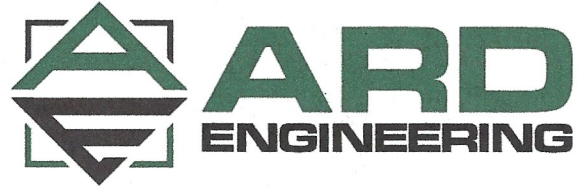


Exhibit E Traffic Impact Study



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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



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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.

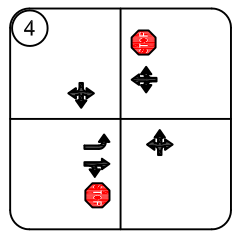
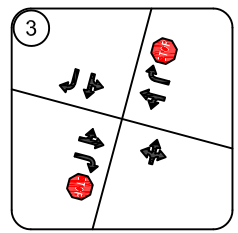
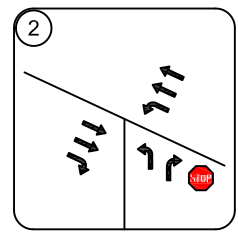
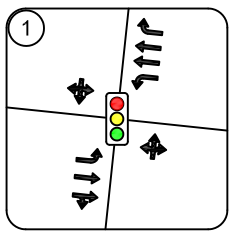
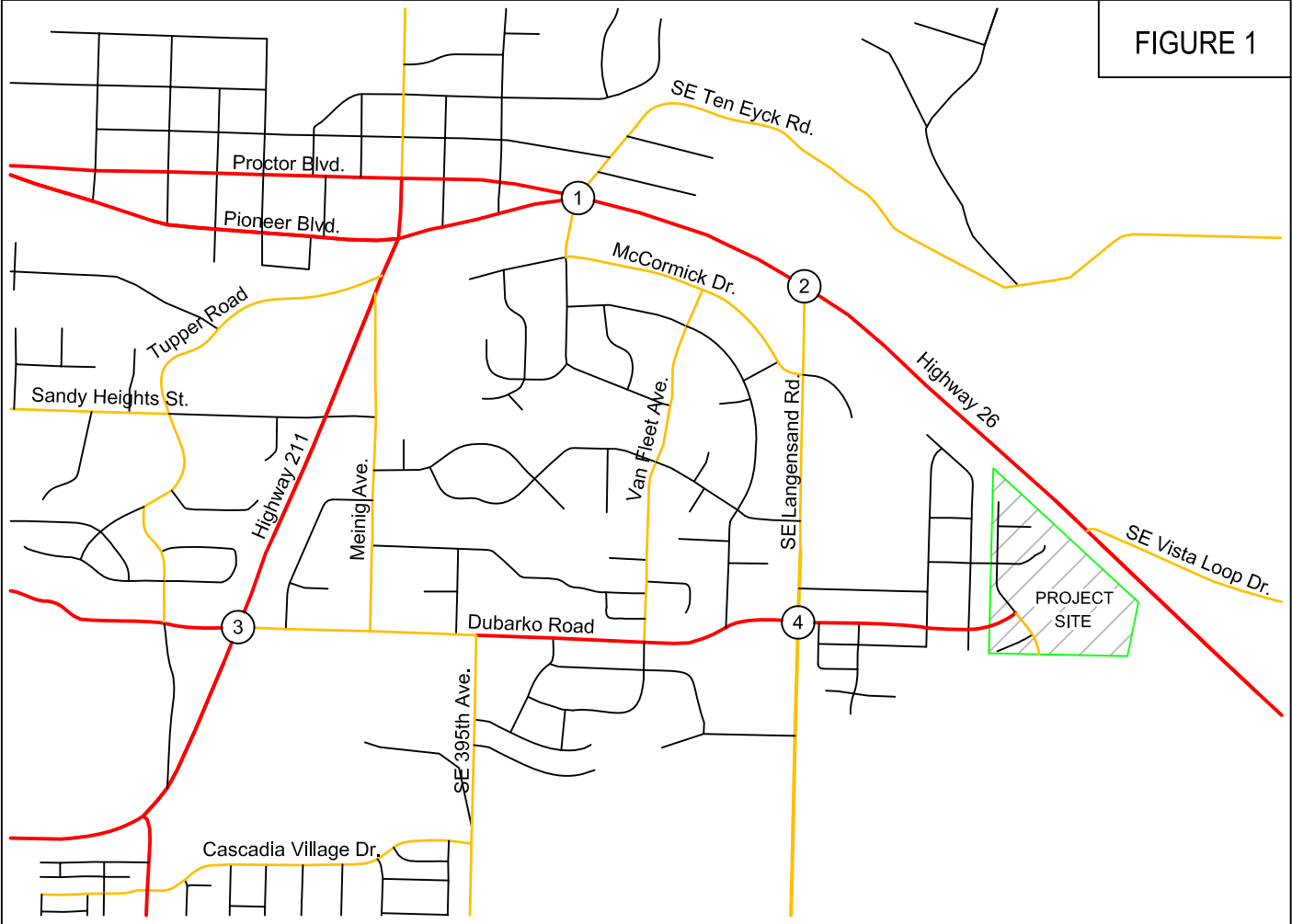
The intersection of US Highway 26 at SE Langensand Road is a T- intersection controlled by a stop sign on the northbound Langensand Road approach. Through traffic traveling along Highway 26 does not stop. The northbound approach has a left-turn lane and a right-turn lane. The eastbound approach has two 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





TRAFFIC COUNT DATA

Traffic counts were conducted at the study intersections on Tuesday March 19th, 2019 from 4:00 to 6:00 PM and on Wednesday March 20th, 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 30th-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.



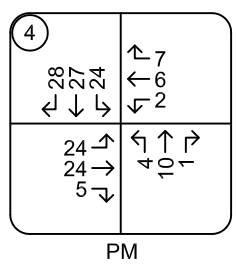
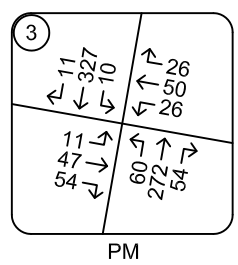
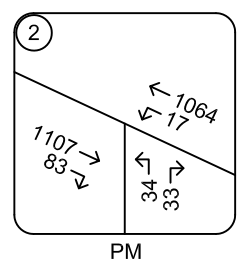
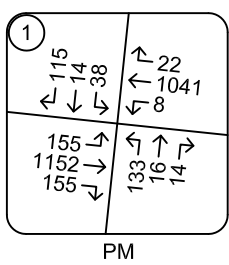
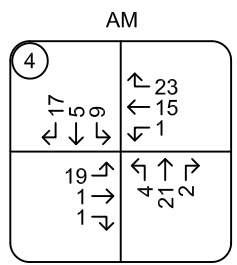
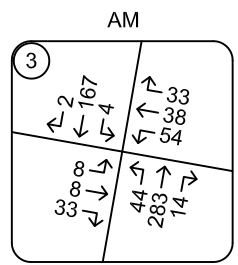
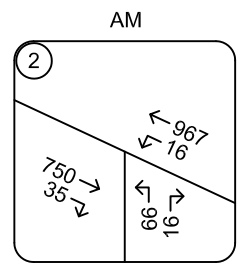
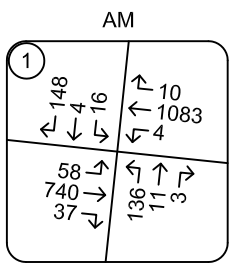
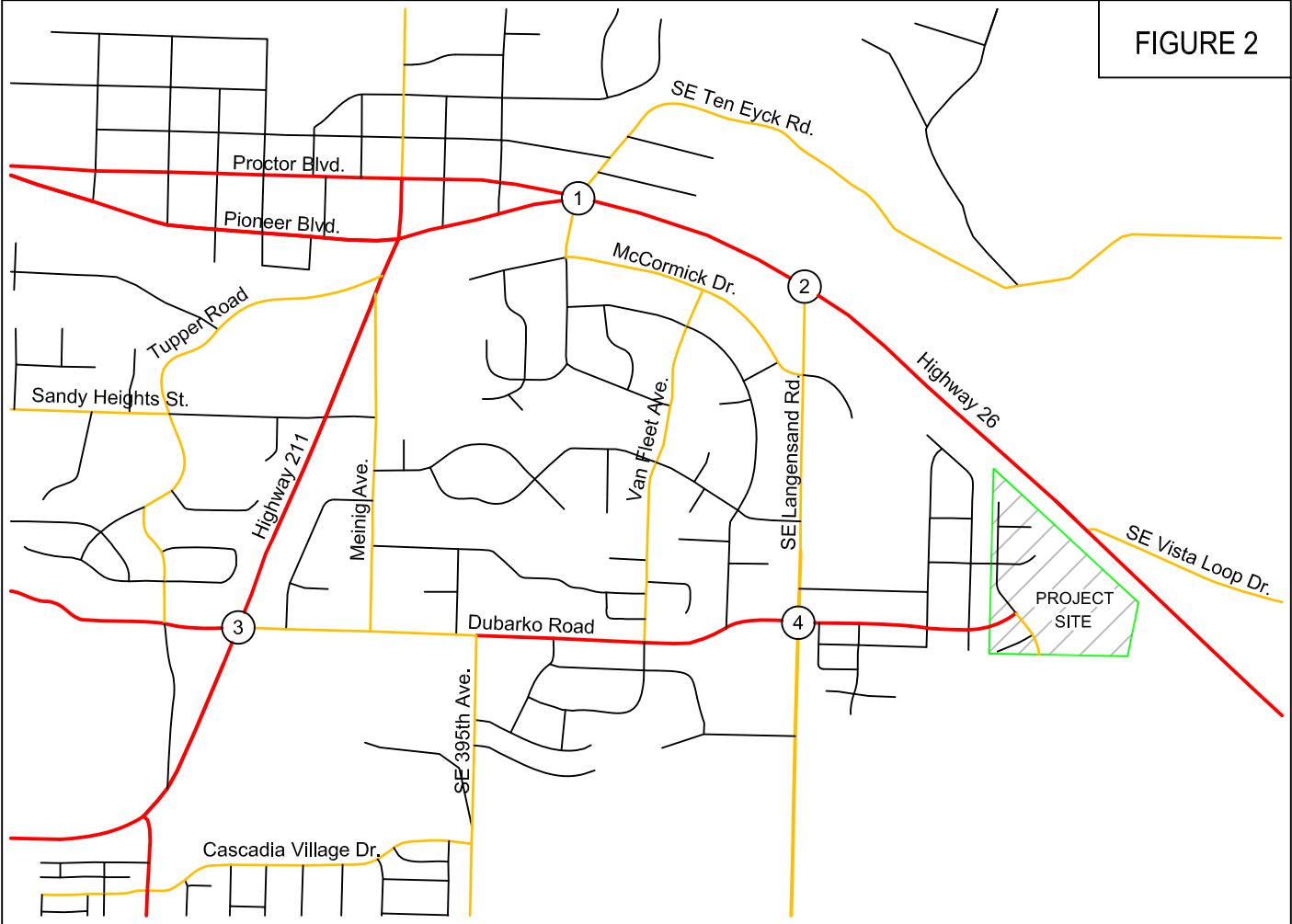
In order to seasonally adjust the local and commuter traffic volumes, the through traffic volumes were reduced by the amount of the assumed seasonal traffic (676 vehicles per hour during the evening peak hour), and a seasonal adjustment of 1.08 was applied to the remaining local and commuter traffic 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 30th-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 30th-highest hour traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 2





OPERATIONAL ANALYSIS

An operational analysis was conducted for the study intersections using Synchro 10 software, with outputs calculated based on the *HIGHWAY CAPACITY MANUAL, 6th 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 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, 10th 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

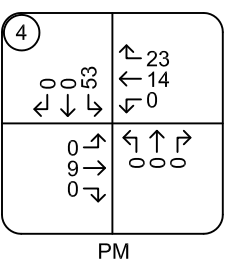
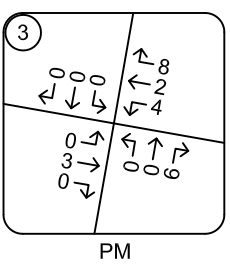
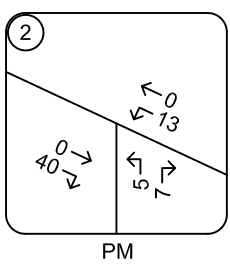
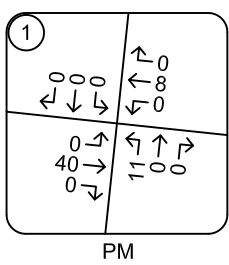
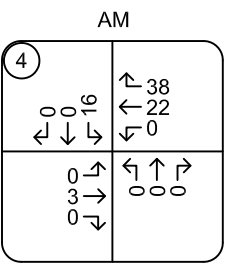
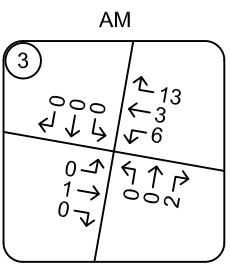
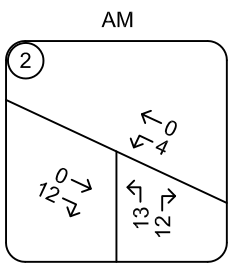
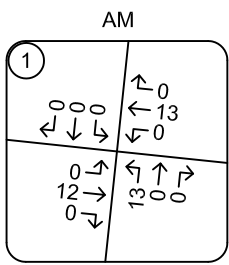
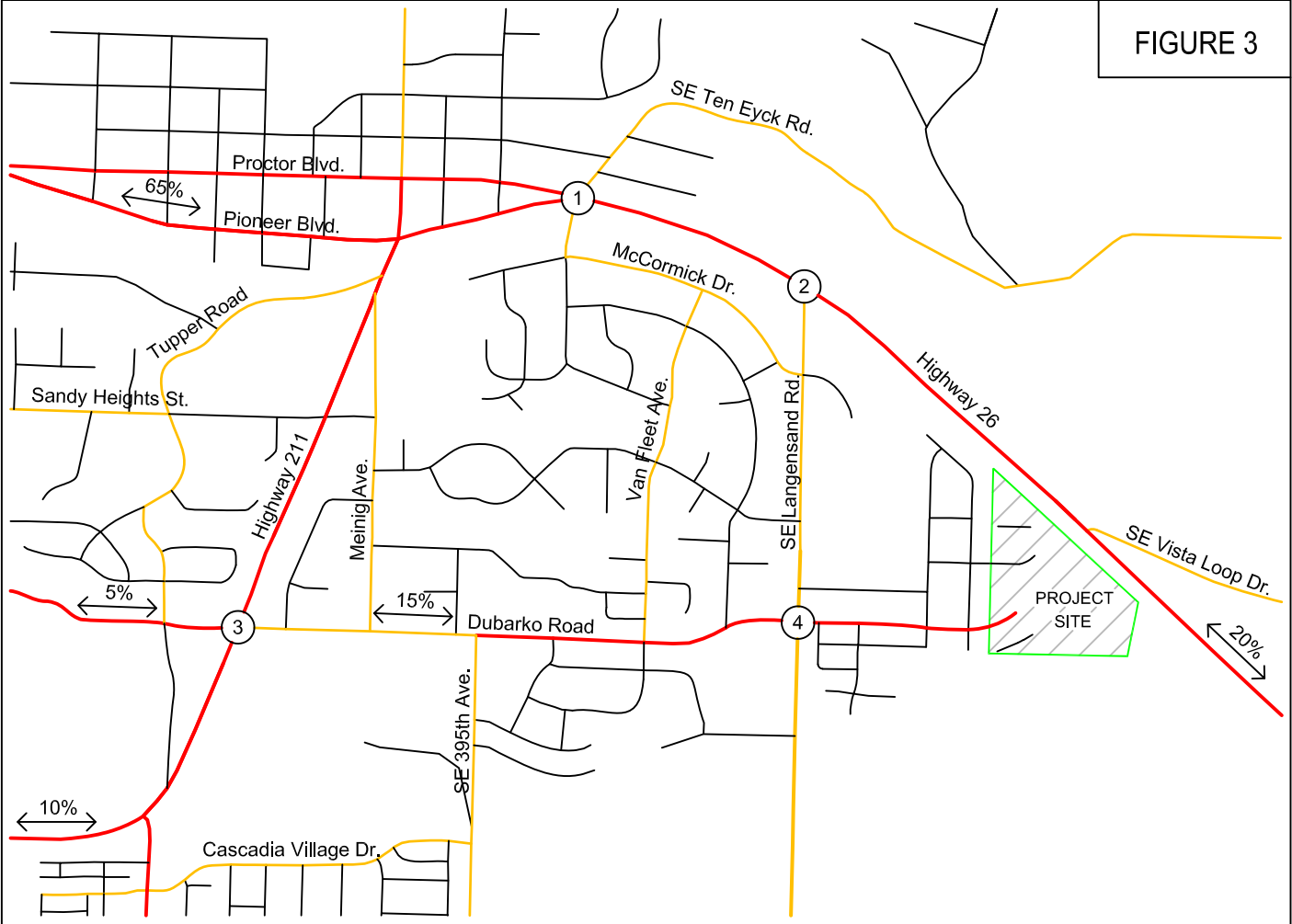
| | AM Peak Hour | | | PM Peak Hour | | | Daily Total |
|---------------------------------|--------------|-----|-------|--------------|-----|-------|-------------|
| | In | Out | Total | In | Out | Total | |
| 32 Single-Family Homes | 6 | 18 | 24 | 20 | 12 | 32 | 302 |
| 120 Multi-Family Dwelling Units | 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.

