication areas:

1. The ~~developer applicant~~ shall clear, fill, and/or grade all land ~~to the satisfaction of the City in accordance with the approved grading plan,~~ install curb, gutter, and sidewalks in accordance with the Transportation System Plan on the park land adjacent to any street, and seed the park-land; and,
2. The ~~developer applicant~~ shall submit a Phase I Environmental Site Assessment of the parkland to the City, completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a clean environmental record prior to dedication.

a. In the event that the Phase 1 Environmental Site Assessment detects the potential for contaminated soil, the applicant shall perform further assessment, testing and sampling as needed to determine the type and extent of contamination present, and potential remediation steps needed.

b. If contaminated conditions are present the applicant shall either remediate the condition and submit a report to the City documenting the procedures and final soil conditions or select other property for the parkland dedication.

B. Additional Requirements.

1. ~~In addition to a formal dedication on the plat to be recorded, the subdivider shall convey the required lands to the city by general warranty deed. The developer of a multi-family development or manufactured home park shall deed the lands required to be dedicated by a general warranty deed. In any of the above situations, the land so Land dedicated and deeded or restricted for use as parkland shall not be subject to any other easements, reservations of record, or encumbrances of any kind or easements which, in the opinion of the Director, will that~~ interfere with the use of the land for park, open space, or recreational purposes.

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~~The subdivider or developer shall be required to present to the City a title insurance policy on the subject property ensuring the marketable state of the title.~~

2. Where ~~any~~ reservations, encumbrance~~s~~ or easement~~s~~ exists, the ~~applicant may propose an alternative lot or parcel for parkland dedication or the~~ City may require payment in lieu of the dedication of lands, ~~unless it chooses to accept the land subject to encumbrances.~~

~~C.3. Phased Developments. In a phased development, the required park land for the entire development shall be dedicated prior to approval of the on the final plat for the first phase of the development. Improvements to the land as required by Section 17.86.30.A.1. shall be made completed or bonded per the standards in Chapter 17.100 prior to approval of the final plat for the phase that includes the park-land.~~

**Sec. 17.86.40. ~~Cash~~ Fee in lieu of dedication.**

~~At the city's discretion only, the city may accept payment of a fee in lieu of land dedication. The city may require payment in lieu of land when the park land to be dedicated is less than three acres. A payment in lieu of land dedication is separate from Park Systems Development Charges (SDCs), and is not eligible for a credit of Park Systems Development Charges SDCs. The amount of the fee in lieu of land dedication (in dollars per acre) shall be set by City Council Resolution based on relevant economic indices, and it shall be based on the typical market value of developed property (finished lots) in Sandy net of related development costs.~~

~~A. The following factors shall be used in the choice of whether to accept land or cash in lieu:~~

- ~~1. The topography, geology, access to, parcel size, and location of land in the development available for dedication;~~
- ~~2. Potential adverse/beneficial effects on environmentally sensitive areas;~~
- ~~3. Compatibility with the Parks Master Plan, Public Facilities element of the Comprehensive Plan, and the City of Sandy Capital Improvements Program in effect at the time of dedication;~~
- ~~4. Availability of previously acquired property; and~~
- ~~5. The feasibility of dedication.~~

~~A. The City shall accept a fee in lieu of dedication from an applicant if the land area proposed to be dedicated is not identified in Map 14 Proposed Trail System, Table 12 Tier 1 Capital Improvement Plan, or Table A-4 Proposed Trail Capital Improvement Plan of the 2022 Parks and Trails Master Plan or is not in compliance with the improvement standards in Section 17.86.20.~~

~~B. The City shall accept a fee in lieu of dedication from an applicant if the land area proposed to be dedicated is not identified in Map 8 Proposed Park System, Table 12 Tier 1 Capital Improvement Plan, or Table A-3 Proposed Park Capital Improvement Plan of the 2022 Parks and Trails Master Plan or is not in compliance with the improvement standards in Section 17.86.20.~~

~~C. The City shall accept a fee in lieu of dedication from an applicant if the park area to be dedicated is less than one-quarter acre, or the level of service standard for mini parks described in the 2022 Parks and Trails Master Plan has been satisfied, with the following exceptions:~~

- ~~1. When the land to be dedicated is for a trail identified in Map 14 Proposed Trail System, Table 12 Tier 1 Capital Improvement Plan, or Table A-4 Proposed Trail Capital Improvement Plan of the 2022 Parks and Trails Master Plan;~~

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2. ~~When the land to be dedicated abuts existing or planned parkland that necessitates additional acreage to meet the identified parkland acreage needs as identified in Map 8 Proposed Park System, Table 12 Tier 1 Capital Improvement Plan, or Table A-3 Proposed Park Capital Improvement Plan of the 2022 Parks and Trails Master Plan.~~

~~B.D. Cash.~~ The fee in lieu of parkland dedication ~~for a residential subdivision~~ shall be paid prior to approval of the final plat or as specified below:

1. Fifty ~~(50)~~ percent of the payment shall be paid prior to final plat approval, and
2. The remaining 50 percent of the payment, ~~plus an administrative surcharge specified by City Council resolution, shall be~~ pro-rated equally among the lots ~~and paid at the time of building permit issuance for each lot.~~ ~~plus an administrative surcharge as determined by the City Council through a resolution, will constitute a lien against the property payable at the time of sale.~~

~~E. The fee in lieu of dedication for a single-family dwelling, duplex, or multi-family dwelling not in conjunction with a residential subdivision shall be paid at the time of building permit issuance for the subject lot or parcel.~~

#### Sec. 17.86.50. Minimum standards for open space dedication.

~~The applicant through~~ An application for a subdivision, ~~partition, replat~~ or design review ~~process~~ may propose the ~~designation-dedication~~ and protection of open space areas as part of that process. ~~This~~ However, this open space ~~will shall not be eligible to~~ however, be counted toward the parkland dedication requirement of Sections 17.86.10 through 17.86.40.

- A. The types of open space that may be provided are ~~as follows~~:
1. *Natural Areas*: areas of undisturbed vegetation, steep slopes, stream corridors, wetlands, wildlife habitat areas, ~~riparian corridors~~, or areas replanted with native vegetation after construction.
  2. *Greenways*: linear ~~green belts~~ areas linking residential areas with ~~other~~ open space areas. These greenways may contain bicycle paths or footpaths. Connecting greenways between residences and recreational areas ~~are is~~ encouraged.
- B. A subdivision, ~~partition, replat~~, or design review application proposing designation of open space shall include the following information as part of ~~this the~~ application:
1. Designate the boundaries of all open space areas; and
  2. Specify the manner in which the open space shall be ~~perpetuated~~ ~~downed~~, maintained, and administered; and
  3. Provide for public access to trails included in the ~~2022 Parks and Trails~~ Master Plan, including but not limited to the Tickle Creek ~~Path~~ Trail.
- C. Dedication of open space may occur concurrently with development of ~~the a~~ project. ~~At the discretion of the city~~ For ~~phased~~ development ~~that will be phased~~, the open space may be set aside in totality and/or dedicated in conjunction with the first phase of the development or incrementally set aside and dedicated in proportion to the development occurring in each phase.
- D. Open space areas shall be maintained so that the use and enjoyment thereof ~~is not diminished or destroyed~~ remain safe, healthy, and functional. Open space areas may be owned, preserved, and maintained by any of the following mechanisms or combinations thereof:
1. Dedication to the City of Sandy or ~~an appropriate~~ another public agency, ~~approved by the City~~, if there is a public agency willing to accept the dedication. Prior to acceptance of proposed open

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space, the City ~~may shall~~ require the ~~developer applicant~~ to submit a Phase I Environmental Site Assessment ~~of the open space area~~ completed by a qualified professional according to American Society of Testing and Materials (ASTM) standards (ASTM E 1527). The results of this study shall indicate a clean environmental record prior to dedication.

a. In the event that the Phase 1 Environmental Site Assessment detects the potential for contaminated soil, the applicant shall perform further assessment, testing and sampling as needed to determine the type and extent of contamination present, and potential remediation steps needed.

b. If contaminated conditions are present the applicant shall either remediate the condition and submit a report to the City documenting the procedures and final soil conditions or, select another area for parkland dedication.

2. Common ownership by a homeowner's association that assumes full responsibility for its maintenance;
  3. Dedication of development rights to ~~an appropriate~~another public agency with ownership remaining with the developer or homeowner's association. Maintenance responsibility will remain with the property owner; and/or
  4. Deed-restricted private ownership preventing development and/or subsequent ~~subdivision-land division~~ and providing for ongoing maintenance responsibilities.
- E. In the event that ~~any private~~an owner of private open space fails to maintain it according to the standards of this Code, the City of Sandy, following reasonable notice, may demand that the deficiency of maintenance be corrected, and may enter the open space for maintenance purposes. All costs thereby incurred by the City shall be charged to those persons having the primary responsibility for maintenance of the open space. The City shall enforce the maintenance requirement, pursuant to Sandy Municipal Code Sections 1.18 or 8.16.

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Staff Report  
City of Sandy  
39250 Pioneer Blvd.,  
Sandy, OR 97055

To: City Council

Date: October 7, 2021

From: Sarah Richardson, Staff Liaison Parks and Trails Advisory Board

Subject: Municipal Code Chapters 17.32, 17.86

Attachments: None

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I am sending this communication on behalf of the Sandy Parks and Trails Advisory Board at their direction.

The Parks and Trails board is grateful to have the opportunity to review for clarification and provide input on this important effort. The Board recognizes the hard work and diligence of Development Services Director Kelly O'Neill, the City Attorney and others who have been dedicated to reaching this point in the process

At our meeting on October 6, 2021 the board looked closely at the proposed changes and obtained clarification on several areas of the code.

We understand that the Council will be taking up discussion on this topic and wanted to register our specific code recommendations as well as general input from discussions generated during the meeting.

Recommendations and input include the following:

**1. Sec. 17.86.20. Minimum parkland standards.**

The board asks that this section clearly state that wetlands cannot be dedicated. The wording seems unclear and the board requests that it be looked at closely for clarification and legal interpretation. The city would still maintain the flexibility to accept wetlands, but it is important that it is at the city's discretion and not something that can be dedicated outright by the landowner/developer.

**1. Neighborhood Parks or Community Parks: Not more than 25 percent of the park may exceed 15 percent slope or contain wetlands.**

**~~2.~~ Mini Parks: Not more than 10 percent of the park may exceed 15 percent slope or contain wetlands.**

**2. Trails.**

The board requests that the code clearly states in applicable sections that it includes trails. It is understood that the code intends to address trails, but the board wants to be sure it is clear in legal terms.

**3. Sec. 17.86.40. Fee in Lieu of Dedication**

The board understands that with the 2021 Parks and Trails Master Plan expressly incorporated into the code that the city will be in a stronger position to enforce their ability to require Land Dedication and only accept a Fee in Lieu at the city's discretion.

**4. Land Acquisition/Land Bank**

The board notes that the city has a surplus of Mini Parks and a deficit in Neighborhood Parks. The land for Bornstedt Park was purchased by the city, and the city may need to consider purchasing more land in the future to meet the need for the larger parks. Acquiring the needed land from developers is challenging when the developments in an area with a park deficit are often small and involve more than one developer/landowner which can make it difficult to acquire enough contiguous parcels. Another possibility is a combination of city purchased and land dedication. A planned neighborhood approach might also be worth exploring. Land dedication has been very successful in building Sandy's current Parks and Trails system. As the city grows, the Board is concerned the future may require considering additional approaches.

**5. 17.32.40. Permitted Uses**

The board would recommend that sports fields and all the amenities that go along with a sports complex are included within this section. The board would like to see this added as both a primary and accessory use to be sure all the "bases" are covered. The board would like to reserve the opportunity to build a dedicated sports complex, while at the same time leave open the opportunity to add a field to a multi-purpose park.

Recommend that a Community Center building be added as a conditional use.

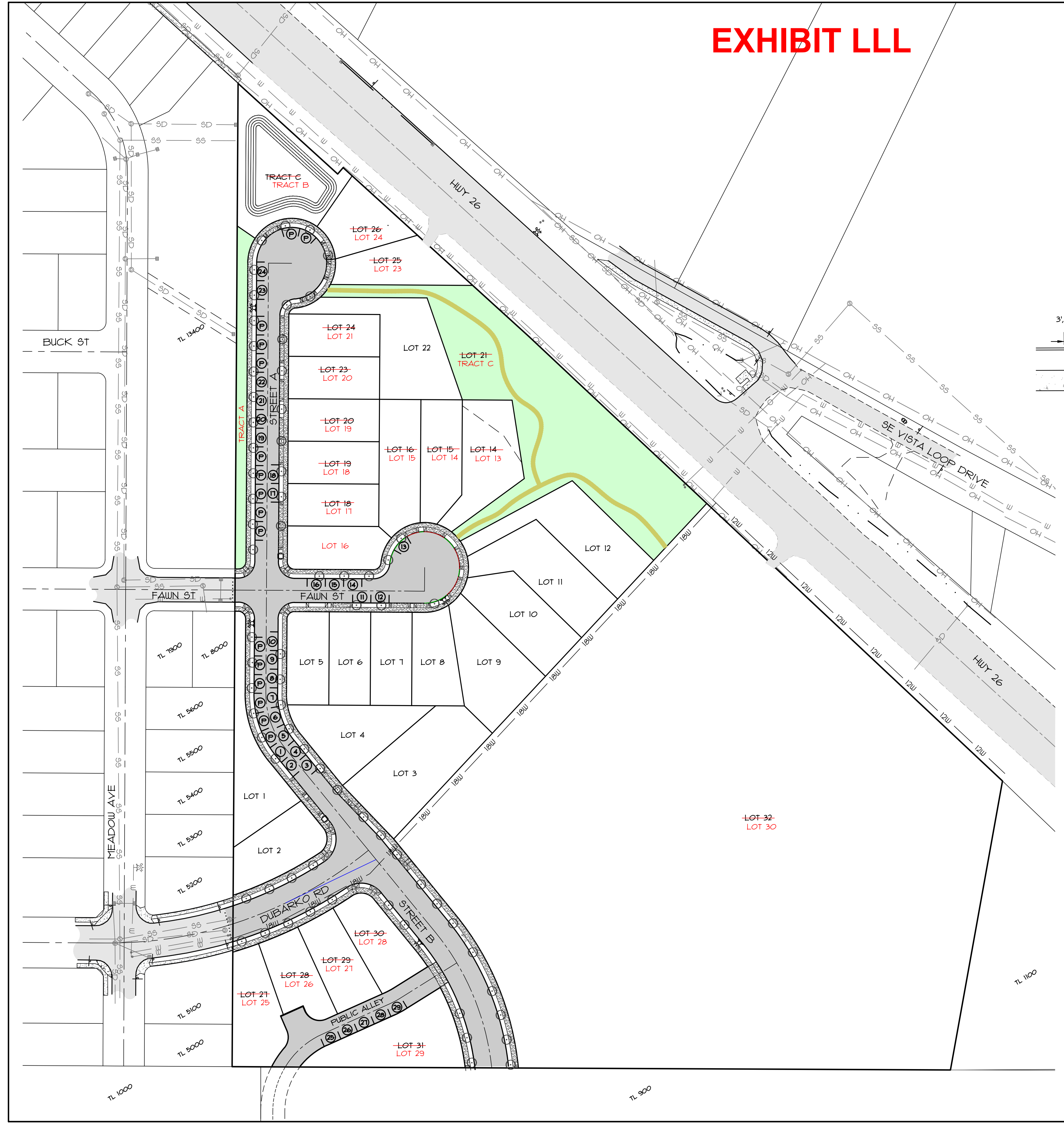
The board appreciates the Development Services Director taking the time to meet with the board to clarify sections of the code and to answer the board's questions. This effort has benefitted from the input of many and collating all the edits has required a great deal of time from Development Services, ESA and the City Attorney. The outcome will provide the city a stronger position to realize the vision of the 2021 Parks and Trails Master Plan and that is very exciting going forward.

**Staff Contact:**

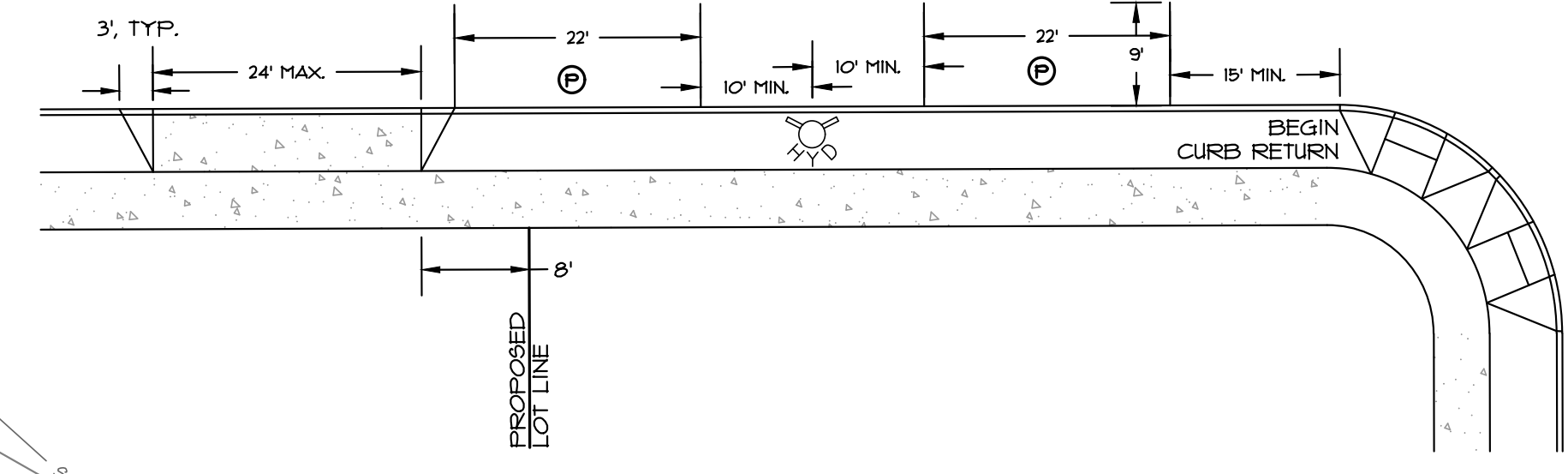
Sarah Richardson  
503-489-2150  
srichardson@cityofsandy.com



# EXHIBIT LLL



### TYPICAL ON-STREET PARKING REQUIREMENT DIMENSIONS



ON-STREET PARKING REQUIREMENTS  
11,98,200 SDC

REQUIREMENT: 1 ON-STREET PARKING SPACE  
WITHIN 300 FEET OF EACH DWELLING

REQUIREMENT IS FULFILLED.

TOTAL NUMBER OF LOTS: 29

TOTAL NUMBER OF  
ON-STREET PARKING SPACES: 47

\* NOTE: LOT 30 IS NOT SUBJECT TO THE  
ON-STREET PARKING REQUIREMENTS OF  
11,98,200 SDC, AND PARKING WILL BE  
PROVIDED ON-SITE AT THE TIME OF FUTURE  
DEVELOPMENT.

**NOTES**

1) STREET TREE SPECIES TO BE DICTATED BY  
CITY PLANNING STAFF AT THE TIME OF  
PLANTING.

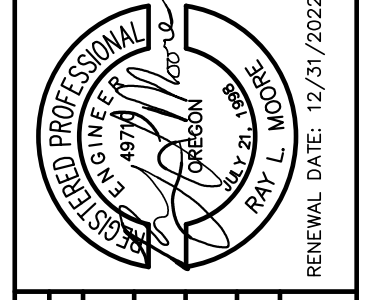
2) LOCATION OF STREET TREES MAY VARY  
BASED ON FINAL LOCATION OF FUTURE  
UTILITIES AND DRIVEWAY CUTS.

3) FINAL LOCATION OF MBUS TO BE  
DETERMINED BY SANDY POSTMASTER AT THE  
TIME OF FINAL ENGINEERING.

**PARKING LEGEND**

- SUBJECT PROPERTY BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED CURB AND PAVEMENT
- PROPOSED SIDEWALK
- PROPOSED UNSTRIPED 22' x 9' ON-STREET PARKING SPACE
- PARKING SPACE NUMBER CORRESPONDING TO LOT NUMBER
- PARKING SPACE THAT EXCEEDED THE REQUIREMENT
- PROPOSED FIRE HYDRANT
- PROPOSED MBU

DATE	NO.	REVISION	BY
DESIGNED: CTH	SHEET		C6
DRAWN: CTH	OF		
CHECKED: RLT	8		
APPROVED: RLT			



SCALE	VERT.	N/A
HORIZ.	1"=60'	
DATE:	07/26/2018	
FILE:	19-038-PARK-Plan.dwg	
SECTION	TWP.	RANGE
	18	25
		5E

PROJECT: **DEER MEADOWS SUBDIVISION**

**STREET TREE PLAN & PARKING ANALYSIS**

LOCATION: **40808 & 41010 HWY 26, SANDY, OR 97055**

**Surveyors & Planners, Inc.**  
 Surveying, Planning and  
 Civil Engineering and  
 Construction Management  
 P.O. Box 855 Sandy, OR 97055  
 Phone: (503) 668-4730  
 Fax: (503) 668-4730  
 DATE OF PLOT: 4-15-22

CLIENT:  
 ROLL TIDE  
 PROPERTIES CORPORATION  
 10000 MEADOW AVE  
 SANDY, OR 97113



## EXHIBIT MMM

City of Sandy  
39250 Pioneer Blvd.,  
Sandy, OR 97055

April 15, 2022

To: City of Sandy, Mayor and City Council Date:

From: Don Robertson, Parks and Trails Advisory Board Chair

Subject: Deer Meadows Revised Plan

Attachments: None

---

I am sending this communication on behalf of the Sandy Parks and Trails Advisory Board at their direction.

At the Parks and Trails Advisory Board regularly scheduled meeting on April 13, 2022, the Parks Board continued the discussion of the Bull Run Terrace Development, now referred to as Deer Meadows. We understand that the Council will be taking up this discussion during an appeal hearing on April 18, 2022.

The Parks Board does not support the Deer Meadows Revised Plat as submitted. The proposed revised plan has two non-contiguous tracts. TRACT A, which totals 5,292 S.F. and is adjacent to the existing Deer Point Neighborhood Park. TRACT C is along highway 26 and totals 41,894 S.F. In the plans there is no sidewalk proposed, and the trees on TRACT C are retention trees and cannot be cut down by the City.

Due to the items listed above, the Parks Board unanimously voted in opposition to supporting the Deer Meadows Revised Plan.

Respectfully submitted.

A handwritten signature in black ink, appearing to read "Don Robertson".

Don Robertson  
Parks and Trails Advisor Board Chair

**Staff Contact:**

Rochelle Anderholm-Parsch  
Parks and Recreation Director  
503-489-2157  
[randersholmparsch@cityofsandy.com](mailto:randersholmparsch@cityofsandy.com)



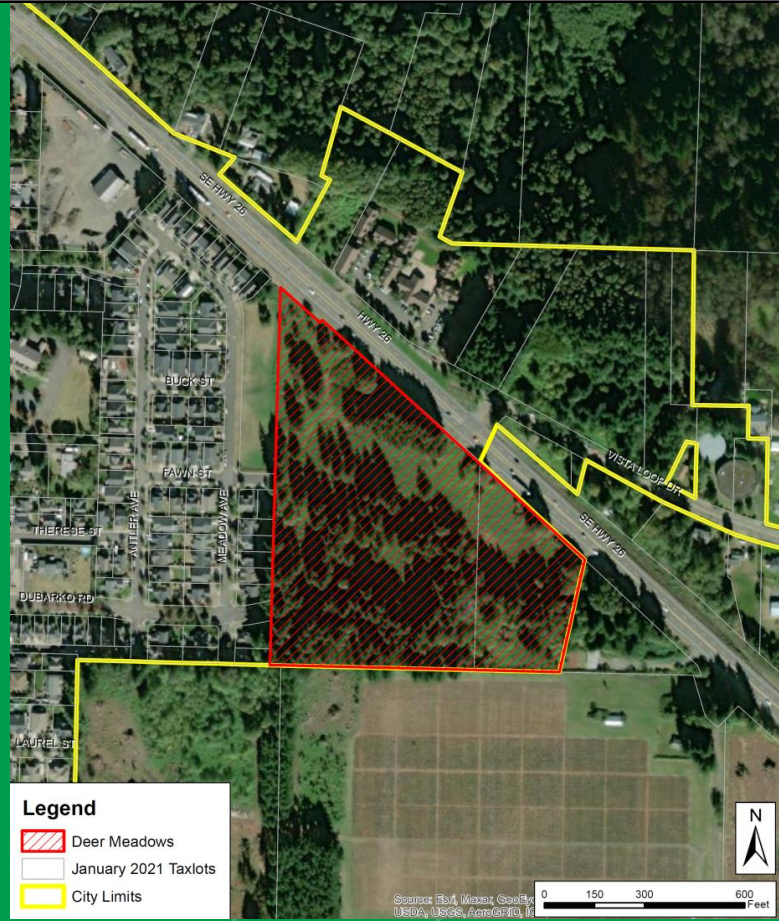


File # 21-061 AP

Deer Meadows  
Subdivision  
Appeal

City Council  
April 18, 2022

# Vicinity Map



# Original Request

- Type II Subdivision
- Based on Section 17.12.20 the Director elevated this application to a Planning Commission hearing because of expected public interest.
- Planning Commission denied the subdivision request.