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

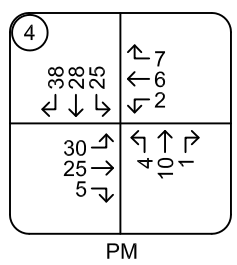
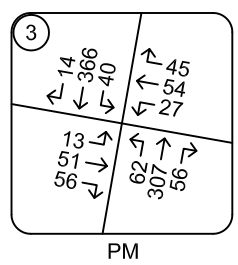
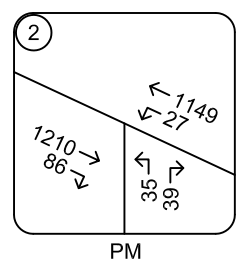
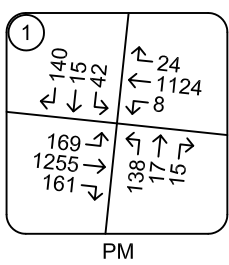
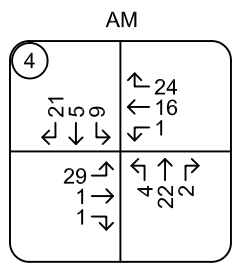
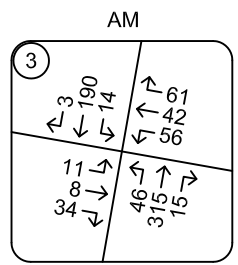
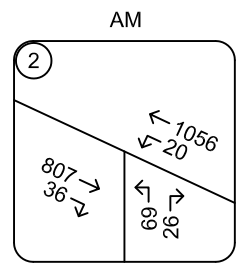
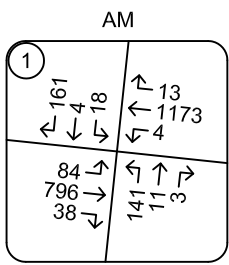
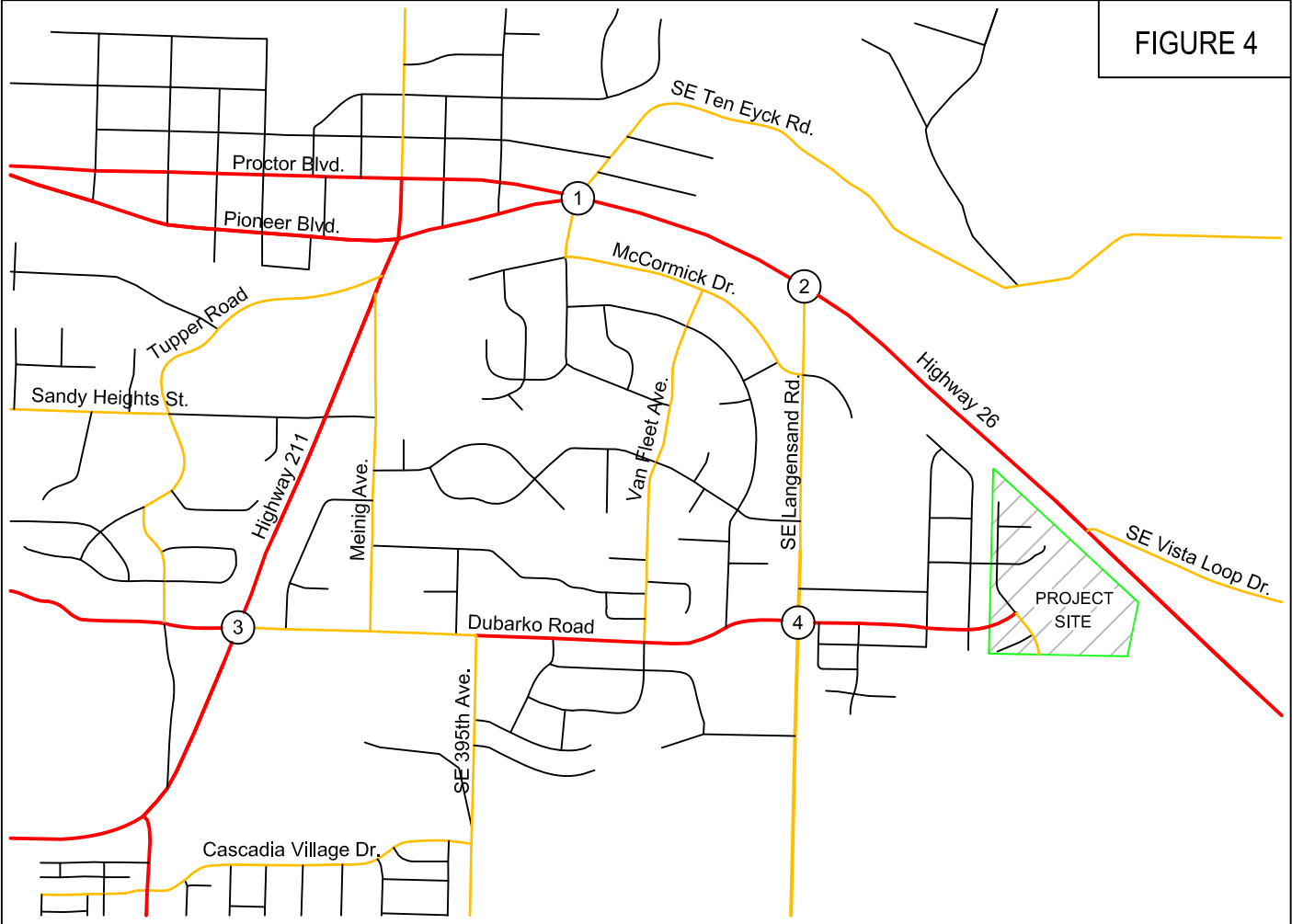
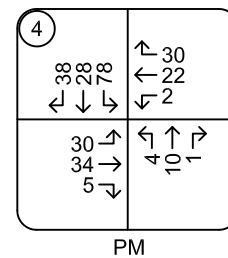
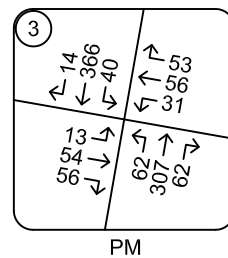
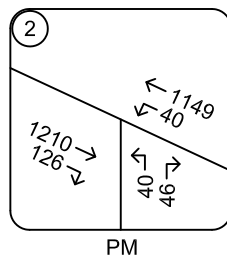
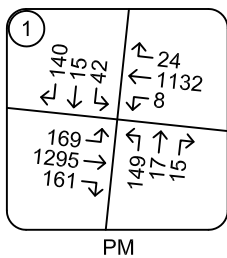
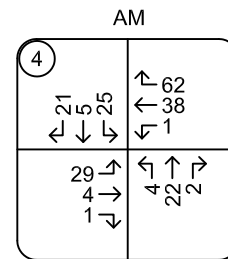
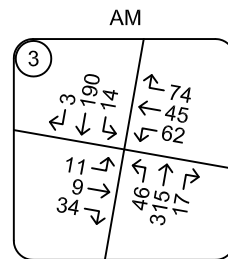
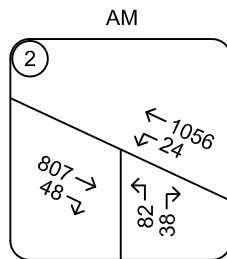
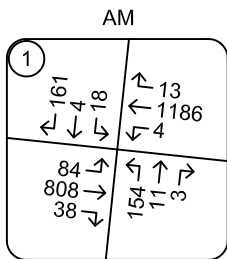
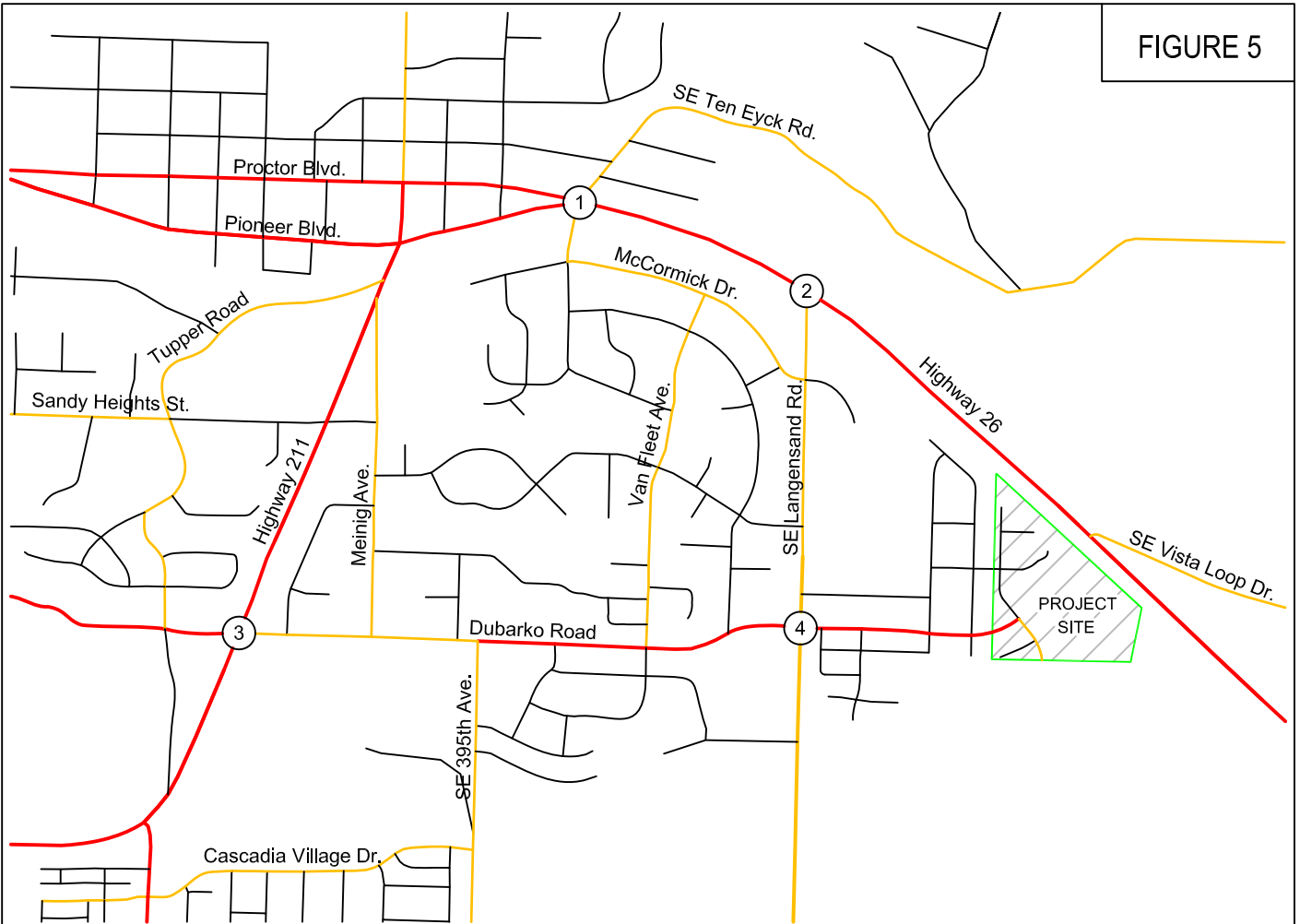


FIGURE 5





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 90th 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 90th 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 90th 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 90th 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 90th 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.