# Public comments

- The main concerns:
  - Dubarko Road is not proposed to intersect with Highway 26.
  - Deer Pointe Park is not proposed to be expanded.
  - More housing will increase congestion and exacerbate parking issues.
  - Multifamily housing should not be approved.

# Proposal

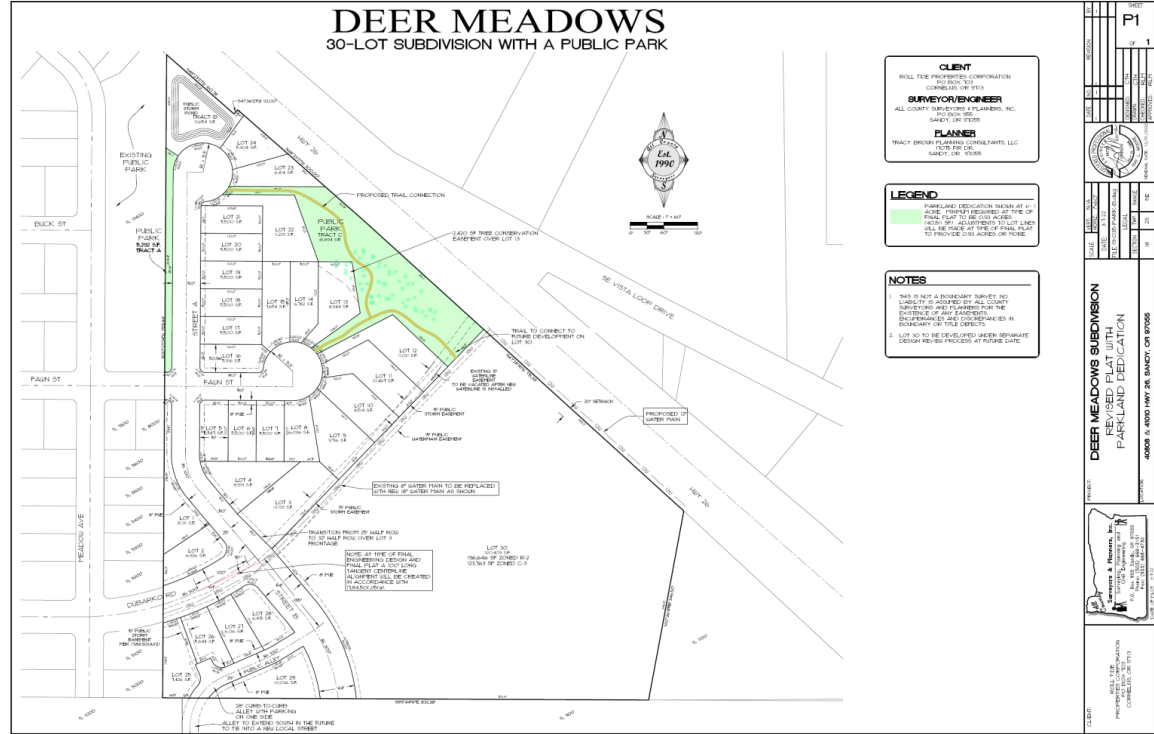
- 30-lot subdivision
- 28 lots of Low Density Residential (R-1) that will contain single family homes or duplexes
- one small lot (10,036 square feet) of Medium Density Residential (R-2)
- one large lot (7.35 acres) with a combination of Medium Density Residential (R-2) and Village Commercial (C-3)



# Proposal

- The 28 lots of R-1 land range in size from 5,500 square feet to 13,193 square feet.
- The exact number of multifamily units will be determined with a subsequent design review application, but the applicant claims the number of multifamily dwelling units on the R-2 zoned land will be between 38 dwelling units and 66 dwelling units.
- The C-3 zoned land will likely contain a mix of commercial and residential development.

# Plat Map

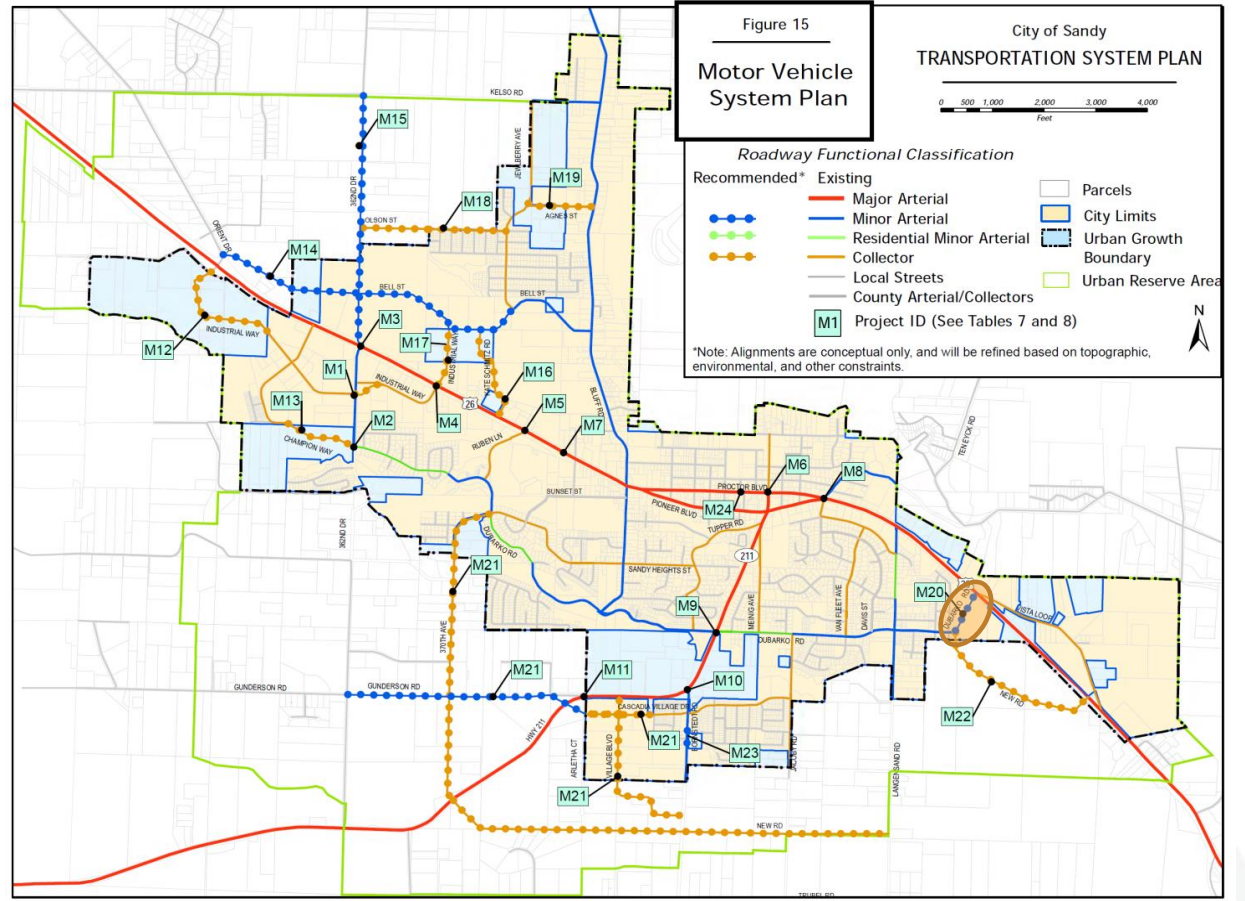


# Subdivision approval criteria

- Based on findings 28 – 34 in the staff report the subdivision proposal is not meeting 6 of the 7 approval criteria.
- Sandy Municipal Code Section 17.100.60 (E).



# TSP Plan (M20)









# Legal arguments from the applicant

- Based on the applicant's submission materials and letters from their attorney they are arguing that large portions of the Sandy Development Code are not clear and objective and do not properly incorporate the Transportation System Plan.



# Staff responses to the applicant's arguments

- Staff does not agree with the applicant on the majority of their clear and objective arguments.
- Staff believes the TSP is properly incorporated into the subdivision criteria.
- Staff believes the parkland dedication requirements are clear and objective, and therefor land dedication can be required.

# Staff responses to the applicant's arguments

- Keep in mind: The applicant's attorney is hired to try and limit construction costs and argue on behalf of the developer.
- The applicant agreed that Dubarko Road is needed per the TSP and development code in their previous subdivision proposal for this same site.

# Recommendation

On April 13, 2022, the Parks and Trails Advisory Board unanimously recommended denial of the proposed parkland dedication to the City Council.

Planning Commission and staff recommend that the City Council deny the Deer Meadows Subdivision based on the findings of fact in the staff report and the reasons as identified in Findings 19-24 of the staff report.







## Staff Report

---

**Meeting Date:** April 18, 2022

**From** Jenny Coker, Public Works Director

**SUBJECT:** Findings for Modified Construction Manager / General Contractor  
(CM/GC) Procurement Method: Collection System Basins #6 and #7

---

**DECISION TO BE MADE:**

Whether to adopt findings for a modified Construction Manager / General Contractor (CM/GC) procurement method for rehabilitation of wastewater collection system Basins #6 and #7

**BACKGROUND / CONTEXT:**

This Resolution adopts findings by the City Council to support a Modified Construction Manager / General Contractor (CM/GC) Procurement Method for the Wastewater Collection System Rehabilitation Project Basin #6 and #7 and authorizes staff to solicit proposals for these services. The project will rehabilitate approximately 16,000 lineal feet of sanitary sewer mainlines, 200 sewer laterals, and 100 manholes. All the work will take place in basins #6 and #7, which had the next highest Inflow and Infiltration (I&I) rates after Basin #2 and #8, as identified in the Facilities Plan during the flow monitoring performed in the winter of 2017-2018.

**KEY CONSIDERATIONS / ANALYSIS:**

Attached is a Technical Memo prepared by Leeway Engineering Solutions of several procurement methods available to the City. The nature of the proposed work lends itself to a Modified CM/GC contracting method. This allows an accelerated construction schedule in order to reduce the peak wet weather flows to the treatment plant that are contributing to Oregon Department of Environment (DEQ) National Pollutant Discharge Elimination System (NPDES) permit compliance issues. The time savings realized allows the work to start in summer 2022 and be completed by the end of 2022, whereas a conventional design, bid, build method might not even be able to advertise for bids until winter 2022.

The City anticipates competitive interest among contractors for the work. There are five or six contractors in the Pacific NW capable of providing these services and all would be invited to submit proposals. Since these contractors specialize in this type of sewer rehab work, they have the experience and expertise to recommend methods or procedures that save time and money for the Owner early in the process and allow the Owner and the Contractor to work jointly to develop the final product.

The Council will have the opportunity to review the proposals and award a contract for the work once the preliminary design and evaluation are completed and the Owner and the Contractor negotiate a Guaranteed Maximum Price.

**RECOMMENDATION:**

Approve Resolution 2022-05 adopting findings for a Construction Manager / General Contractor procurement and authorizing staff to solicit proposals for the 2020/21 Wastewater Collection System Rehabilitation Project Basin #6 and #7.

**SUGGESTED MOTION LANGUAGE:**

"I move to approve Resolution 2022-05."

**LIST OF ATTACHMENTS/EXHIBITS:**

- Resolution 2022-05
- Memorandum from Leeway Engineering: Alternative Delivery Design and Construction Methods



NO. 2022-05

**A RESOLUTION ADOPTING FINDINGS IN SUPPORT OF A MODIFIED CONSTRUCTION MANAGER / GENERAL CONTRACTOR (CM/GC) PROCUREMENT METHOD FOR BASINS # 6 AND #7 OF THE WASTEWATER COLLECTION SYSTEM REHABILITATION PROJECT**

**Whereas**, the Sandy City Council, acting as the Local Contract Review Board, may authorize the use of a Construction Manager / General Contractor (CM/GC) procurement method in accordance with ORS 279C.335(1)(b); and

**Whereas**, use of the CM/GC method is reasonably expected to result in substantial time and cost savings to the contracting agency and to the public. Accelerated project completion will help reduce peak wet weather flows to the existing treatment plant and assist with discharge permit compliance prior to the start of the 2022-2023 winter discharge season, therefore reducing potential violations of the City's National Pollutant Discharge Elimination System (NPDES) permit; and

**Whereas**, a CM/GC procurement method will not impact the funding for the public improvement; and

**Whereas**, the City has retained consultants that have the necessary expertise and experience in alternative contracting methods to help negotiate, administer, and enforce the terms of the CM/GC contract;

**NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Sandy**, after making these findings available for review 14 days prior to holding a duly noticed hearing pursuant to ORS 279C.335(5):

- The City Council finds that use of the GM/GC delivery method for the 2021 Wastewater Treatment Plant Condition Assessment Improvements Project satisfies the requirements of ORS 279C.335(2) and makes the following findings in support of using this procurement method:
  - A conventional Design, Bid, Build process involves preparing detailed design drawings and specifications prior to letting a contract which would introduce delay into the process that can be reduced by an alternative project delivery method such as CM/GC.
  - The City finds that a CM/GC procurement method will provide substantial time savings and cost certainty over a conventional design, bid, build procurement method by combining early field investigations with contractor preconstruction input.

#2022-05

- The City finds that there are at least five contractors in the Pacific Northwest that have the necessary personnel, equipment, experience and expertise to provide CM/GC services for work of this nature.
- The City finds that award of this contract is unlikely to encourage favoritism in the awarding of public contracts or substantially diminish competition for public contracts because the City will issue a request for proposals in accordance with state law in order to award the contract.
- Use of the CM/GC method is reasonably expected to result in substantial time and cost savings to the contracting agency and to the public. Accelerated project completion will improve performance at the existing wastewater treatment plant (WWTP), therefore reducing the treatment costs and potential violations of the City's National Pollutant Discharge Elimination System (NPDES) permit.
- A CM/GC procurement method will not impact the funding for the public improvement project and the City has retained consultants that have the necessary expertise and experience in alternative project delivery methods, including CM/GC.
- The City Council authorizes staff to solicit proposals for Construction Manager/General Contractor services for the Collections System Rehabilitation Project Basin #6 and #7 in accordance with ORS 279C.337

This resolution is adopted by the Common Council of the City of Sandy and approved by the Mayor this 18 day of April 2022

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Stan Pulliam, Mayor

ATTEST:

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Jeff Aprati, City Recorder

#2022-05



# Technical Memorandum

Prepared for: Mike Walker, Public Works Director  
City of Sandy, Oregon

Project: Collection System Rehabilitation Project Basin 6 and 7

Author: Yarrow Murphy, PE  
Lul Kidane, EIT  
Leeway Engineering Solutions LLC

Reviewer: Rob Lee, PE, PMP  
Zach Swartzendruber, PE

Date: March 10, 2022

Subject: Alternative Delivery Design and Construction Methods

## Introduction

The City of Sandy, Oregon (City) is planning to rehabilitate a significant portion of its wastewater collection system to control excessive rainfall-derived infiltration and inflow (RDII) that is overwhelming the downstream pipe and treatment systems' capacities. The City needs to accelerate the RDII Reduction Program implementation in order to reduce the peak wet weather flows to the treatment plant that are contributing to Oregon Department of Environment (DEQ) National Pollutant Discharge Elimination System (NPDES) permit compliance issues. Typically, municipal construction projects can take over a year, and often longer, to design and plan before any improvements are made in the field. The City desires to start construction during the late summer of 2022, significantly shortening the design effort. This memorandum reviews alternative delivery methods that could provide accelerated project delivery and recommends a customized approach for the City to meet its ambitious timeline.

## Summary of Recommendations

Four delivery methods were reviewed for the City to design and construct pipe rehabilitation. The options included design-bid-build (DBB), design-build (DB), progressive design build (PDB) and construction management/general contractor (CM/GC).

A modified CM/GC method is recommended for the City to implement the RDII reduction in Basins 6 and 7. The approach can utilize the existing contract with Leeway Engineering Solutions to provide streamlined design services. Design will be done using existing GIS data to create simplified plan sheets. Surveys, geotechnical investigations, and utility locates will be limited to locations where excavation will be necessary to replace poor condition pipes. To meet the timeline, the CM/GC contractor would need



to be retained to provide input into the 30% design by late spring, starting with pre-construction services of inspection and selection of rehabilitation methods. This early work will be followed by the CM/GC contractor working with the designer to develop one early work package for acquiring materials and one final guaranteed maximum price work package for project construction.

The benefits of this method include an accelerated schedule compared to the DBB method and reduced effort on the part of City staff in contracting and contract management and greater cost certainty compared to the DB and PDB methods. Using the streamlined design approach will provide cost and time savings compared to all other methods.

### Alternative Delivery Evaluation Method

The project delivery methods are evaluated based on criteria specific to the challenges and opportunities the City faces and the goals of the RDII Reduction Program. Each method has associated risks, such as the City's familiarity with procedures, staff availability, and cost, which are also considered in the evaluation and recommendation.

### Project Challenges

In the broader context of the economy and business environment, there are several factors impacting the project and subsequent alternative contracting processes.

**Global Pandemic** - The greater context of project implementation is the SARS-CoV-2/COVID-19 global pandemic and it's associated with changes in everyday business activities throughout the country. The effort to slow the spread of infection instantly transformed business operations and shrunk the local, state, national and global economies. Changes continue every week, as Oregon updates recommendations on what workplaces should open and what health and safety measures citizens and workers should practice. These constant changes make it difficult to predict and plan for what will happen in the next few months.

For a construction project, these conditions present uncertainties in timing, availability of contractors, and future revenues of public agencies. Ultimately, the challenges associated with the pandemic are compounding the challenges of meeting the project schedule, making the simplification of the project delivery more essential to project success.

**Time** is the most critical factor in implementing this project, for the following reasons:

- The City at risk of violating their DEQ NPDES Permit if the project is not delivered on time, before the start of the rainy season.
- Delaying by a month or two potentially causes a much longer delay in project completion due to the seasonal construction cycle. A few months delay would likely extend the project into the next year and possibly into the next summer construction season.
- Lead times for equipment have been impacted by the global pandemic, increasing the risk of delays in delivery



**Costs** are a concern for the City as it balances the costs of RDII reduction with other improvements to the wastewater system and faces a dire economic forecast.

- Any pathway to reduce costs helps reduce the future increases in user rates and saves the community money. This is a small community facing a big financial lift to get its wastewater system in compliance with regulations.
- Supply chain issues and inflation have made material costs escalate significantly and provide unknowns on lead times to acquire materials and difficulty predicting construction costs as material costs are rapidly changing.

### City Opportunities

While there are certainly several challenges facing the City, there are also opportunities to streamline the project delivery and minimize the impact of those challenges.

- The City already has completed the contracting process to get a design engineer on board.
- Use of mainline trenchless pipe rehabilitation minimizes the need for excavation. This minimizes the need for geotechnical investigation and detailed survey and reduces risks associated with open trench pipeline construction. Excavation will be required to rehabilitate some pipelines and laterals if their condition warrants full replacement. However, this will not be the standard approach and should apply to a limited number of locations.
- With the focus on trenchless, the design drawing requirements can be simplified, even eliminating the linework and profiles traditionally done in CAD. Plan view design drawings can be rendered with available GIS files, including utility locations, streets, curbs, tax lots, buildings and other relevant location-based information. This will save time and costs for preparing designs, allowing construction to start sooner.
- The City just completed a similar project on two other basins utilizing the CM/GC process with the same consultant. The learning curve for this project will be minimal due to the experience on the previous project.

### Evaluation Criteria

The City is looking for a streamlined approach to project delivery that will eliminate unnecessary processes and allow tasks to move forward concurrently to efficiently implement the project. The advantages and disadvantages, as they relate to these goals and the City's resources, are considered for each project delivery method. The best delivery method best meets the following criteria, in order of importance:

- 1) Accelerated timeline of project delivery
- 2) Straightforward/simplified contracting
- 3) Cost efficiency
- 4) Reduced uncertainty overall, including risk of project not being delivered on time and of satisfactory quality



The methods are evaluated against each criterion on a scale from poor to best meeting each criterion. These are not ranking scores, so the same values can be used for more than one method in a given criterion. The overall method that best meets the criteria is the top-ranked method. This is not a strict scoring-only selection process, so additional advantages and disadvantages are incorporated into the reasoning for recommendation.

## Alternative Delivery Method Evaluation

### Overview of Delivery Methods

#### Design-Bid-Build (DBB)

DBB is the traditional project delivery approach. Because it is so commonly practiced, DBB is the most familiar approach for the majority of engineers. In DBB, the owner contracts with the design engineer separately from the construction contractor. These two contracts are sequential, meaning that the construction contract is bid after the completion of the design documents. This method requires the highest level of engagement of City staff and consultants, longest time from scoping of project to completion of construction.

#### Design-Build (DB)

The DB method is generally the fastest method to get a project from inception through startup. DB consists of a single contract for both design and construction. Because the method requires a single Contractor-Engineer team, less involvement is required from City but that also represents a loss of City control over the project. Clear project scope and outcomes defined at the outset of the contracting process are important in place of ongoing owner involvement.

#### Progressive Design-Build (PDB)

The Progressive Design-Build is another fast method that will allow the City to begin constructing its project early. PDB contracts with a Contractor-Engineer team, with some level of engagement and control by City while benefiting from Contractor input and resources. PDB also requires clearly defined project scope and outcomes.

#### Construction Manager/General Contractor (CM/GC)

CM/GC is a method that engages the construction contractor early. This approach allows some preparatory field work to be conducted during the design phase of the project and the construction contractor gives more input throughout the process. This early construction involvement saves time during the construction. CM/GC offers an accelerated schedule while keeping some engagement and control by the City.

The distinguishing characteristics of the four standard delivery methods are summarized in **Table 1**.

**Table 1. Summary of Project Delivery Methods**

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Contracting Structure
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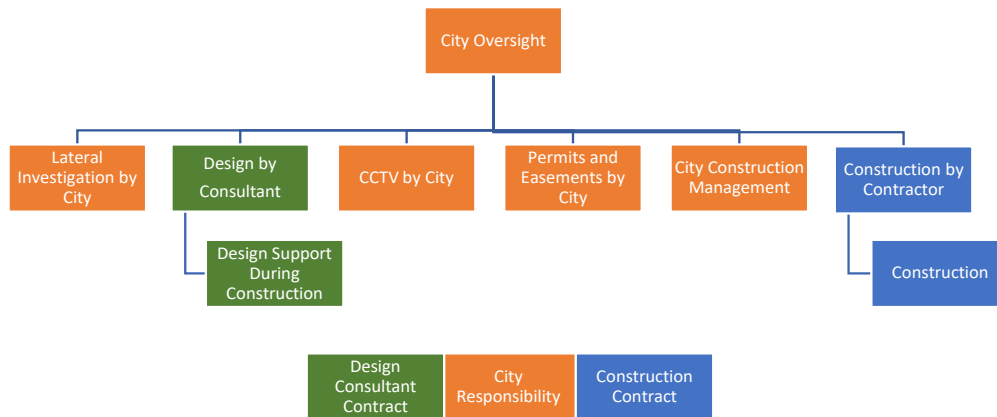


	DBB	DB	PDB	CM/GC
<b>Construction Scope of Work / Design Responsibility</b>	City	Contractor	Contractor	Joint
<b>CCTV Responsibility</b>	City	Contractor	Contractor	Joint (can be put on Contractor)
<b>Lateral Investigation</b>	City	Contractor	Contractor	Joint (can be put on Contractor)
<b>City Staff/Consultant Level of Involvement</b>	Highest	Lowest	Moderate	Moderate
<b>Permits and Easements</b>	City	Joint	City	Joint
<b>Potential for high construction costs</b>	Normal	Highest	Higher	Normal (greater cost certainty)
<b>Availability of firms/bidders</b>	Best	Low	Low	Good
<b>Quality of construction</b>	High	Medium	Medium	High
<b>Public safety</b>	Normal	High	High	High