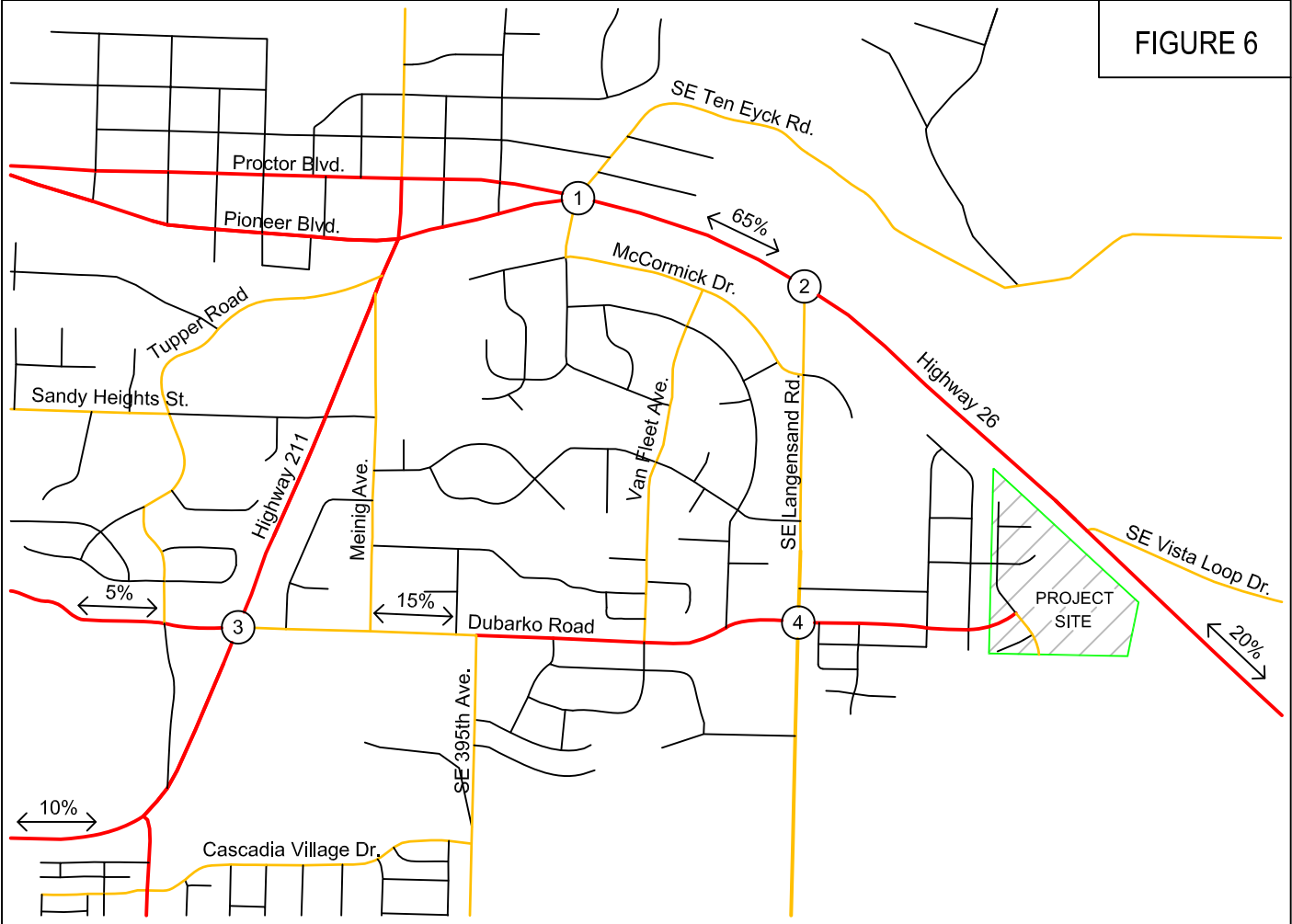
Based on the crash data, the majority of the study intersections are currently operating acceptably with respect to safety. The intersection of Highway 211 at Dubarko Road has a high historical crash rate which recent safety improvements have not significantly improved. This intersection meets all-way 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



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| ④ | <table border="1"> <tr> <td>↖ 9</td> <td>↘ 0</td> <td>↗ 0</td> <td>↖ 0</td> </tr> <tr> <td>↙ 0</td> <td>↘ 0</td> <td>↗ 0</td> <td>↖ 0</td> </tr> <tr> <td>↘ 5</td> <td>↙ 0</td> <td>↗ 0</td> <td>↘ 0</td> </tr> <tr> <td>↖ 0</td> <td>↙ 0</td> <td>↗ 0</td> <td>↘ 0</td> </tr> </table> | ↖ 9 | ↘ 0 | ↗ 0 | ↖ 0 | ↙ 0 | ↘ 0 | ↗ 0 | ↖ 0 | ↘ 5 | ↙ 0 | ↗ 0 | ↘ 0 | ↖ 0 | ↙ 0 | ↗ 0 | ↘ 0 |
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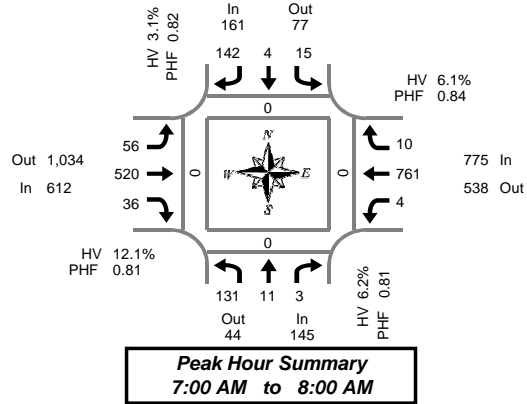


TRAFFIC VOLUMES
 In-Process Development - Site Trips
 Morning and Evening Peak Hours

Total Vehicle Summary



Clay Carney
(503) 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

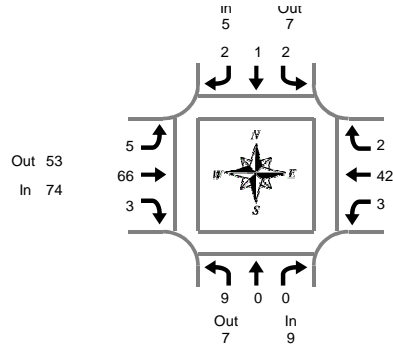
7:00 AM to 9:00 AM

| 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 | 0 | 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 |

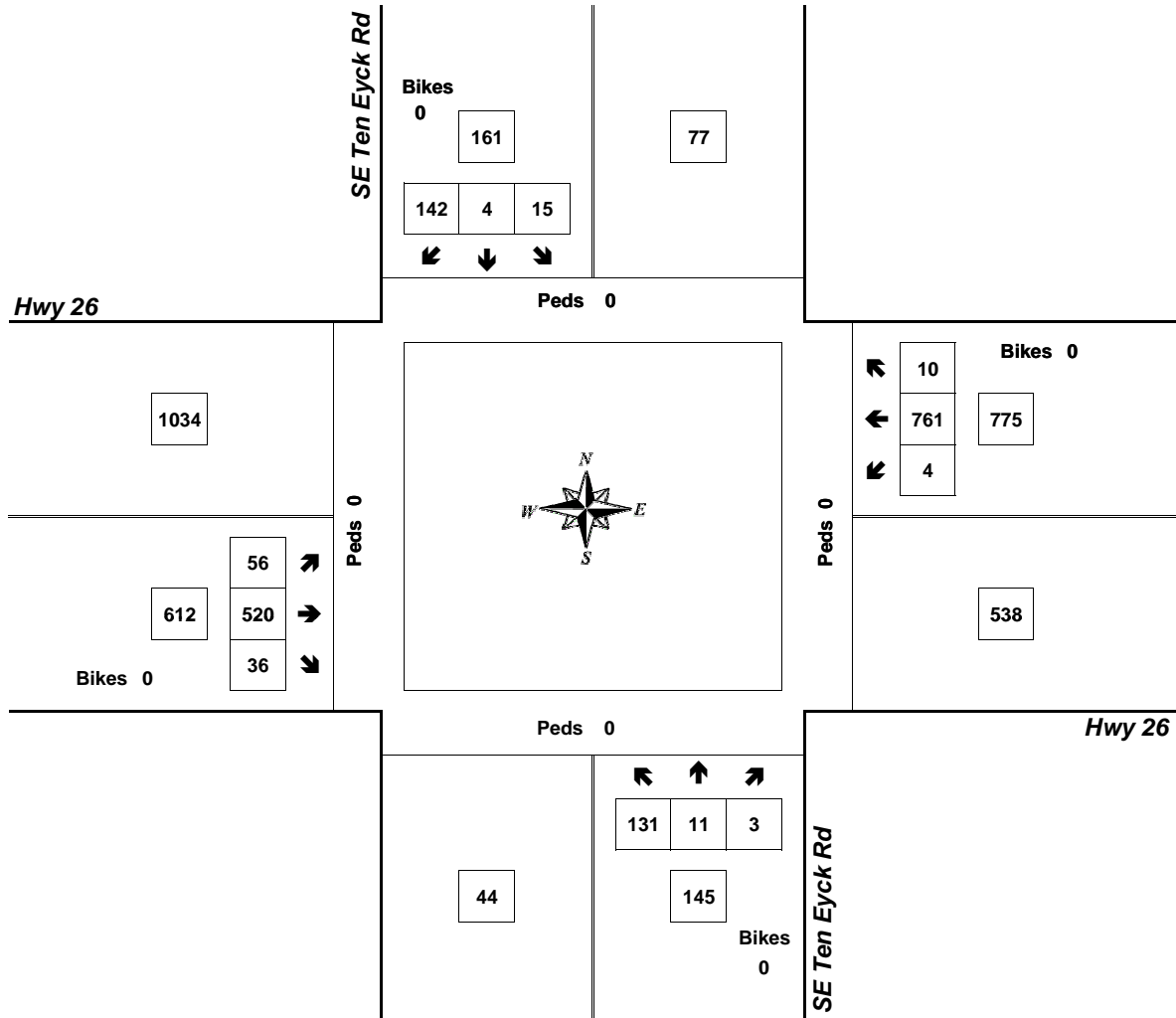
Peak Hour Summary



Clay Carney
(503) 833-2740

SE Ten Eyck Rd & Hwy 26

7:00 AM to 8:00 AM
Wednesday, March 20, 2019



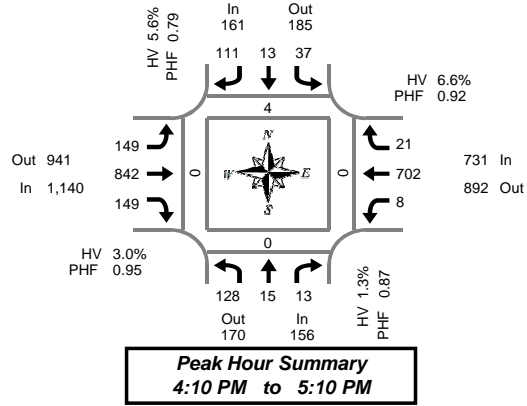
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.81 | 12.1% | 612 |
| WB | 0.84 | 6.1% | 775 |
| NB | 0.81 | 6.2% | 145 |
| SB | 0.82 | 3.1% | 161 |
| Intersection | 0.93 | 8.0% | 1,693 |

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 | 66 | 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 | 0 | 2 | 3 | 0 | 16 | 65 | 10 | 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

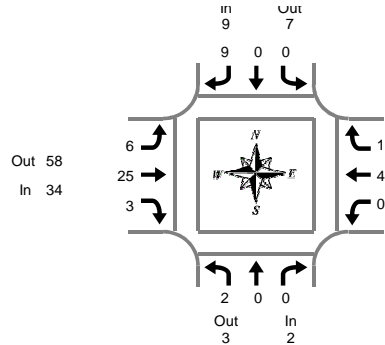
4:00 PM to 6:00 PM

| 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



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 | 4 | 0 | 10 | 1 | 11 | 15 |
| 4:05 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 6 | 0 | 6 | 0 | 3 | 1 | 4 | 11 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 8 | 0 | 8 | 10 |
| 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 | 0 | 1 | 1 | 0 | 5 | 1 | 6 | 0 | 4 | 0 | 4 | 11 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 3 | 6 |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 5 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 0 | 2 | 0 | 2 | 6 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 4 | 0 | 4 | 6 |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 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 | 0 | 4 | 1 | 5 | 0 | 1 | 0 | 1 | 6 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 5 | 0 | 5 | 7 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | 4 | 0 | 4 | 8 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 4 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 5 | 0 | 5 | 6 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 3 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 3 | 0 | 3 | 7 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 4 | 0 | 4 | 6 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 5:45 PM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 3 | 6 |
| 5:50 PM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 4 | 0 | 4 | 7 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 5 | 0 | 5 | 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 | 0 | 1 | 1 | 2 | 3 | 1 | 6 | 0 | 11 | 0 | 11 | 18 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 1 | 11 | 0 | 10 | 0 | 10 | 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 | 0 | 1 | 1 | 5 | 22 | 3 | 30 | 0 | 36 | 0 | 36 | 67 |
| 5:00 PM | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 24 | 3 | 31 | 0 | 37 | 0 | 37 | 70 |