### Conceptual Delivery of RDII Reduction by Method

#### Design-Bid-Build (DBB)

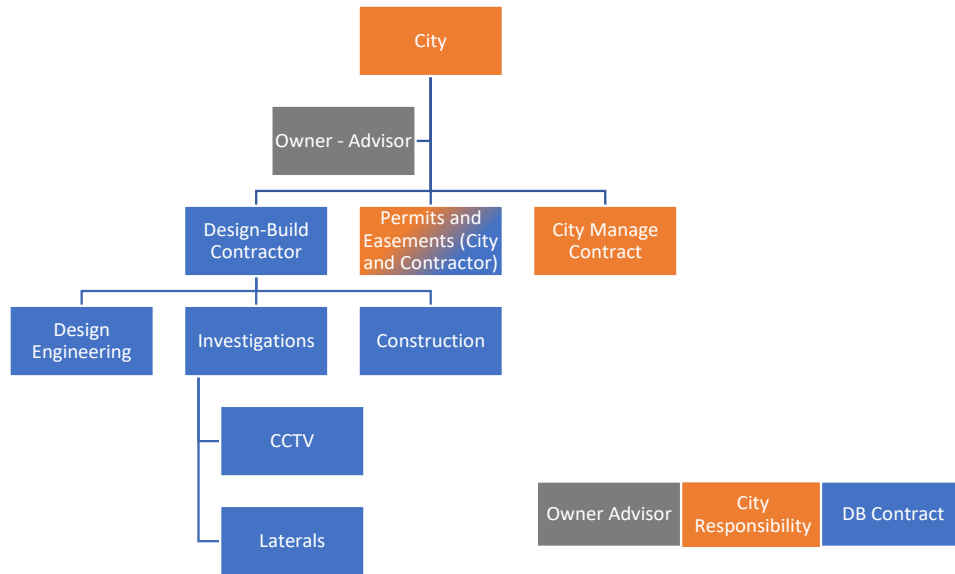
The DBB approach requires two sequential procurement processes, one for design contract that is generally awarded on the basis of qualifications, and another for the construction that is awarded based on the lowest bid. **Figure 1** illustrates the responsibilities of the City and the contractors during the DBB process. As **Figure 1** shows, any investigation work (e.g., CCTV, manhole inspections, etc.) done prior to construction would be the responsibility of the City or the City’s Designer. In DBB, there is limited interaction between the design and construction contractors, thereby putting the burden of management, support, and coordination, as well as responsibility for the design on the City. Because of the multiple roles filled by the City and the multiple procurement processes, this method requires the most involvement from the City, and the City takes on more risk. The time from scoping to construction is the longest for this method due to the separate and sequential procurement processes for the design and construction of projects. The primary benefit of this method is that it is commonly practiced and the most familiar approach for the majority of engineers. Given the available time to go through the process, this is often the go-to approach because it is well understood by owner-organizations that have systems set up to implement projects with this method.



**Figure 1. Design-Bid-Build Organization and Responsibility Chart**

**Design-Build (DB)**

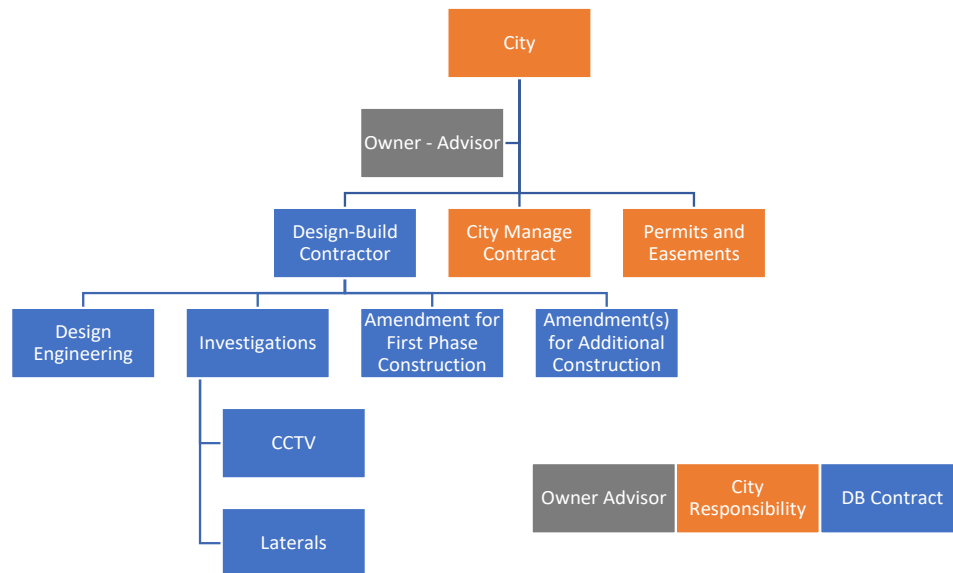
DB consists of a single contract team to complete both design and construction. The contract would include preconstruction investigations that could be completed during the design process, as illustrated in **Figure 2**. This contract is negotiated as a fixed price agreement. The method requires a single team with greater scope of services, so less involvement and control are needed from City. To ensure that a satisfactory project is delivered, clear project scope and outcomes defined at the outset of the contracting process are important in place of ongoing owner involvement. The incentive for constructors with the DB method is to build the project as cheaply and quickly as possible to meet the definitions of the project scope and outcomes. While this results in quick turnaround from solicitation to startup, the fixed price for the whole project can lead to higher construction costs without a higher quality product. Another potential disadvantage to this method is that the requirement of a team with capabilities to design and construct will limit the available firms that will compete for the work.



**Figure 2. Design Build Organization and Responsibility Chart**

**Progressive Design-Build (PDB)**

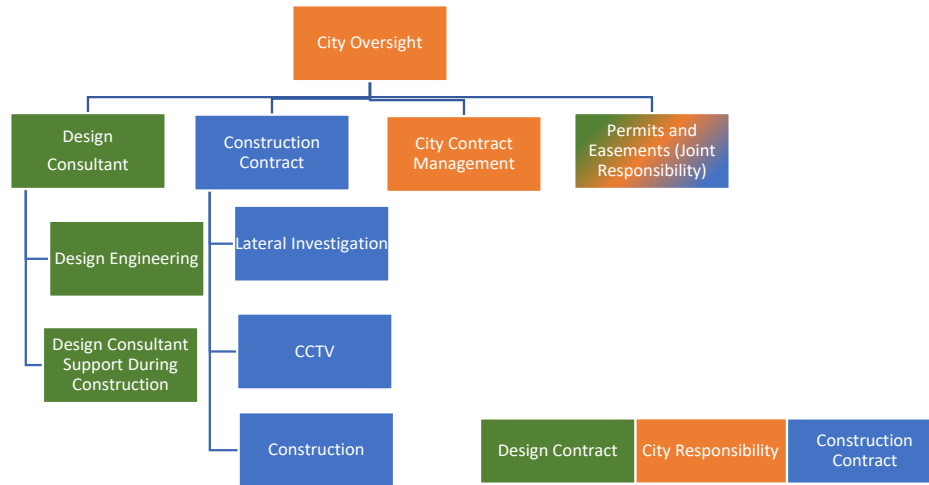
The PDB method is similar to the DB method in that the City would go through a single procurement process with a design-construction firm, as illustrated in **Figure 3**. The main difference between PDB and DB is that in PDB, the cost of construction is determined during design and is contingent upon a price agreement between the PDB contractor and the owner. Construction can take place over in multiple cycles authorized by an amendment for each cycle. The City would be more involved with permits and easements, as well as reviews throughout the design process. This method requires a qualified Contractor-Engineer team and a moderate level of engagement and control by the City. The benefit of this method is that it would allow the City to begin constructing its project early, while in theory giving the City more opportunity to control costs compared to the DB method. However, in practical terms, the risk of high construction costs could increase because the City has little leverage in cost negotiations when failed negotiation would amount to failing to deliver the project on the regulatory schedule. Like with the DB method, a clearly defined project scope and outcomes will be critical to delivering a satisfactory project with PDB.



**Figure 3. Progressive Design-Build Organization and Responsibility Chart**

#### Construction Manager/General Contractor (CM/GC)

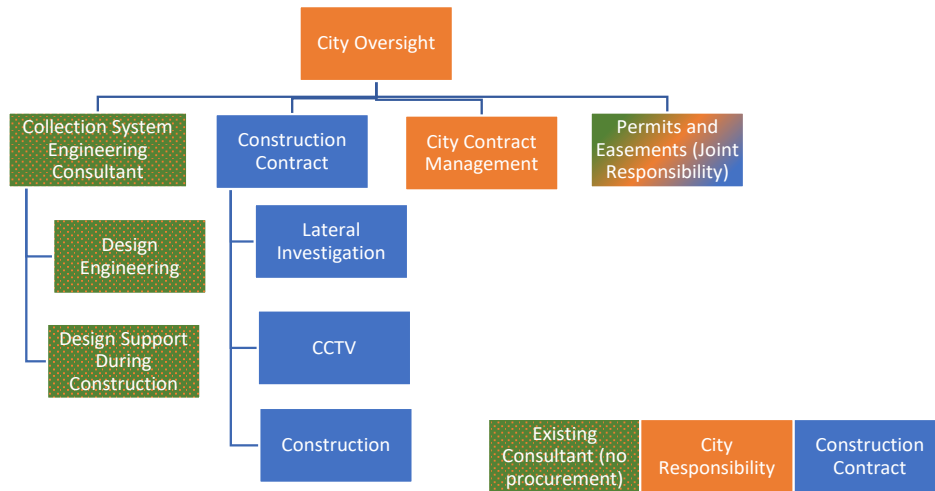
CM/GC is a method that involves retaining the construction contractor early, but through a separate contract from the design consultant. The CM/GC firm is selection is usually based on qualifications, with the construction cost being agreed on by negotiation during design, either as guaranteed maximum or fixed price. The roles and responsibilities of CM/GC are illustrated in **Figure 4**. GM/GC is similar to DBB in some ways, but differs in the potential for improved delivery speed, reduced construction risk on the City, and more cost certainty. The construction contractor functions as both the construction manager and the general contractor. With this early and expanded role, the construction contractor can provide input and support during design, reducing the level of City staff involvement required. Design-phase construction support can include conducting preparatory field investigations and input from the construction contractor on the design. This early construction involvement would save time in transitioning from design to construction, streamlines construction, and increase cost certainties by reducing surprises and changes during construction. It is also a benefit to the City to negotiate construction costs when the project scope is more clearly defined. Although the City has less leverage in the cost negotiations with the construction contractor in this method compared to DBB, there could still be an opportunity to procure another contractor for project construction in case the City and original contractor could not come to an agreement. CM/GC offers an accelerated schedule while keeping some engagement and control by the City and offering greater cost certainty (fewer change orders or claims, often resulting in final project costs that are equivalent to DBB).



**Figure 4. Construction Manager/General Contractor Organization and Responsibility Chart**

**Modified CM/GC**

A customized CM/GC approach would leverage the City’s opportunities discussed above, resulting in the most streamlined project delivery. The design effort would be reduced by minimizing geotechnical investigations and surveys and simplifying the design process. The design consultant role could then be filled by the City’s existing consulting engineer who has already been procured to support collection system improvements, thereby reducing procurement time and effort. A CM/GC construction contract would be required, to support the project during design and carry out the construction. The City would hopefully be able to take advantage of the competitive construction market increasing the availability and competition of CM/GC contractors. This approach would reduce the procurement effort to similar levels needed for DB or PDB, while getting the benefits of early construction contractor involvement, reduced demand on staff, and faster overall delivery.



**Figure 5. Modified CMGC Method Organization and Responsibility Chart**

### Comparison of Delivery Methods

The advantages and disadvantages of each method are described in this section. The criteria evaluation for all methods is shown in **Table 2**. Comparison of advantages and disadvantages by method is tabulated in a matrix in Table 4.

The DBB method is the slowest method, but most predictable. Another disadvantage to DBB is the increased demand on staff to manage multiple procurements, contracts, and to be responsible for handing off the design work to the construction contractor. Given time for the process, the benefit can be high-cost certainty and high availability of firms to compete for the project.

While DB would be the fastest way to deliver the project and requires the least staff involvement, the cost uncertainty and the need for clear and defined scope at the outset of the project outweighs its speed advantages. The City needs a method that can allow investigations to proceed during design, feeding back to methods selection, other design decisions, and construction costs negotiations.

The PDB method strikes a balance between staff involvement, accelerating the delivery timeline and providing some cost certainty. The disadvantage is in that the scope definition is still important early on to achieve the best cost certainty and construction price negotiations during design may not lead to better costs.

CM/GC offers another balanced method, with early procurement of the construction contractor to support pre-construction fieldwork leading to a moderately accelerated timeline. The staff involvement

and contracting responsibilities are higher compared to DB and DBB, but the tradeoff is increased cost certainty and lower risk of failing to deliver a satisfactory project.

The modified CM/GC leverages the City’s opportunities to further accelerate the delivery timeline and reduce costs of the standard CM/GC method. This approach minimizes the demands on City staff, reduces the contracting complexity, and saves cost on design. By bringing a CM/GC contractor on early, pre-construction work can begin at 30 percent design and significantly reduce the delay between completion of design and notice to proceed with construction.

**Table 2. Project Delivery Methods Against Evaluation Criteria**

Criteria	Project Delivery Method				
	DBB	DB	PDB	CM/GC	Modified CM/GC
Accelerated Timeline	Slowest	Fastest	Faster	Medium	Fastest
Simplified Contracting	Most Complex	Simplest	Simpler	More Complex	Simplest
Cost Efficiency	Good	Low	Moderate	Good	Best
Uncertainty and delivery risk	Lowest	High – need clear scope at outset	Moderate – scope definition still important	Low	Low
<b>Evaluation Key</b>	<b>Poor</b>	<b>Fair</b>	<b>Moderate or Neutral</b>	<b>Good</b>	<b>Best</b>

### Recommended Project Delivery Method

The recommended project delivery method for the City’s RDII Reduction Program is a modified CM/GC. CM/GC is also a good choice with many advantages over the other methods for this project. By taking advantage of some of the opportunities unique to this project, the City can further streamline the project and compress the timeline. The specific steps listed in **Table 3** are recommended.

**Table 3. Recommended Implementation Steps**

Step	Benefit to City
<b>Simplify design approach (with readily available GIS, no pipe profiles or CAD, minimal geotech and survey)</b>	<ul style="list-style-type: none"> <li>• Cost savings in design work</li> <li>• Quicker project completion</li> </ul>



Step	Benefit to City
<b>Use the consulting engineer on-hand for design</b>	<ul style="list-style-type: none"> <li>• Reduces procurement</li> <li>• Time savings in that consultant already on board and ready to begin work</li> <li>• Simplified Design</li> </ul>
<b>Bring the CM/GC contractor on board at 30%. Early Work Package will include preconstruction inspection and selecting rehab methods</b>	<ul style="list-style-type: none"> <li>• Relieves city staff from additional involvement in things like investigations and CCTV</li> <li>• Speeds up construction process as investigations are done during design</li> </ul>
<b>The designer and CM/GC contractor work together to develop final design package, contract drawings and requirements</b>	<ul style="list-style-type: none"> <li>• Contractor working with design engineer means more confidence in plans and constructability, right construction methods</li> </ul>

## References

Hanifin Bonner, Linda, ed. 2016. Water and Wastewater Design-Build Handbook. Fourth Edition. Water Design-Build Council.





Table 4. Advantages and Disadvantages for Each Delivery Method

DBB		DB		PDB		CM/GC		Modified CMGC	
Advantage	Disadvantage	Advantage	Disadvantage	Advantage	Disadvantage	Advantage	Disadvantage	Advantage	Disadvantage
City familiarity makes it the simplest procurement	Two separate procurements	Single procurement means less burden on City staff in contracting process and management.	May require special permissions to implement	Single procurement means less burden on City staff in contracting process and management.	May require special permissions to implement		Two separate procurements, but still may need special permissions to implement	One procurement if using existing available consulting engineer for design	
	Time from scoping to delivery longest	Single procurement saves time. This is the fastest method.		Fast method. Construction starts sooner and overall project timeline accelerated.		Accelerated schedule		Quicker compared to CMGC	
	More responsibility by City, including plans, specs, supporting investigations and contract management	Least involvement required from City.  City not responsible for designs.	City loses some control that may be desirable  Clear project scope and outcomes need to be defined at the outside of project to ensure satisfactory delivery	Early contractor engagement  City more engaged than in DB	Clear project scope and outcomes need to be defined at the outside of project to ensure satisfactory delivery	Early contractor engagement  Construction scope can be clarified later in project when conditions better understood.		Early contractor engagement  Construction scope can be clarified later in project when conditions better understood.	
Familiarity of engineering professionals—reliable and predictable process			Less competitive - Greater scope and more breadth of team capability means fewer firms qualified		Less competitive - Greater scope and more breadth of team capability means fewer firms qualified	More competitive than other collaborative methods (DB and PDB)		More competitive than other collaborative methods (DB and PDB)	
Lower cost risk/higher cost predictability			Fixed price has potential for high cost	Can be lower cost than DB method because construction cost is negotiated during design	Still more risk than DBB and CM/GC	Lower cost risk than DB and PDB,	Less cost certainty than DBB	Lower cost risk than DB and PDB. Cost savings can be realized by modifying delivery approach slightly.	Less cost certainty than DBB



## Staff Report

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**Meeting Date:** April 18, 2022

**From** Jenny Coker, Public Works Director  
Leeway Engineering Owner's Representative Wastewater Program

**SUBJECT:** Support: Contract Amendment #2

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**DECISION TO BE MADE:**

Whether to authorize the City Manager to sign a contract amendment with Leeway Engineering Solutions for wastewater operations support services.

**BACKGROUND / CONTEXT:**

At their March 15, 2021 meeting City Council authorized the City Manager to negotiate a fee and scope of services with Leeway Engineering Solutions for Phase 1A Clean Water Program Owner's Representative Services. The negotiated fee for the required services totaled \$242,735. This contract was amended on January 18, 2022, to extend the contract term and the fee was increased to \$612,572. The City has requested an amendment to the contract for Wastewater Operations Support services.

Over the past several years the wastewater facilities have had several effluent permit exceedances. A wastewater treatment improvement project is underway and scheduled to begin commissioning in the fall of 2022. This project is intended to improve effluent quality and system reliability. As part of this effort, the city is seeking technical assistance to evaluate the WWTP operations for opportunities to maximize treatment efficiency at the facility, evaluate staffing needs and contractor operator contract for suggested improvements, advise and oversee preparation of Standard Operating Procedures, as well as assist in continuity of operations during construction.

Waterdude Solutions (WDS) and Leeway Engineering Solutions will collaborate with the City and their contractor to develop an inclusive, interactive work effort intended to facilitate city decision-making regarding wastewater operations. Nesting the Wastewater Operations Oversight and Support contract under Leeway Engineering Solutions adds an additional skillset to the owner's rep team, who is leading the oversight of Wastewater Treatment Construction Improvements as well as DEQ operations reporting, and will streamline project management efforts for the City.

**KEY CONSIDERATIONS / ANALYSIS:**

This contract amendment covers the following additional services that will be performed by Waterdude Solutions:

Facilities Condition Review

The review will include observation of condition, useful remaining life, and criticality of assets and systems. System hierarchy will be evaluated with condition and criticality to develop a prioritized improvement schedule.

Operations Program Review

Review operations programs to provide observations and recommendations of current practices and best practice options and implementation recommendations including updated standard operating procedures (SOPS) and recommended training. Operations programs include, but are not limited to, process control strategies, standard operating procedures, sampling procedures, biosolids processing and disposal practices, support of stress testing, and root cause analysis on upset conditions and permit violations.

Staffing Evaluation

A review of the current contract operator staffing for WWTP operation, maintenance, and management. This task will provide a calculation of recommended staffing utilizing the Northeast Guide for Estimating Staffing at Publicly and Privately-Owned Wastewater Treatment Plants.

The requested amendment for Wastewater Operations Support totals \$152,681.00. The updated proposal and a detailed description of the additional services are attached.

**RECOMMENDATION:**

Authorize the City Manager to sign an agreement with Leeway Engineering Solutions for Amendment #2

**BUDGETARY IMPACT:**

The proposed Amendment, which totals \$152,681.00, is proposed to be funded by the State grant of American Rescue Plan Act funding for the City's wastewater system improvements project.

**SUGGESTED MOTION LANGUAGE:**

"I move to authorize the City Manager to sign Amendment #2 with Leeway Engineering Solutions for additional wastewater operations support services in the amount of \$152,681.00."

**LIST OF ATTACHMENTS/EXHIBITS:**

- Draft contract amendment #2, including a scope and fee for additional services.

AMENDMENT NO. 2  
to the  
PROFESSIONAL SERVICES AGREEMENT  
Between  
CITY OF SANDY and LEEWAY ENGINEERING SOLUTIONS, LLC.

THIS AMENDMENT is made and entered into this 19th day of April 2022, by and between the City of Sandy, OR (hereinafter "City"), whose address for any formal notice is 39250 Pioneer Blvd. Sandy OR, 97055 and Leeway Engineering Solutions, LLC. (hereinafter "Leeway") with offices at 12597 NW Majestic Sequoia Way Portland, Oregon 97229. This is Amendment No. 2 to the Agreement dated March 22, 2021 between City and Leeway.

Now Therefore, City and Leeway agree to amend the Agreement as follows:

1. The Scope of Services and Fee are amended to include the following:
  - a) Subcontractor services necessary to assist the City with the Sandy Clean Waters Program as described in Exhibit A attached to this Amendment and additional unspecified services as required.
  - b) Additional Leeway's services to manage Wastewater Operations Support tasks.
2. The Fee total in the budget in Exhibit A and B of the original agreement is changed to \$765,253.

Both parties indicate their approval of this Amendment by their signatures below.

LEEWAY ENGINEERING SOLUTIONS, LLC

CITY OF SANDY, OREGON

Authorized signature:

Authorized signature:

\_\_\_\_\_  
Name: Rob Lee

\_\_\_\_\_  
Name: Jordan Wheeler, City Manager

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## Exhibit B

**PHASE 1A OWNER'S REPRESENTATION SERVICES, CLEAN WATERS PROGRAM SUPPORT  
CITY OF SANDY, OREGON  
AMENDMENT NO. 2 PROPOSED LEVEL OF EFFORT**

	LABOR CLASSIFICATION (HOURS)				Estimated Fees					
	Principal Engineer \$221.00	Senior Project Engineer \$174.00	Project Manager \$174.00	Staff Engineer / Inspector \$120.00	Hours	Labor	Expenses	Intergrated Water Solutions (subconsultant)	Waterdude Solutions (subconsultant)	Total
Phase 7 – Wastewater Operations Support	4	0	40	0	44	\$ 7,844	\$ -	\$ -		
<i>Phase 7 Subtotal</i>	4	0	40	0	44	\$ 7,844	\$ -	\$ -	\$144,837.00	\$152,681.00



13290 Squire Drive, Oregon City, Oregon 97045

Telephone 971-413-4126

April 10, 2022

Rob Lee, PE, PMP  
Leeway Engineering Solutions  
12597 NW Majestic Sequoia Way  
Portland, Oregon 97229

Subject: City of Sandy O&M Technical Support

Dear Rob,

Waterdude Solutions is pleased to provide the following proposal for technical support services.

#### **PROJECT UNDERSTANDING**

The city of Sandy's wastewater facilities is challenged by population growth, increasing regulations and aging facilities. The city is investing in modernization of wastewater infrastructure to protect the environment and plan for future growth. This effort is supported and defined by the Sandy Clean Waters initiative. Leeway Engineering Solutions is currently the owner's representative for the city of Sandy overseeing wastewater improvement projects.

Over the past several years the wastewater facilities have had several effluent permit exceedances. A wastewater treatment improvement project is underway and scheduled to begin commissioning in fall of 2022. This project is intended to improve effluent quality and system reliability. As part of this effort, the city is seeking technical assistance to evaluate the WWTP operations for opportunities to maximize treatment efficiency at the facility.