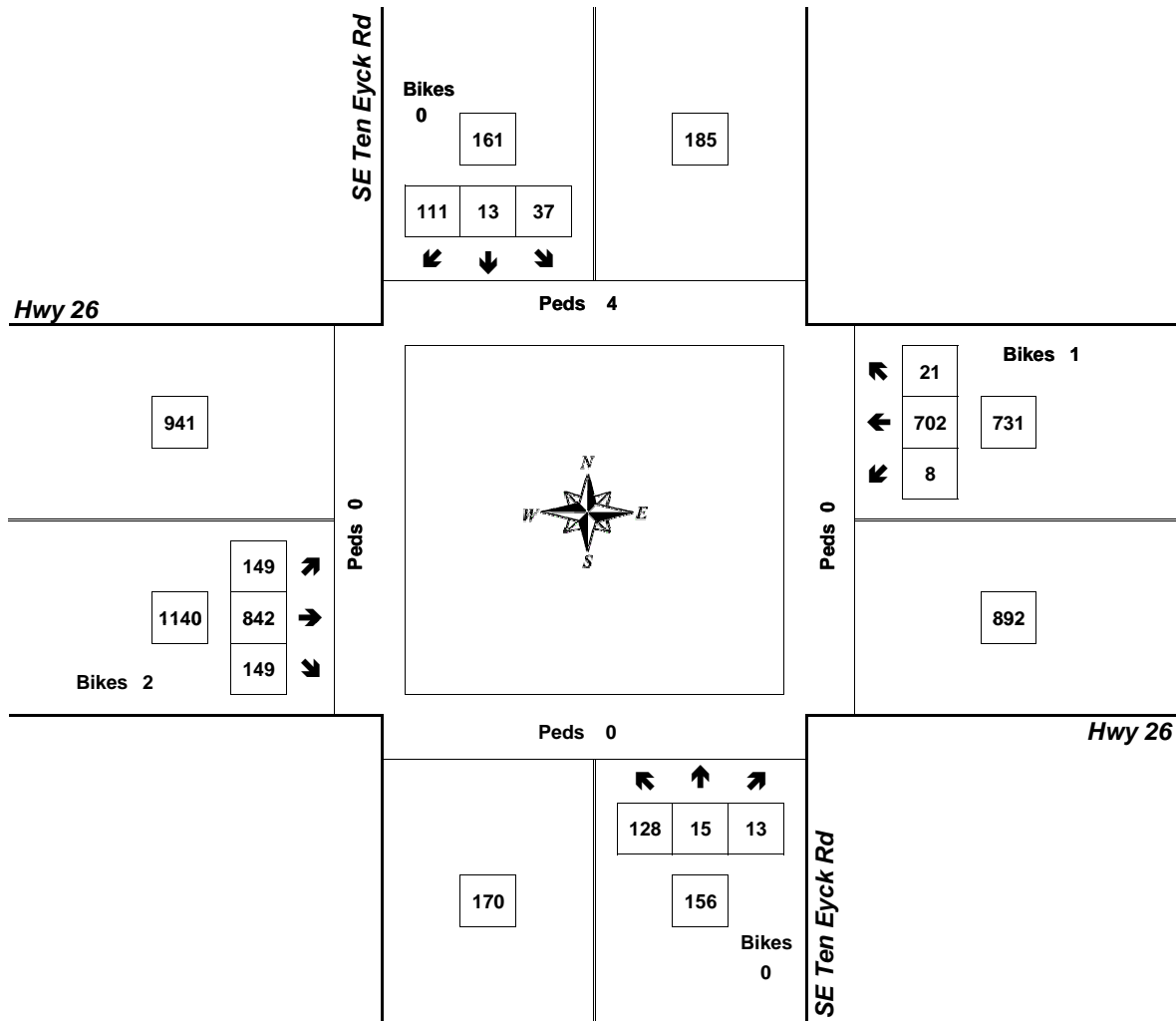
Peak Hour Summary



Clay Carney
(503) 833-2740

SE Ten Eyck Rd & Hwy 26

4:10 PM to 5:10 PM
Tuesday, March 19, 2019



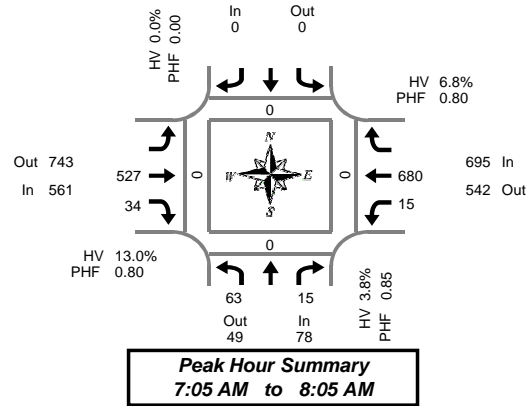
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.95 | 3.0% | 1,140 |
| WB | 0.92 | 6.6% | 731 |
| NB | 0.87 | 1.3% | 156 |
| SB | 0.79 | 5.6% | 161 |
| Intersection | 0.94 | 4.3% | 2,188 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 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 | 0 | 0 | 25 | 1 | 0 | 2 | 62 | 0 | 94 | 0 | 0 | 0 | 0 |
| 7:05 AM | 9 | 0 | 0 | 0 | 0 | 0 | 24 | 2 | 0 | 2 | 65 | 0 | 102 | 0 | 0 | 0 | 0 |
| 7:10 AM | 3 | 0 | 0 | 0 | 0 | 0 | 22 | 2 | 0 | 0 | 74 | 0 | 101 | 0 | 0 | 0 | 0 |
| 7:15 AM | 4 | 2 | 0 | 0 | 0 | 0 | 33 | 3 | 0 | 1 | 71 | 0 | 114 | 0 | 0 | 0 | 0 |
| 7:20 AM | 9 | 2 | 0 | 0 | 0 | 0 | 52 | 1 | 0 | 0 | 71 | 0 | 135 | 0 | 0 | 0 | 0 |
| 7:25 AM | 4 | 1 | 0 | 0 | 0 | 0 | 31 | 3 | 0 | 4 | 67 | 0 | 110 | 0 | 0 | 0 | 0 |
| 7:30 AM | 5 | 2 | 0 | 0 | 0 | 0 | 39 | 5 | 0 | 0 | 60 | 0 | 111 | 0 | 0 | 0 | 0 |
| 7:35 AM | 4 | 1 | 0 | 0 | 0 | 0 | 52 | 1 | 0 | 2 | 54 | 0 | 114 | 0 | 0 | 0 | 0 |
| 7:40 AM | 8 | 0 | 0 | 0 | 0 | 0 | 56 | 3 | 0 | 2 | 41 | 0 | 110 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1 | 2 | 0 | 0 | 0 | 0 | 49 | 8 | 0 | 3 | 42 | 0 | 105 | 0 | 0 | 0 | 0 |
| 7:50 AM | 4 | 2 | 0 | 0 | 0 | 0 | 56 | 2 | 0 | 1 | 52 | 0 | 117 | 0 | 0 | 0 | 0 |
| 7:55 AM | 7 | 1 | 0 | 0 | 0 | 0 | 59 | 2 | 0 | 0 | 45 | 0 | 114 | 0 | 0 | 0 | 0 |
| 8:00 AM | 5 | 2 | 0 | 0 | 0 | 0 | 54 | 2 | 0 | 0 | 38 | 0 | 101 | 0 | 0 | 0 | 0 |
| 8:05 AM | 2 | 2 | 0 | 0 | 0 | 0 | 44 | 3 | 0 | 1 | 41 | 0 | 93 | 0 | 0 | 0 | 0 |
| 8:10 AM | 2 | 2 | 0 | 0 | 0 | 0 | 41 | 1 | 0 | 0 | 49 | 0 | 95 | 0 | 0 | 0 | 0 |
| 8:15 AM | 4 | 1 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 2 | 34 | 0 | 87 | 0 | 0 | 0 | 0 |
| 8:20 AM | 2 | 1 | 0 | 0 | 0 | 0 | 40 | 3 | 0 | 0 | 42 | 0 | 88 | 0 | 0 | 0 | 0 |
| 8:25 AM | 4 | 2 | 0 | 0 | 0 | 0 | 39 | 2 | 0 | 1 | 43 | 0 | 91 | 0 | 0 | 0 | 0 |
| 8:30 AM | 5 | 4 | 0 | 0 | 0 | 0 | 53 | 1 | 0 | 2 | 37 | 0 | 102 | 0 | 0 | 0 | 0 |
| 8:35 AM | 2 | 3 | 0 | 0 | 0 | 0 | 56 | 1 | 0 | 0 | 53 | 0 | 115 | 0 | 0 | 0 | 0 |
| 8:40 AM | 1 | 2 | 0 | 0 | 0 | 0 | 53 | 8 | 0 | 1 | 47 | 0 | 112 | 0 | 0 | 0 | 0 |
| 8:45 AM | 6 | 2 | 0 | 0 | 0 | 0 | 77 | 5 | 0 | 0 | 53 | 0 | 143 | 0 | 0 | 0 | 0 |
| 8:50 AM | 4 | 4 | 0 | 0 | 0 | 0 | 52 | 2 | 0 | 5 | 60 | 0 | 127 | 0 | 0 | 0 | 0 |
| 8:55 AM | 5 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 1 | 42 | 0 | 108 | 0 | 0 | 0 | 0 |
| Total Survey | 104 | 38 | 0 | 0 | 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 | 0 | 0 | 71 | 5 | 0 | 4 | 201 | 0 | 297 | 0 | 0 | 0 | 0 |
| 7:15 AM | 17 | 5 | 0 | 0 | 0 | 0 | 116 | 7 | 0 | 5 | 209 | 0 | 359 | 0 | 0 | 0 | 0 |
| 7:30 AM | 17 | 3 | 0 | 0 | 0 | 0 | 147 | 9 | 0 | 4 | 155 | 0 | 335 | 0 | 0 | 0 | 0 |
| 7:45 AM | 12 | 5 | 0 | 0 | 0 | 0 | 164 | 12 | 0 | 4 | 139 | 0 | 336 | 0 | 0 | 0 | 0 |
| 8:00 AM | 9 | 6 | 0 | 0 | 0 | 0 | 139 | 6 | 0 | 1 | 128 | 0 | 289 | 0 | 0 | 0 | 0 |
| 8:15 AM | 10 | 4 | 0 | 0 | 0 | 0 | 125 | 5 | 0 | 3 | 119 | 0 | 266 | 0 | 0 | 0 | 0 |
| 8:30 AM | 8 | 9 | 0 | 0 | 0 | 0 | 162 | 10 | 0 | 3 | 137 | 0 | 329 | 0 | 0 | 0 | 0 |
| 8:45 AM | 15 | 6 | 0 | 0 | 0 | 0 | 189 | 7 | 0 | 6 | 155 | 0 | 378 | 0 | 0 | 0 | 0 |
| Total Survey | 104 | 38 | 0 | 0 | 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 | In | Out | Total | In | Out | Total | In | Out | Total | | North | South | East | West | | |
| Volume | 78 | 49 | 127 | 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 | | | Total | T | R | Total | L | T | Total | | | | | |
| Volume | 63 | 15 | 78 | | | 0 | 527 | 34 | 561 | 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 | | | 0.78 | 0.65 | 0.80 | 0.54 | 0.79 | 0.80 | 0.93 | | | | |

Rolling Hour Summary

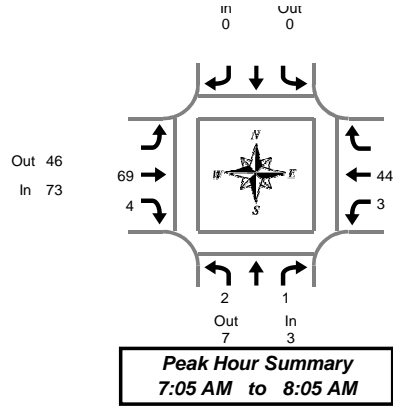
7:00 AM to 9:00 AM

| 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 | 0 | 0 | 498 | 33 | 0 | 17 | 704 | 0 | 1,327 | 0 | 0 | 0 | 0 |
| 7:15 AM | 55 | 19 | 0 | 0 | 0 | 0 | 566 | 34 | 0 | 14 | 631 | 0 | 1,319 | 0 | 0 | 0 | 0 |
| 7:30 AM | 48 | 18 | 0 | 0 | 0 | 0 | 575 | 32 | 0 | 12 | 541 | 0 | 1,226 | 0 | 0 | 0 | 0 |
| 7:45 AM | 39 | 24 | 0 | 0 | 0 | 0 | 590 | 33 | 0 | 11 | 523 | 0 | 1,220 | 0 | 0 | 0 | 0 |
| 8:00 AM | 42 | 25 | 0 | 0 | 0 | 0 | 615 | 28 | 0 | 13 | 539 | 0 | 1,262 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



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

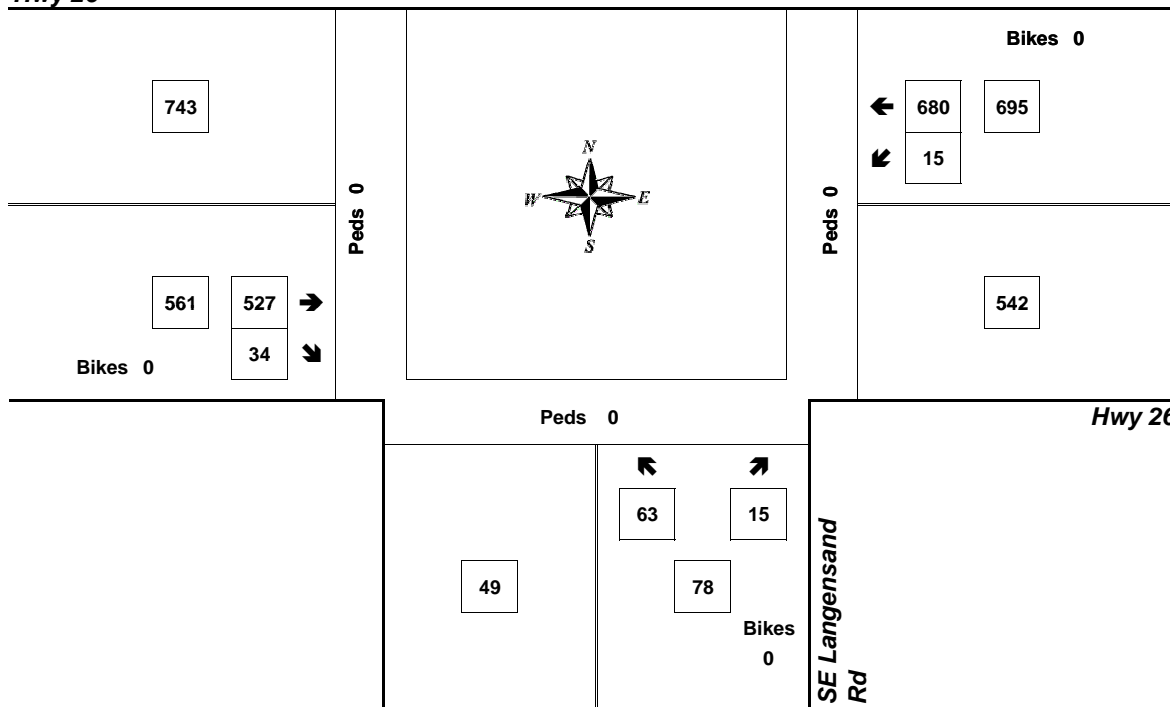
SE Langensand Rd & Hwy 26

7:05 AM to 8:05 AM
Wednesday, March 20, 2019

Bikes
0

Hwy 26

Peds 0



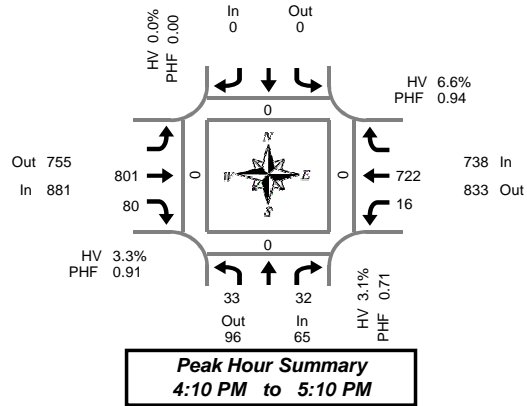
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.80 | 13.0% | 561 |
| WB | 0.80 | 6.8% | 695 |
| NB | 0.85 | 3.8% | 78 |
| SB | 0.00 | 0.0% | 0 |
| Intersection | 0.93 | 9.2% | 1,334 |

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 | In | Out | Total | In | Out | Total | In | Out | Total | | North | South | East | West | | | |
| Volume | 65 | 96 | 161 | 1 | 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 | | | Total | T | R | Total | L | T | Total | | | | | |
| Volume | 33 | 32 | 65 | | | 0 | 801 | 80 | 881 | 16 | 722 | 738 | 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 | 0.93 | 0.69 | 0.91 | 0.57 | 0.93 | 0.94 | 0.93 | | | | |