The city's wastewater treatment facilities are currently managed, operated and maintained by a private contractor. A condition assessment of the existing wastewater facilities was recently performed by the contractor. The city is seeking support in the evaluation of this assessment to support decisions regarding future improvements. The goal of this of this effort is to maximize treatment efficiency at the facility.

The Sandy Clean Waters initiative includes construction of new treatment facilities over the course of the next several years. To prepare for and evaluate future staffing of these facilities, the city is seeking program and staffing evaluation services. The city also wants to understand staffing requirements should the city decide to assume operational responsibility of the wastewater treatment system as well as potential changes the existing contract for operations services.

Leeway Engineering Solutions has requested this proposal to augment their owner's representative services with operations and maintenance technical support.

## APPROACH

Waterdude Solutions (WDS) and Leeway Engineering Solutions will collaborate with the City and their contractor to develop an inclusive, interactive work effort intended to facilitate city decision making regarding wastewater operations. The work outlined in this proposal will be facilitated by WDS who has experience with the work requested.

Waterdude Solutions intends to provide Mark Walter, Operations Specialist to perform the proposed work. Mr. Walter has significant experience and expertise in the review and assessment of wastewater treatment programs and asset condition assessment. His experience includes public and private operation, maintenance, and management of wastewater facilities. References available upon request.

The work in this proposal focuses on existing facilities, operational practices, and staffing levels. These areas are developed as separate tasks as described below. A contingency task allows for additional WDS tasks to be developed and approved through Leeway Engineering Solutions and the city.

A review of existing facilities condition will be performed through interviews with operations staff, program review and review of the current condition assessment report. The contractor's condition assessment and asset data will be used to identify the asset inventory and criticality profile. WDS will confirm asset hierarchy, systems, and criticality with the contractor. If deemed necessary by the city, WDS facilitate a workshop using existing systems to develop a wastewater facilities criticality and risk matrix.

The condition assessment and current maintenance management system (MMS) records will be reviewed with the contractor and city staff. Criticality and MMS data will be used to evaluate and prioritize future repair, replacement, and repair projects. WDS will develop a memorandum summarizing current spare parts, repair, replacement, maintenance strategies and provide recommendations.

Operational practices evaluation will include review of the operating contract, current operational strategies, management programs and staffing. Specific evaluations will be conducted in the areas of biosolids disposal and tertiary filtration. The evaluation effort will include interviews with operations staff, site visits, inquiry with vendors and document review. A product of the evaluation will be a root cause analysis work plan that can be implemented by city staff in the future.

Staffing requirements will be evaluated using the Northeast Guide for Estimating Staffing at Publicly and Privately-Owned Wastewater Treatment Plants (2008) developed by New England Interstate Water Pollution Control Commission (NEIWPCC). This guide was developed to build upon the U.S. Environmental Protection Agency reference guide titled Estimated Staffing for Municipal Wastewater Treatment Facilities (1973). Additionally, the current contractor staffing levels will be evaluated and contrasted with the estimated staffing findings. Develop organization chart and staffing requirements for a city operated option using the existing WWTP contract scope of work as the level of service requirement.

Meetings and workshops will play a critical role in the dissemination of information and development of the final work products. These meetings will be coordinated with Leeway Engineering Solutions, the City's project manager and facilitated by Waterdude Solutions.

## SCOPE OF WORK

The work identified in this proposal is separated in several tasks. The intent of task separation is to allow for clear delineation between tasks. Tasks can be performed independent of the other tasks and have their own schedule.

The scope of work is separated into the following tasks:

- Task 1 Facilities condition review
- Task 2 Operations program review
- Task 3 Staffing evaluation
- Task 4 Contingency support
- Task 5 Meetings and Workshops

### **Task 1 – Facilities condition review**

WDS will review the contractor's condition assessment report and computerized maintenance management system (CMMS). The review will include observation of condition, useful remaining life, and criticality of assets and systems. System hierarchy will be evaluated with condition and criticality to develop a prioritized improvement schedule. Identify roles and responsibilities between the City and contractor related to asset management and spare parts management. A workshop will be held with the city to present observations and recommendations. Following the workshop, WDS will deliver a technical memorandum (TM) summarizing the observations and recommendations.

Optional at the city's request, WDS will conduct a criticality and risk assessment workshop with key staff. The intent of the workshop is to identify system criticality and risk based on several factors. The work product of this workshop will be a criticality and risk matrix. An example of this matrix is included as attachment 1.

### **Task 2 – Operations program review**

Operations program review is separated into several tasks as described below. WDS will submit a summary TM to the city that presents observations and recommendations, current practices and best practice options, implementation recommendations including updated SOPS and recommended training.

**Task 2a** - WDS will review wastewater treatment plant contract service agreement, regulatory compliance, cost history, performance to contract and development of programs. The review will include review of operational oversight, process control strategies, SOPs, sampling procedures, quality assurance/quality control measures, and an onsite tour of the treatment facilities.

Review operational and compliance related documentation practices and provide recommendations. At the request of the City, develop SOPs pertaining to regulatory compliance documentation and information management.



## Proposal for City of Sandy Technical Support Services

**Task 2b-** WDS perform root cause analysis of WWTP upset conditions and permit violations. Collaborate with the city and contractor to develop an ongoing practice of root cause analysis for future upset conditions and permit violations.

**Task 2c –** WDS will review current biosolids processing and disposal practices. Following the review investigate options and costs for biosolids disposal. Provide recommendations and options for decreasing the City's current disposal costs (~\$250k/year).

**Task 2d –** WDS will review current the current operating conditions, strategies, and maintenance practices for the operation of the tertiary filtration system. Investigate best practice options through interviews with manufactures and other owners of the system.

**Task 2e –** Provide independent review of contractor's maintenance of plant operations plan for ongoing construction activities.

**Task 2f –** Provide guidance and technical support to the City's stress testing effort to rerate the WWTP design flows. Review test plans, develop contingencies and collaborate with contractor and consulting engineers. Work with contractor to ensure effective plans and procedures are in place.

### Task 3 Staffing evaluation

WDS will review current contract operator staffing for services for WWTP operation, maintenance, and management. Calculate staffing utilizing the Northeast Guide for Estimating Staffing at Publicly and Privately-Owned Wastewater Treatment Plants. Review contractor monthly reports for past 24 months to determine current levels of service. Develop a matrix that compares current and calculated staffing for wastewater operations.

Complete a separate assessment of staffing required if the City were to bring operations back as a City-staffed service. Develop draft organization chart including administration, supervisory staff, etc. to identify resource requirements needed if operating the WWTP was a City-staffed operation.

Include an evaluation of future staffing needs, considering future growth of the City, WDS' operational review, and any future new capital improvements or new facilities added to the City's wastewater assets (e.g., new Satellite Treatment Facility, etc.).

Deliverable will be a wastewater department staffing evaluation memorandum that includes the matrix's and staffing recommendations based on the staffing evaluation findings.

### Task 4 Contingency support

WDS will provide on call task support as requested. Tasks will be developed and defined as Task 4 followed by a letter used in task 2 above. Hours are estimated at 30 hours per month for the period April through October 2022 and 10 hours per month November 2022 to June 2023. Task deliverable will be negotiated with and approved by Leeway Engineering Solutions and the City prior to initiating task work.

### **Task 5 Meetings and Workshops**

WDS will schedule and facilitate meetings to support the work identified in tasks 1 through 4. A kick off meeting will be scheduled to summarize scope, make introductions, and review logistics. Attend an onsite meeting with City staff once per month. Subsequent meetings may be conference calls or on-site meetings. WDS will submit field summary and or call reports as requested by the city.

### **SCHEDULE**

The schedule for this project has not been determined. WDS anticipates beginning task work in April 2022 and concluding in June 2023.

### **ASSUMPTIONS**

- Notice to proceed on proposed work will commence on or about April 30, 2022.
- City staff will provide access to documentation.
- Hourly billing rate to complete the work described in this proposal is \$165/hour.
- Travel costs are billed at hourly billing rate.
- Travel from Oregon City to Sandy, Oregon estimated at one hour round trip.
- Lodging and meal expenses are not anticipated for this project.
- Onsite meetings and workshops will be scheduled 1-2 weeks in advance.

### **ESTIMATED LEVEL OF EFFORT AND ANTICIPATED COST**

Based on scope described above, I believe that the objectives can be met with a level of effort not to exceed 836 hours. Representing a not to exceed amount of \$137,940.00. Table 1 provides a breakdown of estimated hours and cost.

Proposal for City of Sandy Technical Support Services

Table 1 Estimated hours and cost

Task	O&M Technical Support	Hours	Cost
<b>Task 1</b>	<b>Facilities Condition review</b>		
	Review condition assessment, CMMS data, hierarchy, systems	16	
	Develop workshop and draft TM	12	
	Draft TM workshop	8	
	Optional - Risk assessment workshop and summary TM	16	
	<b>Subtotal</b>	<b>52</b>	<b>\$8,580</b>
<b>Task 2</b>	<b>Operations Program Review</b>		
Task 2a	Review contract scope, regulatory compliance, cost history, and programs	24	
	Process control and strategies and on site and document review	30	
	Summary TM	12	
Task 2b	Root cause analysis of upset and permit violation conditions	16	
	Develop root cause analysis process work flow	24	
	Summary TM	8	
Task 2c	Biosolids disposal review and options	40	
	Summary TM	8	
Task 2d	Filtration O&M evaluation	20	
	Summary TM	8	
Task 2e	MOPO review	16	
	Summary memo	8	
Task 2f	Stress testing technical support	50	
	<b>Subtotal</b>	<b>264</b>	<b>\$43,560</b>
<b>Task 3</b>	<b>Staffing Evaluation</b>		
	Review current staffing review roles and responsibilities	8	
	Monthly report and performance review	12	
	Develop estimated staffing model	16	
	Develop draft staffing evaluation	16	
	Develop future estimated staffing model	16	
	Develop draft City operated staffing evaluation	26	
	Staffing evaluation memo	28	
	<b>Subtotal</b>	<b>122</b>	<b>\$20,130</b>
<b>Task 4</b>	<b>Contingency Support</b>		
	On call task services	290	
	<b>Subtotal</b>	<b>290</b>	<b>\$47,850</b>
<b>Task 5</b>	<b>Meetings</b>		
	Facilitate kick off meeting to summarize scope, make introductions and review logistics. Travel and summary memo.	4	
	Monthly onsite meeting (14 two hour meetings incl. travel)	42	
	Facilitate conference calls (14 each one hour meetings)	14	
	Facilitate onsite meetings (6 each) including travel	12	
	Meeting preparation and documentation	36	
	<b>Subtotal</b>	<b>108</b>	<b>\$17,820</b>
<b>Total not to exceed estimate</b>		<b>Hours</b>	<b>Cost</b>
		<b>836</b>	<b>\$137,940</b>

Proposal for City of Sandy Technical Support Services

**TERMS AND CONDITIONS**

Terms and conditions will be in accordance with Leeway Engineering Solutions contract for Sub consultant services and the City of Sandy's contract for professional services.

Thank you for the opportunity to propose this work. If you have any questions regarding this proposal or would like to discuss details, please do not hesitate to contact me.

Best Regards,

**Mark Walter**

Waterdude Solutions, LLC

[markw@waterdudesolutions.com](mailto:markw@waterdudesolutions.com)

Telephone 971-413-4126

## Attachement 1

Likelihood - Trigger Matrix							
Objective	Weight	Negligible = 1	Minor = 2	Moderate = 4	Major = 7	Critical = 10	
Likelihood	Condition Assessment Overall	0.75	Only planned maintenance required (Condition Grade 1)	5% needs corrective maintenance or renewal (Condition Grade 2)	10 to 20% needs corrective maintenance or renewal (Condition Grade 3)	20 to 40% needs corrective maintenance or renewal (Condition Grade 4)	>50% requires corrective maintenance or renewal (Condition Grade 5)
	Effective Operating Protocols <sup>1</sup>	0.10	Optimal	Satisfactory	Known improvements needed	No protocols currently exist	
	Reliability	0.10	No Corrective work order Events within 12 months	<2 corrective work order events within 12 months	2-5 corrective work order events within 12 months	>6-8 corrective work order events within 12 months	>8 corrective work order events within 12 months
	Planned Redundancy <sup>2</sup>	0.05	200% - additional spare parts in stock - action plan in place and practiced	100% - spare parts in stock - action plan developed and implemented	Spare parts are available within 4 hours - action plan developed and implemented	Spare parts are available within 24 hours - action plan developed and implemented	0% - no parts - no plan
Trigger	Capacity and Utilization <sup>3</sup>	0.5	Sized correctly for meeting conditions	Under utilized (Time)	Over capacity (Volume)	Over utilized (Time)	Unable to meet capacity
	Obsolescence	0.2	New - optimal technology	Technology change	No manufactured parts available	Parts probably available from other sources	Parts are not available
	Annual Maintenance Cost <sup>4</sup>	0.3	<10% of replacement cost	10-20% of replacement cost	20-30% of replacement cost	30-50% of replacement cost	>50% of replacement cost

<sup>1</sup> Includes standard operating procedures, O&M manuals, maintenance checklists, etc.