Rolling Hour Summary

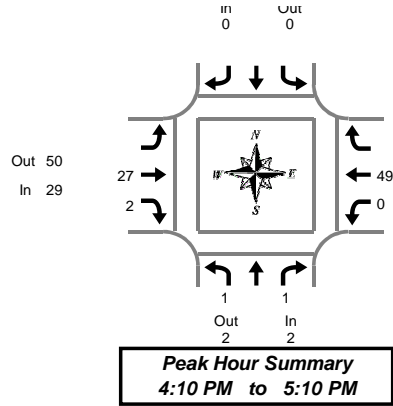
4:00 PM to 6:00 PM

| 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 | 14 |
| 4:05 PM | 0 | 0 | 0 | | | 0 | | | 8 | 0 | 8 | 0 | 5 | 13 |
| 4:10 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 7 | 9 |
| 4:15 PM | 0 | 0 | 0 | | | 0 | | | 5 | 0 | 5 | 0 | 4 | 9 |
| 4:20 PM | 1 | 0 | 1 | | | 0 | | | 4 | 1 | 5 | 0 | 4 | 10 |
| 4:25 PM | 0 | 0 | 0 | | | 0 | | | 3 | 0 | 3 | 0 | 5 | 8 |
| 4:30 PM | 0 | 1 | 1 | | | 0 | | | 1 | 1 | 2 | 0 | 3 | 6 |
| 4:35 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 4 | 5 |
| 4:40 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 3 | 5 |
| 4:45 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 4 | 5 |
| 4:50 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 6 | 8 |
| 4:55 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 2 | 3 |
| 5:00 PM | 0 | 0 | 0 | | | 0 | | | 3 | 0 | 3 | 0 | 1 | 4 |
| 5:05 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 6 | 8 |
| 5:10 PM | 0 | 0 | 0 | | | 0 | | | 0 | 1 | 1 | 0 | 4 | 5 |
| 5:15 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 3 | 5 |
| 5:20 PM | 0 | 0 | 0 | | | 0 | | | 0 | 0 | 0 | 0 | 5 | 5 |
| 5:25 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 1 | 2 |
| 5:30 PM | 0 | 0 | 0 | | | 0 | | | 4 | 0 | 4 | 0 | 2 | 6 |
| 5:35 PM | 0 | 0 | 0 | | | 0 | | | 0 | 0 | 0 | 1 | 2 | 3 |
| 5:40 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 3 | 4 |
| 5:45 PM | 0 | 0 | 0 | | | 0 | | | 4 | 0 | 4 | 0 | 3 | 7 |
| 5:50 PM | 0 | 0 | 0 | | | 0 | | | 1 | 0 | 1 | 0 | 2 | 3 |
| 5:55 PM | 0 | 0 | 0 | | | 0 | | | 2 | 0 | 2 | 0 | 7 | 9 |
| Total Survey | 1 | 1 | 2 | | | 0 | | | 53 | 3 | 56 | 1 | 97 | 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 | 36 |
| 4:15 PM | 1 | 0 | 1 | | | 0 | | | 12 | 1 | 13 | 0 | 13 | 27 |
| 4:30 PM | 0 | 1 | 1 | | | 0 | | | 4 | 1 | 5 | 0 | 10 | 16 |
| 4:45 PM | 0 | 0 | 0 | | | 0 | | | 4 | 0 | 4 | 0 | 12 | 16 |
| 5:00 PM | 0 | 0 | 0 | | | 0 | | | 5 | 1 | 6 | 0 | 11 | 17 |
| 5:15 PM | 0 | 0 | 0 | | | 0 | | | 3 | 0 | 3 | 0 | 9 | 12 |
| 5:30 PM | 0 | 0 | 0 | | | 0 | | | 5 | 0 | 5 | 1 | 7 | 13 |
| 5:45 PM | 0 | 0 | 0 | | | 0 | | | 7 | 0 | 7 | 0 | 12 | 19 |
| Total Survey | 1 | 1 | 2 | | | 0 | | | 53 | 3 | 56 | 1 | 97 | 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 | | | 0 | 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 | | | 0 | | | 33 | 2 | 35 | 0 | 58 | 95 |
| 4:15 PM | 1 | 1 | 2 | | | 0 | | | 25 | 3 | 28 | 0 | 46 | 76 |
| 4:30 PM | 0 | 1 | 1 | | | 0 | | | 16 | 2 | 18 | 0 | 42 | 61 |
| 4:45 PM | 0 | 0 | 0 | | | 0 | | | 17 | 1 | 18 | 1 | 39 | 58 |
| 5:00 PM | 0 | 0 | 0 | | | 0 | | | 20 | 1 | 21 | 1 | 39 | 61 |

Peak Hour Summary



Clay Carney
(503) 833-2740

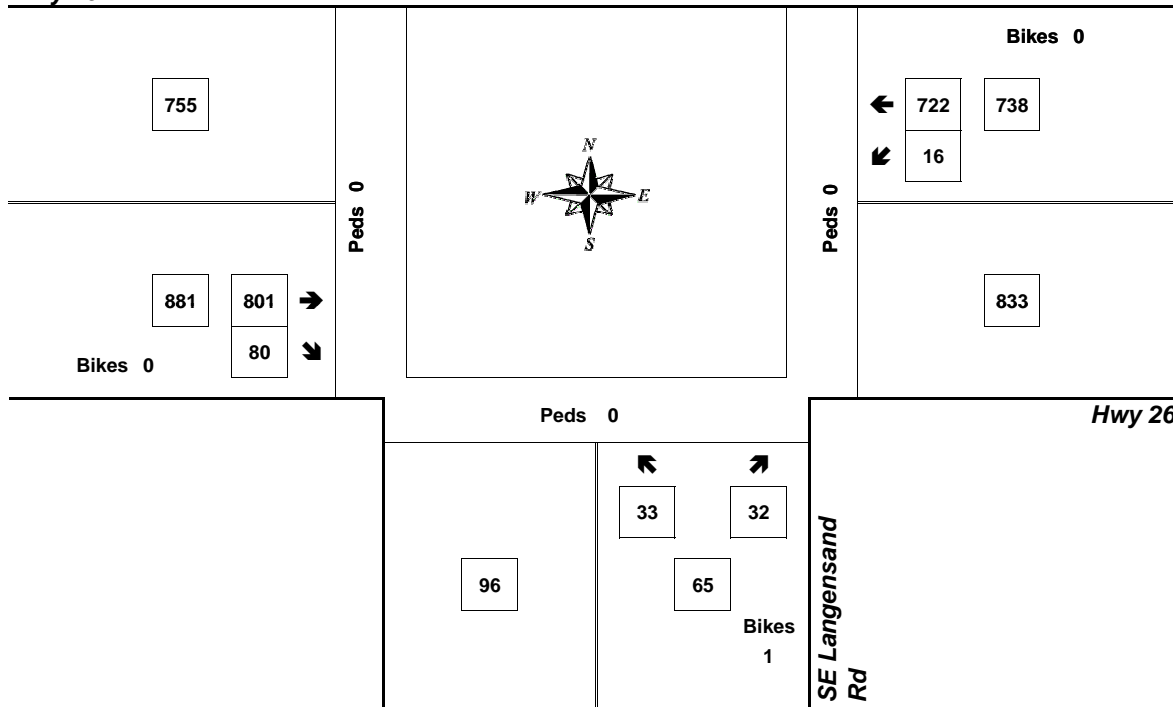
SE Langensand Rd & Hwy 26

4:10 PM to 5:10 PM
Tuesday, March 19, 2019

Bikes
0

Hwy 26

Peds 0



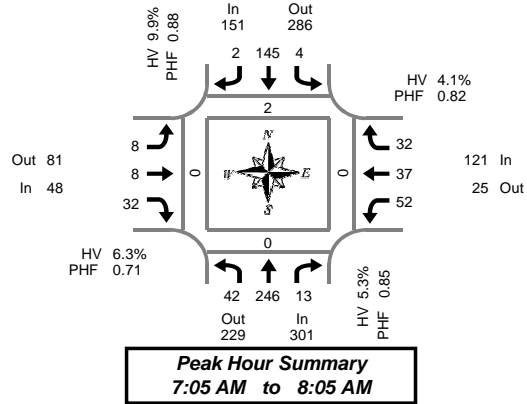
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.91 | 3.3% | 881 |
| WB | 0.94 | 6.6% | 738 |
| NB | 0.71 | 3.1% | 65 |
| SB | 0.00 | 0.0% | 0 |
| Intersection | 0.93 | 4.8% | 1,684 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 211 & 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 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 | 0 | 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

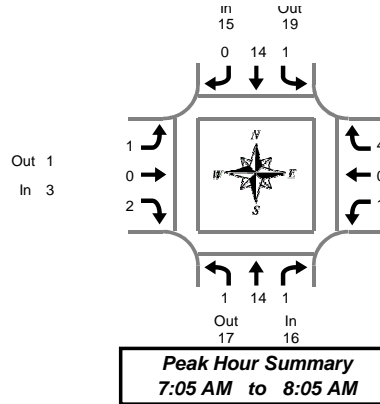
7:00 AM to 9:00 AM

| 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



Hwy 211 & 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 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 |
| 7:05 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:10 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 3 |
| 7:15 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| 7:20 AM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 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 | 3 |
| 7:30 AM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 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 | 3 |
| 7:40 AM | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 5 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 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 |
| 7:55 AM | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 3 | 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 | 8 |
| 8:05 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 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 | 2 | 4 |
| 8:15 AM | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 1 | 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 | 5 |
| 8:25 AM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 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 | 5 |
| 8:35 AM | 0 | 3 | 0 | 3 | 0 | 4 | 0 | 4 | 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 | 2 |
| 8:45 AM | 0 | 2 | 0 | 2 | 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 | 1 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 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 | 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 |

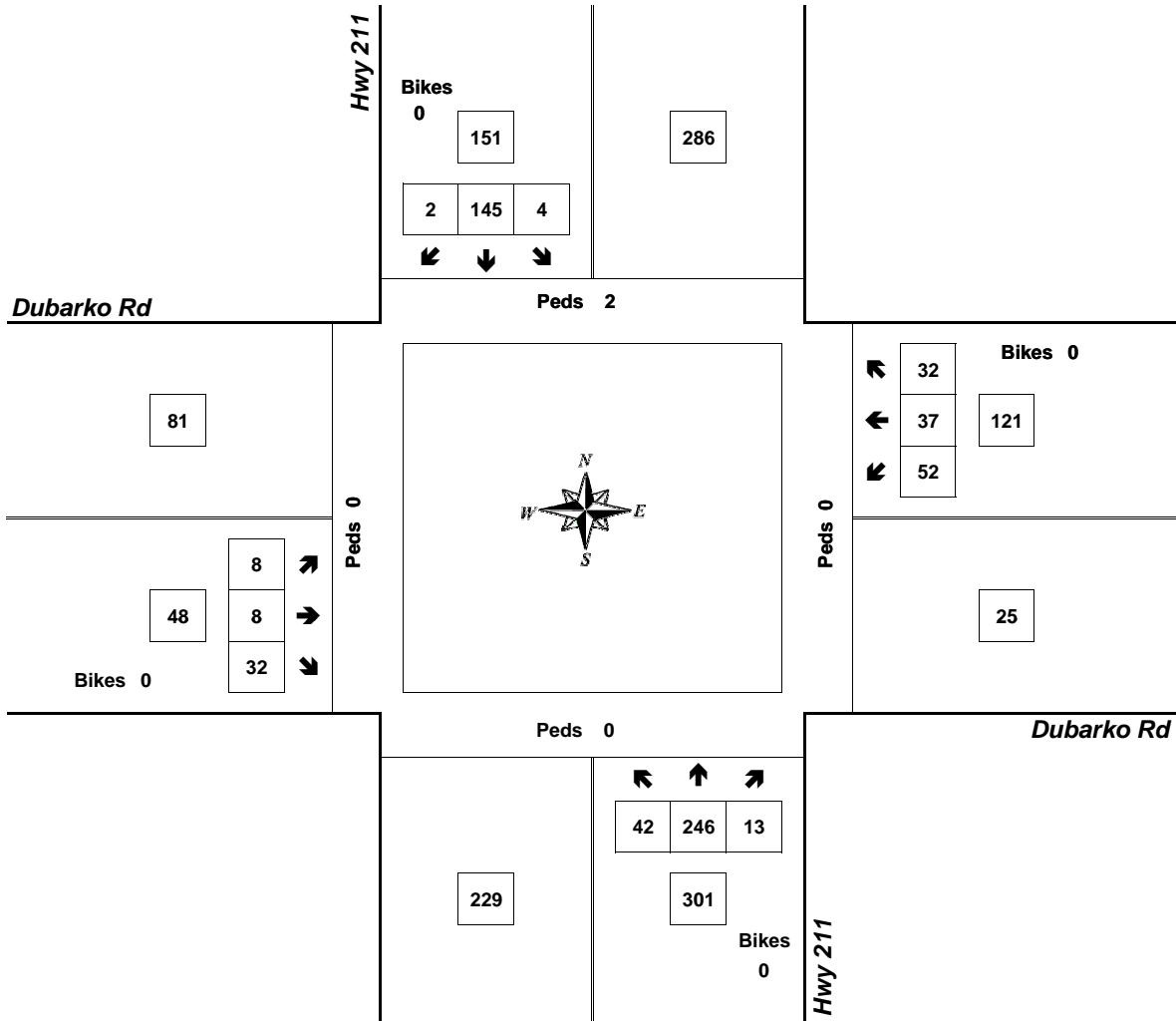
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 211 & Dubarko Rd

7:05 AM to 8:05 AM
Wednesday, March 20, 2019



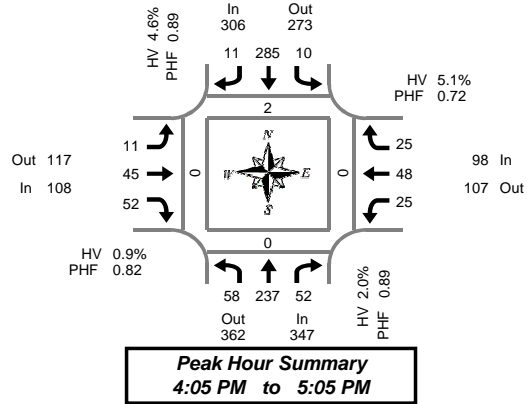
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|------------|
| EB | 0.71 | 6.3% | 48 |
| WB | 0.82 | 4.1% | 121 |
| NB | 0.85 | 5.3% | 301 |
| SB | 0.88 | 9.9% | 151 |
| Intersection | 0.90 | 6.3% | 621 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 211 & 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 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 | 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 |
| 4:10 PM | 10 | 17 | 2 | 0 | 1 | 19 | 0 | 0 | 0 | 4 | 3 | 0 | 3 | 4 | 3 | 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 |
| 4:20 PM | 6 | 12 | 1 | 0 | 1 | 14 | 1 | 0 | 2 | 3 | 4 | 0 | 5 | 7 | 4 | 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 |
| 4:30 PM | 4 | 22 | 3 | 0 | 0 | 19 | 3 | 0 | 1 | 2 | 2 | 0 | 5 | 5 | 1 | 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 |
| 4:40 PM | 2 | 17 | 4 | 0 | 0 | 22 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 3 | 3 | 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 |
| 4:50 PM | 3 | 22 | 6 | 0 | 1 | 19 | 1 | 0 | 1 | 0 | 4 | 0 | 1 | 1 | 2 | 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 |
| 5:00 PM | 4 | 17 | 6 | 0 | 1 | 42 | 0 | 0 | 0 | 3 | 14 | 0 | 1 | 4 | 4 | 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 |
| 5:10 PM | 8 | 24 | 4 | 0 | 1 | 13 | 1 | 0 | 1 | 8 | 2 | 0 | 2 | 1 | 3 | 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 |
| 5:20 PM | 1 | 19 | 6 | 0 | 1 | 29 | 1 | 0 | 1 | 2 | 2 | 0 | 1 | 4 | 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 |
| 5:30 PM | 5 | 19 | 6 | 0 | 0 | 19 | 1 | 0 | 1 | 5 | 5 | 0 | 0 | 2 | 3 | 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 |
| 5:40 PM | 5 | 19 | 7 | 0 | 0 | 29 | 1 | 0 | 0 | 8 | 3 | 0 | 1 | 2 | 0 | 1 | 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 |
| 5:50 PM | 4 | 13 | 2 | 0 | 0 | 20 | 3 | 0 | 2 | 5 | 3 | 0 | 0 | 5 | 3 | 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 |
| 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 |

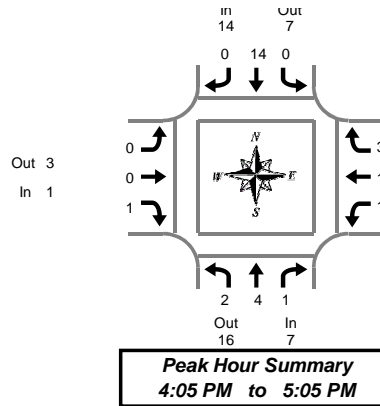
Rolling Hour Summary 4:00 PM to 6:00 PM

| 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 | 268 | 12 | 0 | 11 | 45 | 41 | 1 | 26 | 47 | 24 | 0 | 823 | 2 | 0 | 1 | 0 |
| 4:15 PM | 54 | 240 | 56 | 0 | 9 | 268 | 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



Hwy 211 & Dubarko Rd

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 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 | 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 | 0 | 1 |
| 4:10 PM | 2 | 0 | 0 | 2 | 0 | 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 | 0 | 5 |
| 4:20 PM | 0 | 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 | 0 | 2 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 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 | 0 | 1 | 1 | 3 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 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 | 0 | 1 |
| 4:50 PM | 0 | 1 | 0 | 1 | 0 | 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 | 0 | 2 |
| 5:00 PM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 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 | 0 | 1 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 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 | 0 | 1 |
| 5:20 PM | 0 | 0 | 1 | 1 | 0 | 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 | 0 | 2 |
| 5:30 PM | 0 | 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 | 0 | 1 |
| 5:40 PM | 0 | 1 | 0 | 1 | 0 | 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 | 0 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 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 | 1 | 0 | 0 | 1 | 4 |
| Total Survey | 3 | 9 | 2 | 14 | 0 | 23 | 0 | 23 | 0 | 0 | 3 | 3 | 3 | 1 | 3 | 7 | 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 | 2 | 2 | 0 | 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 | 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 |

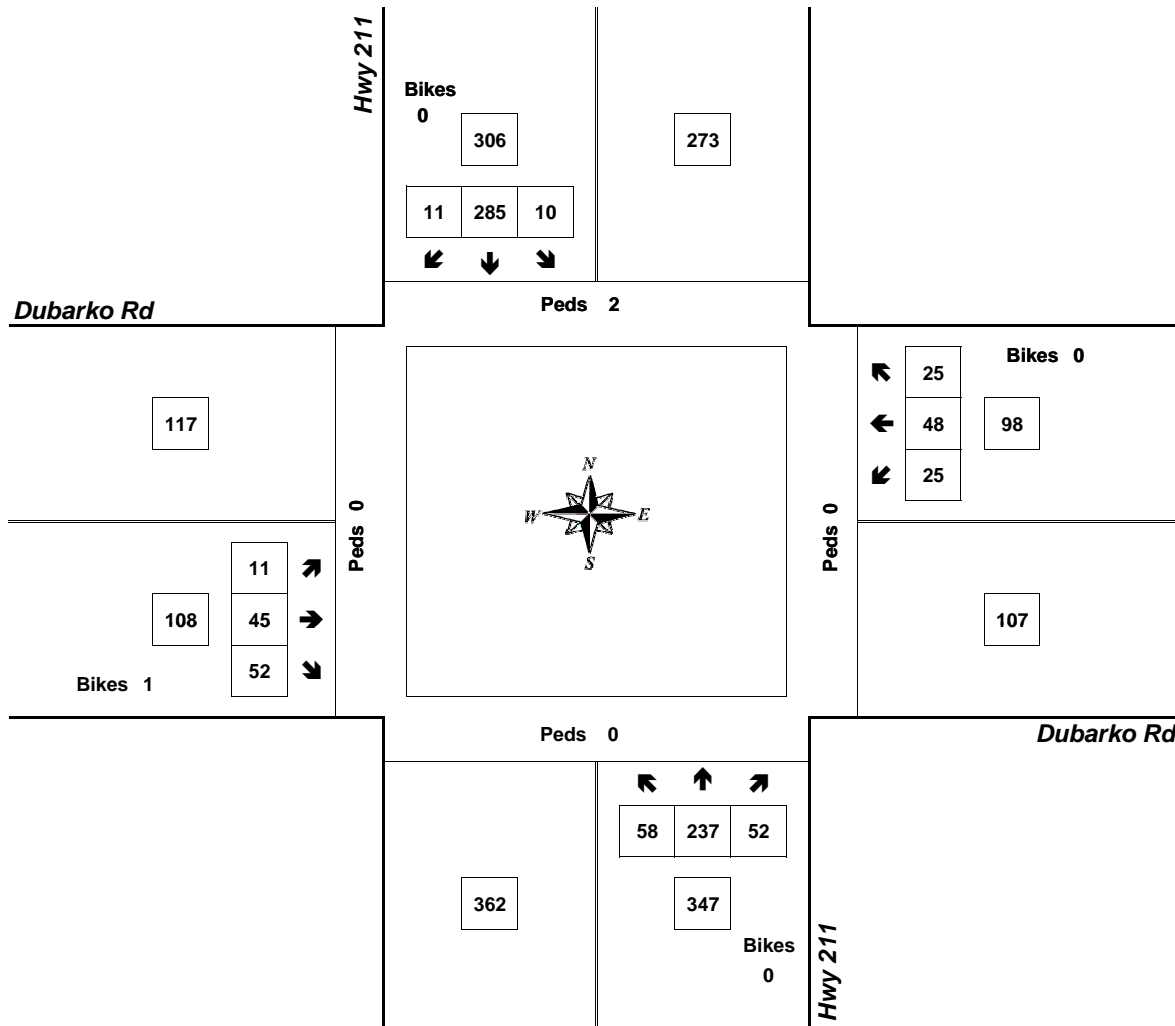
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 211 & Dubarko Rd

4:05 PM to 5:05 PM
Tuesday, March 19, 2019



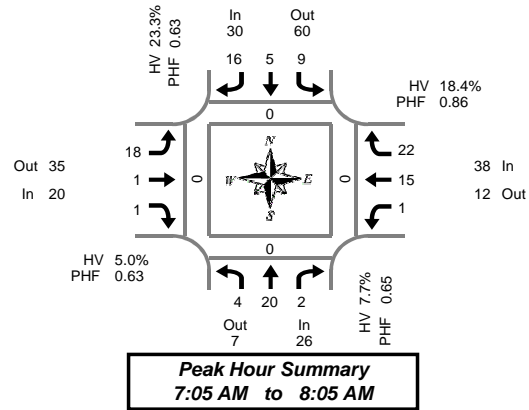
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|------------|
| EB | 0.82 | 0.9% | 108 |
| WB | 0.72 | 5.1% | 98 |
| NB | 0.89 | 2.0% | 347 |
| SB | 0.89 | 4.6% | 306 |
| Intersection | 0.94 | 3.1% | 859 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



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 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| 7:05 AM | 2 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | 14 | 0 | 0 | 0 | 0 |
| 7:10 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 5 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 0 |
| 7:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 9 | 0 | 0 | 0 | 0 | 0 |
| 7:25 AM | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 11 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 6 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 11 | 0 | 0 | 0 | 0 |
| 7:35 AM | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| 7:40 AM | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 11 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 0 | 0 | 0 |
| 7:50 AM | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 12 | 0 | 0 | 0 | 0 |
| 7:55 AM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 9 | 0 | 0 | 0 | 0 |
| 8:05 AM | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 10 | 0 | 0 | 0 | 0 |
| 8:10 AM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 |
| 8:15 AM | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 8 | 0 | 0 | 0 | 0 |
| 8:20 AM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 8:25 AM | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 0 | 1 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 2 | 1 | 0 | 8 | 0 | 0 | 0 | 0 |
| 8:35 AM | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| 8:40 AM | 1 | 1 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 3 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 2 | 0 | 1 | 2 | 1 | 0 | 16 | 0 | 0 | 0 | 0 |
| 8:50 AM | 1 | 4 | 1 | 0 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 15 | 0 | 0 | 0 | 0 |
| 8:55 AM | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 9 | 0 | 0 | 0 | 0 |
| Total Survey | 12 | 35 | 4 | 0 | 11 | 14 | 29 | 0 | 38 | 5 | 5 | 0 | 4 | 31 | 31 | 0 | 219 | 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 | 25 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 2 | 1 | 0 | 2 | 3 | 4 | 0 | 6 | 0 | 0 | 0 | 1 | 4 | 5 | 0 | 28 | 0 | 0 | 0 | 0 |
| 7:30 AM | 1 | 8 | 1 | 0 | 2 | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 3 | 0 | 28 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1 | 6 | 0 | 0 | 3 | 0 | 3 | 0 | 8 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 30 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 5 | 0 | 0 | 1 | 2 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 22 | 1 | 0 | 0 | 0 |
| 8:15 AM | 2 | 2 | 0 | 0 | 0 | 2 | 3 | 0 | 7 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 21 | 0 | 0 | 1 | 0 |
| 8:30 AM | 2 | 1 | 0 | 0 | 1 | 3 | 2 | 0 | 4 | 3 | 1 | 0 | 2 | 5 | 1 | 0 | 25 | 0 | 0 | 0 | 0 |
| 8:45 AM | 3 | 9 | 2 | 0 | 0 | 2 | 5 | 0 | 6 | 0 | 2 | 0 | 1 | 5 | 5 | 0 | 40 | 0 | 0 | 0 | 0 |
| Total Survey | 12 | 35 | 4 | 0 | 11 | 14 | 29 | 0 | 38 | 5 | 5 | 0 | 4 | 31 | 31 | 0 | 219 | 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

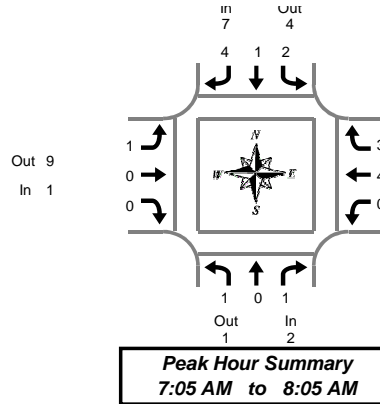
7:00 AM to 9:00 AM

| 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



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 | 0 | 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 | 1 | 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 | 0 | 3 | 2 | 4 | 3 | 9 | 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 | 0 | 3 | 2 | 4 | 3 | 9 | 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 |