<sup>2</sup> Includes availability of parts and written plan to find in-stock parts, and obtain parts from others.

<sup>3</sup> Capacity relates to volume, quantity or flow; utilization relates to the amount of time asset is in-use.

<sup>4</sup> Includes all maintenance costs, both planned and unplanned.

**Attachment 1**

<b>Wastewater Treatment - criticality levels by possible impact</b>					
<b>Impact Category</b>	<b>Weight</b>	<b>Negligible = 1</b>	<b>Low = 4</b>	<b>Moderate = 7</b>	<b>Critical = 10</b>
<b>1 Health &amp; Safety of employees and public</b>	1.0	No injuries or adverse health effects	No lost-time injuries or medical attention necessary	Lost time injury or injury requires medical attention	Long term disability or death.
<b>2 Compliance with permits and regulations</b>	0.8	No violations of permits or regulations. No environmental or public health impact.	Warning Letter but no enforcement action taken, No environmental or public health impact	Violation of NPDES Permit. Possible short-term environmental impact. Possible public health impact.	Violation of NPDES Permit. Enforcement action likely. Long-term environmental impact likely; public health impact likely.
<b>3 Service reliability</b>	0.8	<20 services interrupted; No Process Impact	<500 services effected; Reduction in Process efficiency	500-1000 services effected; Long term Process impacts	Service interruption >1000 services; Process failure
<b>4 Disruption to the community / Public Image</b>	0.7	No social or economic impact on the businesses or the community. No disruption to the community. No media coverage.	No social or economic impact on the businesses or the community. Minor disruption to the community (e.g., traffic, dust, noise). No media coverage.	Short-term economic impact on residential customers and/or a few business. Minor disruption to the community (e.g., traffic, dust, noise). Local media coverage.	Long-term or area-wide economic impact on numerous businesses or any "high-priority" customer. Major disruption to the community (e.g., traffic, dust, noise). National media coverage.
<b>5 Ability to return asset to service</b>	0.7	Less than 4 hours	Service restored 4 to 12 hours	Service restored 12 to 24 hours	Not able to restore service for >24 hrs
<b>6 Financial impact on utility</b>	0.6	<\$5,000	\$5,000 to \$25,000	\$25,000 to \$150,000	>\$150,000

Attachment 1

Sample

Wastewater Systems		Influent Pump Station	Effluent Conveyance	Headworks Screening	Aeration Basin	Secondary Clarification	Sodium Hypochlorite System	W3 and Sump Pumping	Septage	Plant Drain	Plant Effluent	W1	Generator Power	RAS/WAS Pumping	Sludge Storage and Dewatering Feed Pumping	Dewatering Polymer	Centrifuge	Pasteurization System Lime Storage and Feed	Pasteurization System Biosolids	
<b>Criticality</b>	<b>Weight</b>																			
Health & Safety of employees and	1.0	4	1	7	1	1	7	4	4	4	4	1	1	4	4	1	1	7	7	
Compliance with permits and	0.8	7	7	1	1	1	10	1	1	1	1	1	10	4	1	1	4	7	10	
Service reliability	0.8	7	4	4	10	4	10	4	10	4	7	1	7	4	4	4	10	10	10	
Disruption to the community / Public Image	0.7	7	7	4	4	4	10	1	7	1	4	1	7	4	4	4	7	10	10	
Ability to return asset to service	0.7	4	4	7	4	10	7	4	4	4	1	1	10	10	4	4	10	10	10	
Financial impact on utility	0.6	7	4	7	7	10	7	1	7	1	1	1	4	4	1	4	10	7	10	
<b>Criticality Score</b>		<b>27.1</b>	<b>19.9</b>	<b>22.9</b>	<b>19.6</b>	<b>20.8</b>	<b>39.1</b>	<b>12.1</b>	<b>24.7</b>	<b>12.1</b>	<b>14.5</b>	<b>4.6</b>	<b>28.9</b>	<b>22.6</b>	<b>14.2</b>	<b>13.0</b>	<b>30.1</b>	<b>38.8</b>	<b>43.0</b>	
<b>Criticality Rank</b>		<b>7</b>	<b>13</b>	<b>10</b>	<b>14</b>	<b>12</b>	<b>2</b>	<b>19</b>	<b>9</b>	<b>19</b>	<b>16</b>	<b>22</b>	<b>6</b>	<b>11</b>	<b>17</b>	<b>18</b>	<b>5</b>	<b>3</b>	<b>1</b>	
<b>Likelihood</b>	<b>Weight</b>																			
Condition Assessment Overall	0.75	4	1	7	7	4	10	2	10	2	2	1	1	4	1	2	7	7	10	
Effective Operating Protocols <sup>1</sup>	0.10	2	2	2	2	2	4	1	4	2	2	1	2	1	2	2	4	2	4	
Reliability	0.10	10	2	2	10	4	10	1	10	4	1	1	4	7	2	2	10	7	10	
Planned Redundancy <sup>2</sup>	0.05	4	2	2	7	4	7	2	7	4	2	2	4	4	4	2	10	7	7	
<b>Likelihood Score</b>		<b>4.4</b>	<b>1.25</b>	<b>5.75</b>	<b>6.8</b>	<b>3.8</b>	<b>9.25</b>	<b>1.8</b>	<b>9.25</b>	<b>2.3</b>	<b>1.9</b>	<b>1.05</b>	<b>1.55</b>	<b>4</b>	<b>1.35</b>	<b>2</b>	<b>7.15</b>	<b>6.5</b>	<b>9.25</b>	
<b>Likelihood Rank</b>		<b>9</b>	<b>21</b>	<b>8</b>	<b>6</b>	<b>11</b>	<b>1</b>	<b>18</b>	<b>1</b>	<b>12</b>	<b>17</b>	<b>22</b>	<b>19</b>	<b>10</b>	<b>20</b>	<b>15</b>	<b>4</b>	<b>7</b>	<b>1</b>	
<b>Trigger</b>	<b>Weight</b>																			
Capacity and Utilization <sup>3</sup>	0.50	2	1	10	4	1	1	1	10	1	1	1	1	4	4	1	10	1	7	
Obsolescence	0.20	2	1	2	1	1	2	1	2	1	1	1	1	2	2	2	2	7	7	
Annual Maintenance Cost <sup>4</sup>	0.30	2	1	4	7	2	4	1	2	2	1	1	1	2	1	1	2	2	7	
<b>Trigger Score</b>		<b>2</b>	<b>1</b>	<b>6.6</b>	<b>4.3</b>	<b>1.3</b>	<b>2.1</b>	<b>1</b>	<b>6</b>	<b>1.3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>2.7</b>	<b>1.2</b>	<b>6</b>	<b>2.5</b>	<b>7</b>	
<b>Trigger Rank</b>		<b>11</b>	<b>15</b>	<b>2</b>	<b>5</b>	<b>12</b>	<b>10</b>	<b>15</b>	<b>3</b>	<b>12</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>7</b>	<b>8</b>	<b>14</b>	<b>3</b>	<b>9</b>	<b>1</b>	
<b>Risk</b>																				
<b>Risk Score</b>		<b>238</b>	<b>25</b>	<b>869</b>	<b>573</b>	<b>103</b>	<b>760</b>	<b>22</b>	<b>1371</b>	<b>36</b>	<b>28</b>	<b>5</b>	<b>45</b>	<b>271</b>	<b>52</b>	<b>31</b>	<b>1291</b>	<b>631</b>	<b>2784</b>	
<b>Risk Rank</b>		<b>10</b>	<b>19</b>	<b>5</b>	<b>8</b>	<b>11</b>	<b>6</b>	<b>20</b>	<b>2</b>	<b>16</b>	<b>18</b>	<b>22</b>	<b>14</b>	<b>9</b>	<b>13</b>	<b>17</b>	<b>3</b>	<b>7</b>	<b>1</b>	





## Staff Report

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**Meeting Date:** April 18, 2022

**From** Tyler Deems, Deputy City Manager / Finance Director

**SUBJECT:** Audit Corrective Plan of Action

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### **BACKGROUND / CONTEXT:**

As a result of the annual financial audit for the period ended June 30, 2021, one finding was identified by the city's auditing firm, Talbot, Korvola & Warwick, LLP. The finding is classified as "Internal Control over Financial Reporting." Per ORS 297.466, the City must adopt a "Plan of Action" to address the finding, and then submit the plan to the Secretary of State's office within thirty (30) days of issued financial statements. The financial statements were issued March 31, 2022.

Finding 2021-001 is a result of a lack of internal controls within the Finance Department. More specifically, the auditors found one incorrect journal entry that was processed to record the funds received from the Full Faith & Credit 2021 bond issuance. While one incorrect journal entry does not typically result in an audit finding, this specific entry was a large dollar amount and the auditors felt that it warranted more formal action. As such, the Finance Department has prepared the following action plan to address the finding.

### **Plan of Action**

The Finance Department of the City of Sandy has a small staff, consisting of only the Deputy City Manager and Accounting Clerk. Every attempt is made to ensure that processes and entries are reviewed by someone other than the individual preparing the process or entry. On occasion, there are entries that are made that are outside of the typical activities for the City. In the case of Finding 2021-001, the issuance of Full Faith and Credit debt is an atypical entry that should have been reviewed by additional accounting professionals to ensure that the entry was recorded correctly. Staff will also look for additional training opportunities to ensure they are more adequately prepared for situations such as these. In addition, and if appropriate, atypical entries will follow the normal review procedures, as well as include an added step of review by another accounting professional to ensure accuracy.

Upon adoption of this resolution, the Finance Department will submit the adopted resolution to the Secretary of State's office within seven days. This will meet the requirements under ORS 297.466, and finalize the audit and necessary follow up items for the period ended June 30, 2021.

### **RECOMMENDATION:**

Staff recommends that Council approve Resolution 2022-04.



**BUDGETARY IMPACT:**

None.

**SUGGESTED MOTION LANGUAGE:**

"I move to adopt Resolution 2022-04, a Resolution Adopting an Audit Corrective Plan of Action for Fiscal Year 2021."

**LIST OF ATTACHMENTS/EXHIBITS:**

- Resolution 2022-04



NO. 2022-04

**A RESOLUTION ADOPTING AN AUDIT CORRECTIVE PLAN OF ACTION FOR FISCAL YEAR 2021**

**Whereas**, the City of Sandy has received and reviewed the Independent Auditor's Report for the fiscal year ended June 30, 2021, as prepared by our auditing firm Talbot, Korvola & Warwick, LLP; and

**Whereas**, one finding related to internal controls over financial reporting was reported; and

**Whereas**, the City of Sandy is required by ORS 297.466 to adopt a plan of action in response to the audit finding, and file the plan of action with the Secretary of State within 30 days of the completed audit.

**NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Sandy:**

Section 1: Every attempt is made to ensure that processes and entries are reviewed by someone other than the individual preparing the process or entry. On occasion, there are entries that are made that are outside of the typical activities for the City. In the case of Finding 2021-001, the issuance of Full Faith and Credit debt is an atypical entry that should have been reviewed by additional accounting professionals to ensure that the entry was recorded correctly. Staff will also look for additional training opportunities to ensure they are more adequately prepared for situations such as these. In addition, and if appropriate, atypical entries will follow the normal review procedures, as well as include an added step of review by another accounting professional to ensure accuracy.

Section 2: The Plan of Action shall take effect immediately upon the adoption of this Resolution.

Section 3: The Finance Director will file a copy of this Resolution with the Secretary of State in accordance with ORS 297.466.

This resolution is adopted by the Common Council of the City of Sandy and approved by the Mayor this 18 day of April 2022

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#2022-04

Stan Pulliam, Mayor

ATTEST:

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Jeff Aprati, City Recorder

#2022-04