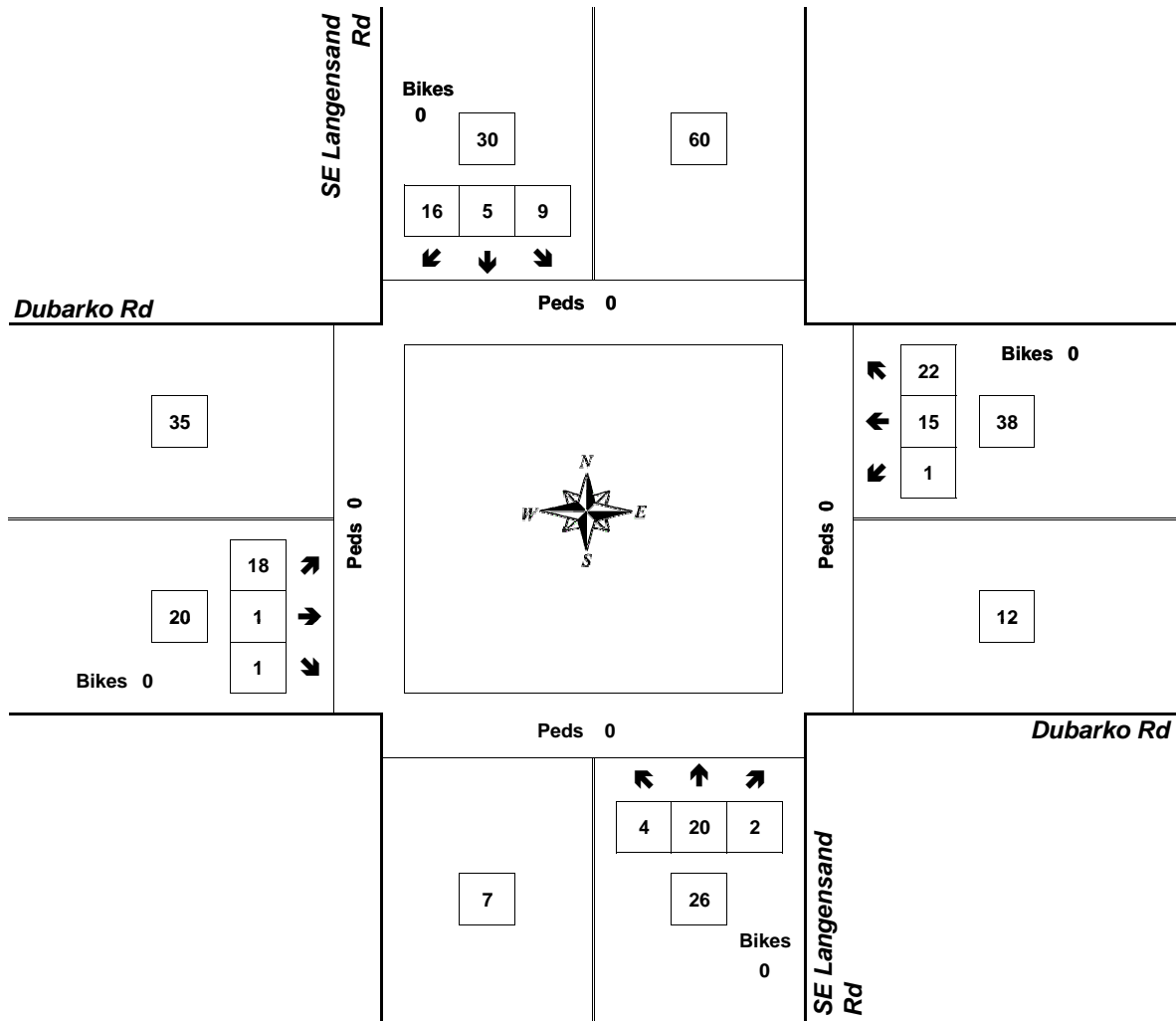
Peak Hour Summary



Clay Carney
(503) 833-2740

SE Langensand Rd & Dubarko Rd

7:05 AM to 8:05 AM
Wednesday, March 20, 2019



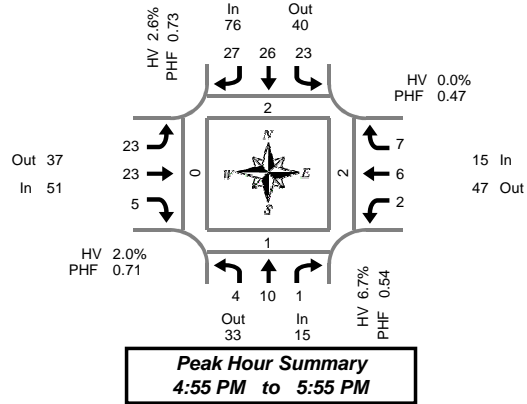
| Approach | PHF | HV% | Volume |
|---------------------|-------------|--------------|------------|
| EB | 0.63 | 5.0% | 20 |
| WB | 0.86 | 18.4% | 38 |
| NB | 0.65 | 7.7% | 26 |
| SB | 0.63 | 23.3% | 30 |
| Intersection | 0.89 | 14.9% | 114 |

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 | 1 | 0 | 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 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | |
| 4:35 PM | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 0 | 1 | 2 | 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 | 0 | 1 | 0 | |
| 5:15 PM | 0 | 1 | 0 | 0 | 3 | 3 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 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 | 2 | 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 | 0 | 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 | 0 | 2 | 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 | 0 | 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 | 1 | 0 |
| 4:15 PM | 3 | 5 | 0 | 0 | 3 | 6 | 6 | 0 | 8 | 2 | 0 | 1 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| 4:30 PM | 0 | 5 | 0 | 0 | 0 | 5 | 4 | 2 | 6 | 0 | 2 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 0 |
| 4:45 PM | 1 | 4 | 0 | 0 | 3 | 8 | 3 | 0 | 6 | 4 | 1 | 0 | 0 | 2 | 3 | 0 | 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 | 0 |
| 5:15 PM | 1 | 2 | 0 | 0 | 7 | 4 | 9 | 0 | 5 | 4 | 3 | 0 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 0 |
| 5:30 PM | 0 | 1 | 1 | 1 | 5 | 4 | 4 | 1 | 5 | 8 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 5:45 PM | 2 | 2 | 0 | 0 | 5 | 7 | 6 | 0 | 6 | 6 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 13 | 25 | 3 | 1 | 32 | 45 | 48 | 3 | 47 | 34 | 10 | 1 | 2 | 20 | 15 | 0 | 0 | 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 | 0 | 0 | 0 | 0 | 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

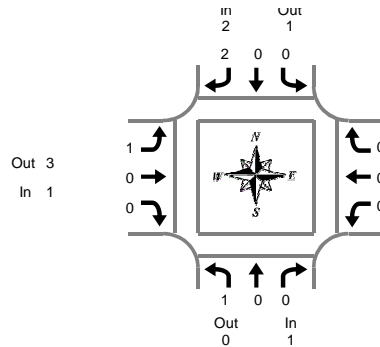
4:00 PM to 6:00 PM

| 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 | 0 | 3 | 0 | 6 | 0 |
| 4:15 PM | 5 | 17 | 0 | 0 | 12 | 28 | 22 | 2 | 26 | 12 | 3 | 1 | 0 | 11 | 7 | 0 | 0 | 3 | 1 | 5 | 0 |
| 4:30 PM | 3 | 14 | 0 | 0 | 16 | 26 | 25 | 2 | 23 | 14 | 6 | 0 | 2 | 6 | 8 | 0 | 0 | 3 | 1 | 5 | 0 |
| 4:45 PM | 3 | 10 | 1 | 1 | 21 | 25 | 25 | 1 | 22 | 22 | 4 | 0 | 2 | 8 | 8 | 0 | 0 | 2 | 1 | 2 | 0 |
| 5:00 PM | 4 | 8 | 1 | 1 | 23 | 24 | 28 | 1 | 22 | 24 | 5 | 0 | 2 | 7 | 7 | 0 | 0 | 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 | 0 | 1 | 0 | 0 | 1 | 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 | 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 | 0 | 1 | 0 | 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 |

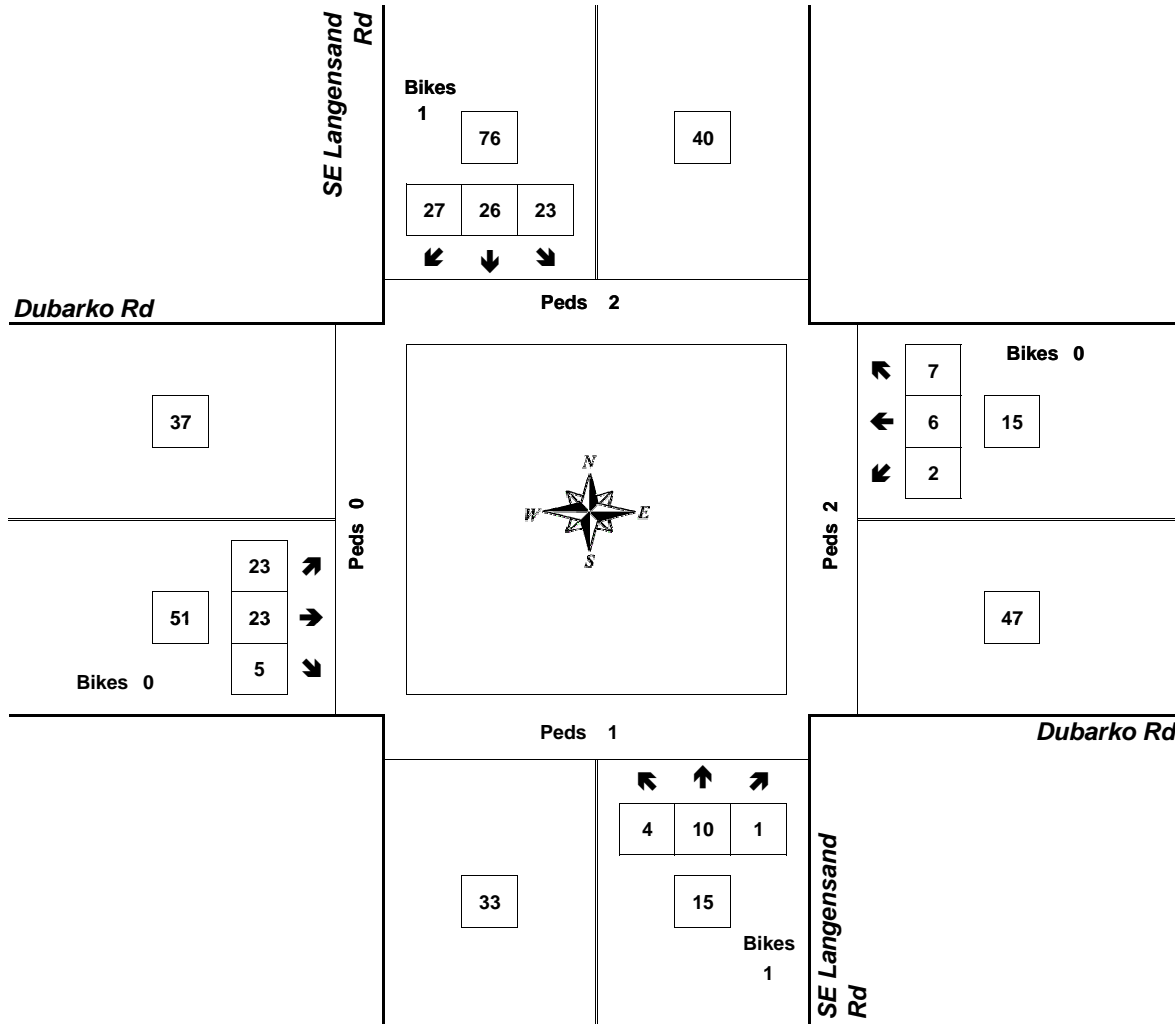
Peak Hour Summary



Clay Carney
(503) 833-2740

SE Langensand Rd & Dubarko Rd

4:55 PM to 5:55 PM
Tuesday, March 19, 2019



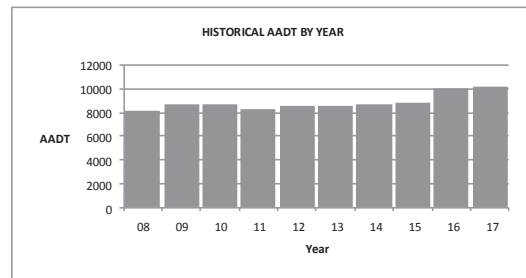
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|------------|
| EB | 0.71 | 2.0% | 51 |
| WB | 0.47 | 0.0% | 15 |
| NB | 0.54 | 6.7% | 15 |
| SB | 0.73 | 2.6% | 76 |
| Intersection | 0.91 | 2.5% | 157 |

Count Period: 4:00 PM to 6:00 PM

| | | | |
|------------------|--|-------------------|-----------------------|
| Location: | US26; MP 46.38; MT. HOOD HIGHWAY NO. 26; 0.30 mile east of Camp Creek Rd (USFS 28) | Site Name: | Rhododendron (03-006) |
| | | Installed: | August, 1995 |

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

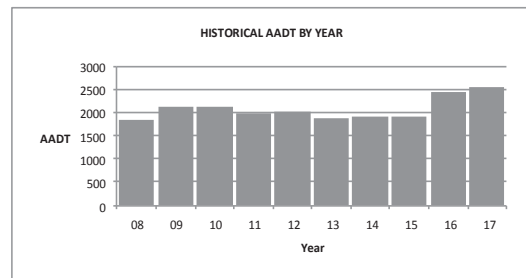
| | Average Weekday Traffic | Percent of AADT | Average Daily Traffic | Percent of AADT |
|-----------|-------------------------|-----------------|-----------------------|-----------------|
| January | 6744 | 66 | 9080 | 89 |
| February | 6533 | 64 | 9496 | 93 |
| March | 6763 | 66 | 9337 | 91 |
| April | 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

| | | | |
|------------------|---|-------------------|---------------------------|
| Location: | OR35; MP 57.79; MT. HOOD HIGHWAY NO. 26; 0.02 mile east of Warm Springs Highway No. 53 (US26) | Site Name: | Mt. Hood Meadows (03-007) |
| | | Installed: | September, 1995 |

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

| 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 | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 24.8 | | | | | | | | | HCM 2000 Level of Service | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.66 | | | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | | | | | | 13.5 | | | |
| Intersection Capacity Utilization | | | 72.6% | | | | | | | | | | 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

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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|-----------|
| 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 | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 27.5 | | | | HCM 2000 Level of Service | | | | 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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 1252 | 0 | 1761 |
| Stage 1 | - | - | - | - | 1165 |
| Stage 2 | - | - | - | - | 596 |
| Critical Hdwy | - | - | 4.24 | - | 6.86 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.86 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.86 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.53 |
| Pot Cap-1 Maneuver | - | - | 525 | - | 75 |
| Stage 1 | - | - | - | - | 257 |
| Stage 2 | - | - | - | - | 510 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 525 | - | 72 |
| 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 |

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 |

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 | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 26.5 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 77.4% | 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 | 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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 887 | 0 | 1447 |
| Stage 1 | - | - | - | - | 849 |
| Stage 2 | - | - | - | - | 598 |
| Critical Hdwy | - | - | 4.24 | - | 6.88 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.88 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.88 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.54 |
| Pot Cap-1 Maneuver | - | - | 728 | - | 120 |
| Stage 1 | - | - | - | - | 375 |
| Stage 2 | - | - | - | - | 506 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 728 | - | 117 |
| 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 | |
| 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 | | | 0.90 | |
| 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 | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 29.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 85.9% | 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 | 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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 | Minor2 | Minor3 |
|----------------------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 1365 | 0 | 1935 |
| Stage 1 | - | - | - | - | 1274 |
| Stage 2 | - | - | - | - | 661 |
| Critical Hdwy | - | - | 4.24 | - | 6.86 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.86 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.86 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.53 |
| Pot Cap-1 Maneuver | - | - | 474 | - | 57 |
| Stage 1 | - | - | - | - | 225 |
| Stage 2 | - | - | - | - | 473 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 474 | - | 54 |
| 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 | | | |
| Frbp, 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 | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| 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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 | |
| Intersection Summary | | | | | | | | | | | | |
| 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(I) | 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 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| 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 |
| Stage 1 | - | - | - | - | 1274 |
| Stage 2 | - | - | - | - | 689 |
| Critical Hdwy | - | - | 4.24 | - | 6.86 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.86 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.86 |
| Follow-up Hdwy | - | - | 2.27 | - | 3.53 |
| Pot Cap-1 Maneuver | - | - | 456 | - | 55 |
| Stage 1 | - | - | - | - | 225 |
| Stage 2 | - | - | - | - | 457 |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 456 | - | 50 |
| 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.

CITY OF SANDY, CLACKAMAS COUNTY

| SER# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | DATE | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | LEGS | TRAF- | CONTL | 5-LEG | TRF SIGNAL | N | UNK | S-1STOP | 0 | SPCL USE | TRLR QTY | OWNER | MOVE | FROM | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | | | | | | | | |
|-------|--------|-------------|---------|-----------------|------|-------|----------------|---------|----------|---------|------|------------|-------|-------|------------|----|--------|---------|--------|----------|----------|-------|------|------|---------|-------|---------|-----|-------|------------|-------|---|----|---|----|---|---|---|--|
| 03911 | N N N | 10/27/2018 | 17 | PROCTOR BLVD | SA | 0 | SE TEN EYCK RD | NE | INTER | 5-LEG | 0 | TRF SIGNAL | N | UNK | S-1STOP | 0 | STRGHT | 0 | STRGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | | | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | 5P | 45 23 49.25 | -122.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | 19.74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03089 | N N N | 09/03/2018 | 14 | PROCTOR BLVD | MO | | SE TEN EYCK RD | SE | INTER | 5-LEG | 0 | TRF SIGNAL | N | CLR | S-1STOP | 0 | STRGHT | 0 | STRGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | 3P | 45 23 49.25 | -122.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | 19.75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03213 | N N N | 09/17/2019 | 14 | PROCTOR BLVD | TU | | SE TEN EYCK RD | SE | INTER | 5-LEG | 0 | TRF SIGNAL | N | CLR | S-1STOP | 0 | STRGHT | 0 | STRGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | 3P | 45 23 49.26 | -122.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | 19.69 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05173 | N N N | 11/08/2016 | 14 | PROCTOR BLVD | TU | | SE TEN EYCK RD | W | INTER | 5-LEG | 0 | TRF SIGNAL | N | CLR | ANGL-OTH | 01 | NONE | 9 | U-TURN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | 5P | 45 23 49.25 | -122.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | 19.74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04335 | N N N | 11/06/2018 | 14 | PROCTOR BLVD | TU | | SE TEN EYCK RD | CN | INTER | 5-LEG | 0 | TRF SIGNAL | N | CLR | ANGL-OTH | 01 | NONE | 9 | STRGHT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | 2P | 45 23 49.25 | -122.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | | | 19.72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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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
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.

CITY OF SANDY, CLACKAMAS COUNTY

| SER# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPL USE | TRLR QTY | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|------|--------|--------|--------|-----------------|-------|---------------|---------|----------|---------|-------|-------|-------|---------|----------|-------|---------|-------|---------|-----|-------|-----------|-------|
| | | | | | DIST | FIRST STREET | | (MEDIAN) | | | | CRASH | | | FROM | | | | | | | |
| | | | | | FROM | SECOND STREET | DIRECT | LESS | TRAF- | RNDBT | SURF | COLL | OWNER | | | | | | | | | |
| | | | | | LONG | LRS | LOCIN | (#LANES) | CONTL | DRVMY | LIGHT | SVRTY | VH TYPE | 02 | NONE | TURN-R | | | | | | |
| | | | | | | | | | | | | | N/A | | NE-NW | | | | | | | |
| | | | | | | | | | | | | | ESNGR | CAR | | | | | | | | |
| | | | | | | | | | | | | | | | | 01 | DRVR | NONE | 00 | Unk | UNK | 00 |
| | | | | | | | | | | | | | | | | | | | 000 | | 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

1 - 2 of 2 Crash records shown.
 WOLF DR at PIONEER BLVD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

CITY OF SANDY, CLACKAMAS COUNTY

| SER# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | N N N N | N N N N | 05/09/2015 | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | COLL | DRVWY | LIGHT | SVRTY | VH TYPE | SPCL USE | TRLR QTY | OWNER | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE |
|-------|--------|--------|--------|-----------------|---------|--------------|------------|-------|-------------|---------|------------|---------|-------|----------|-----------|------|-------|--------|-------|---------|----------|----------|-------|---------|-------|---------|-----|-------|------------|-------|
| 01741 | NONE | | | | 14 | PIONEER BLVD | | | | INTER | 5-LEG | N | CLR | ANGL-OTH | 01 | NONE | 0 | STRGHT | | | | | | | | | | | | 04 |
| N | | | | | | WOLF DR | | | | CN | TRF SIGNAL | N | DRY | ANGL | PRVTE | | S -N | | | | | | | | | | | | | 00 |
| N | | | | | | | | | | 04 | 0 | N | DAY | PDO | PSNGR CAR | | 01 | DRVR | NONE | 25 | M | OTH-Y | | | | | 020 | | 026 | 04 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 04 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |
| 00512 | NONE | | | | 14 | PIONEER BLVD | | | | INTER | 5-LEG | N | RAIN | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | | | | | | 04 |
| N | | | | | | WOLF DR | | | | CN | TRF SIGNAL | N | WET | TURN | PRVTE | | S -W | | | | | | | | | | | | | 00 |
| N | | | | | | | | | | 04 | 0 | N | DUSK | INJ | PSNGR CAR | | 01 | DRVR | INJC | 55 | F | OR-Y | | | | | 000 | | 000 | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 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 LANGENSAND RD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019

1 - 4 of 7 Crash records shown.

CITY OF SANDY, CLACKAMAS COUNTY

| SER# | P R J S W DATE | CLASS | CITY STREET | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | |
|--------|------------------|-------------|------------------|----------------------|------------|-----------|-------|------------|-----------|----------|--------|---------|-------|---------|---------|---------|------------|-------|-------|
| INVEST | E A U I C O DAY | DIST | FIRST STREET | RD CHAR | LESS TRAF- | RNDBT | SURF | COLL | OWNER | FROM | TO | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | |
| RD DFT | E L G N H R TIME | FROM | SECOND STREET | LOCN | (#LANES) | DRVMY | LIGHT | SVRTY | VH TYPE | 01 NONE | 0 | TURN-R | | | | | | | |
| UNLOC? | D C S V L K LAT | LONG | LONG | INTER | 3-LEG | N | RAIN | PED | 01 NONE | 0 | TURN-R | | | | | | | | |
| 05355 | N N N | 11/18/2016 | 14 LANGENSAND RD | INTER | 3-LEG | N | RAIN | PED | 01 NONE | 0 | TURN-R | | | | | | | | 19,02 |
| | FR | | MT HOOD HY | S | | UNKNOWN | N | WET | PRVTE | S-SE | | | | | | | | 015 | 00 |
| N | 6P | | | 06 | 0 | | N | DUSK | PSNGR CAR | | | 01 DRVR | NONE | 59 M | OR-Y | 029 | | 000 | 02 |
| N | 45 23 44.19 | -122 15 .03 | 002600100500 | | | | | | | | | | | | OR<25 | | | | |
| 05056 | N N N | 12/01/2017 | 14 LANGENSAND RD | INTER | 3-LEG | N | RAIN | ANGL-STP | 01 NONE | 0 | TURN-R | | | | | | | | 08 |
| NONE | FR | | MT HOOD HY | S | | STOP SIGN | N | WET | PRVTE | NW-S | | | | | | | | | 00 |
| N | 9P | | | 06 | 0 | | N | DLIT | PSNGR CAR | | | 01 DRVR | NONE | 27 F | OR-Y | 001 | | 000 | 08 |
| N | 45 23 44.19 | -122 15 .03 | 002600100500 | | | | | | | | | | | | OR<25 | | | | |
| | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 00 |
| | | | | | | | | | PRVTE | S-N | | | | | | | | | 00 |
| | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 27 F | OR-Y | 000 | | 012 | 00 |
| | | | | | | | | | | | | | | | OR<25 | | | 000 | 00 |
| | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 00 |
| | | | | | | | | | PRVTE | S-N | | | | | | | | | 00 |
| | | | | | | | | | PSNGR CAR | | | 02 PSNG | INJC | 25 M | | 000 | | 012 | 00 |
| | | | | | | | | | | | | | | | | | | 000 | 00 |
| 01431 | N N N | 04/14/2017 | 14 LANGENSAND RD | INTER | 3-LEG | N | CLR | O-1STOP | 01 NONE | 9 | BACK | | | | | | | | 10 |
| NONE | FR | | MT HOOD HY | S | | STOP SIGN | N | DRY | N/A | N-S | | | | | | | | | 00 |
| N | 3P | | | 06 | 0 | | N | DAY | PSNGR CAR | | | 01 DRVR | NONE | 00 | Unk UNK | 000 | | 000 | 00 |
| N | 45 23 44.19 | -122 15 .03 | 002600100500 | | | | | | | | | | | | UNK | | | | 00 |
| | | | | | | | | | 02 NONE | 9 | STOP | | | | | | | | 00 |
| | | | | | | | | | N/A | S-N | | | | | | | | | 00 |
| | | | | | | | | | PSNGR CAR | | | 01 DRVR | NONE | 00 | Unk UNK | 000 | | 012 | 00 |
| | | | | | | | | | | | | | | | | | | 000 | 00 |
| 00297 | N N N | 01/24/2015 | 14 LANGENSAND RD | INTER | 3-LEG | N | CLR | O-1 L-TURN | 01 NONE | 0 | STRGHT | | | | | | | | 02,08 |
| CITY | 8A | | MT HOOD HY | CN | | UNKNOWN | N | DRY | PRVTE | NW-SE | | | | | | | | | 00 |
| N | 4P | | | 03 | 0 | | N | DAY | PSNGR CAR | | | 01 DRVR | NONE | 21 M | OR-Y | 000 | | 000 | 00 |
| N | 45 23 44.19 | -122 15 .03 | 002600100500 | | | | | | | | | | | | OR<25 | | | | 00 |
| | | | | | | | | | 01 NONE | 0 | STRGHT | | | | | | | | 00 |
| | | | | | | | | | PRVTE | NW-SE | | | | | | | | | 00 |
| | | | | | | | | | PSNGR CAR | | | 02 PSNG | NO<5 | 01 F | | 000 | | 000 | 00 |
| | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | | | | 00 |
| | | | | | | | | | PRVTE | SE-S | | | | | | | | | 00 |
| | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 78 F | OR-Y | 028,004 | | 000 | 02,08 |
| | | | | | | | | | | | | | | | OR<25 | | | 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

CITY OF SANDY, CLACKAMAS COUNTY

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.

| SER# | P R J S W DATE | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | |
|--------|---------------------|-------|--------------------|---------|-----------|---------|-------|-------|---------|-----------|-----------|---------|---------|---------|---------|---------|------------|------------|-------|----------|
| INVEST | E A U I C O DAY | DIST | FIRST STREET | RD CHAR | (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | TRLR QTY | OWNER | FROM | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | |
| RD DPT | E L G N H R TIME | FROM | SECOND STREET | DIRECT | LESS | TRAF- | RNDBT | SURF | COLL | OWNER | FROM | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | | |
| UNLOC? | D C S V L K LAT | LONG | LRS | LOCIN | (#LANES) | CONTL | DRVMY | LIGHT | SVRTY | VH TYPE | TO | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE | | |
| 02296 | N N N N 07/06/2019 | 16 | DUBARKO RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 9 | STRGHT | 01 DRVR | NONE | 00 | Unk UNK | 000 | 000 | 00 | |
| CITY | SA | | EAGLE CRK-SANDY HY | N | NONE | N/A | N | DRY | REAR | N/A | PSNGR CAR | NE-SW | 01 DRVR | NONE | 00 | Unk UNK | 000 | 000 | 00 | |
| N | 11A | | | 06 | 0 | | N | DAY | PDO | PSNGR CAR | | NE-SW | | | | UNK | | | 00 | |
| N | 45 23 22.65 -122.15 | 48.74 | 017200100500 | | | | | | | | | | | | | | | | | 27,29,32 |
| 01165 | N N N 03/10/2016 | 16 | DUBARKO RD | INTER | CROSS | N | N | CLR | O-1STOP | 01 NONE | 0 | BACK | 01 DRVR | NONE | 22 | M | OR-Y | 000 | 000 | 10 |
| NONE | TH | | EAGLE CRK-SANDY HY | E | STOP SIGN | N | N | DRY | BACK | PRVTE | W-E | W-E | 01 DRVR | NONE | 22 | M | OR-Y | 000 | 000 | 00 |
| N | 6P | | | 06 | 0 | | N | DAY | INJ | PSNGR CAR | | OR-25 | | | | | | | | 10 |
| N | 45 23 22.76 -122.15 | 48.39 | 017200100500 | | | | | | | | | | | | | | | | | 00 |
| 04008 | N N N 11/02/2018 | 16 | DUBARKO RD | INTER | CROSS | N | N | CLD | PED | 01 NONE | 0 | STRGHT | 01 DRVR | INJC | 26 | F | OR-Y | 000 | 000 | 00 |
| CITY | FR | | EAGLE CRK-SANDY HY | E | STOP SIGN | N | N | WET | PED | PRVTE | E-W | E-W | 01 DRVR | INJC | 26 | F | OR-Y | 000 | 000 | 00 |
| N | 7P | | | 06 | 0 | | N | DLIT | INJ | PSNGR CAR | | OR-25 | | | | | | | | 02 |
| N | 45 23 22.54 -122.15 | 48.5 | 017200100500 | | | | | | | | | | | | | | | | | 00 |
| 03026 | N N N 07/27/2015 | 16 | DUBARKO RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | INJC | 36 | M | I XMK? | 000 | 034 | 00 |
| CITY | MO | | EAGLE CRK-SANDY HY | SW | NONE | NONE | N | DRY | REAR | PRVTE | SW-NE | SW-NE | 01 DRVR | INJC | 36 | M | I XMK? | 000 | 034 | 00 |
| N | 8P | | | 06 | 0 | | N | DUSK | INJ | PSNGR CAR | | OR-25 | | | | | | | | 02 |
| N | 45 23 22.76 -122.15 | 48.39 | 017200100500 | | | | | | | | | | | | | | | | | 07,29 |
| 01095 | N N N 03/04/2016 | 16 | DUBARKO RD | INTER | CROSS | N | N | CLD | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | INJC | 36 | M | OR-Y | 000 | 000 | 00 |
| CITY | FR | | EAGLE CRK-SANDY HY | SW | STOP SIGN | N | N | DRY | SS-O | PRVTE | NE-SW | NE-SW | 01 DRVR | INJC | 36 | M | OR-Y | 000 | 000 | 00 |
| N | 4P | | | 06 | 0 | | N | DAY | INJ | PSNGR CAR | | OR-25 | | | | | | | | 00 |
| N | 45 23 22.76 -122.15 | 48.39 | 017200100500 | | | | | | | | | | | | | | | | | 27,07,32 |

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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 W DATE | CLASS | CITY STREET | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | A S | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE |
|--------|--------------------|---------|--------------------|----------|-----------|-------|-------|----------|-----------|----------|---------|---------|-----------|---------|-------|-------|------------|-------|
| INVEST | E A U I C O DAY | DIST | FIRST STREET | (MEDIAN) | INT-REL | RNDBT | SURF | COLL | OWNER | FROM | INJ | INJ | G E LICNS | PED | | | | |
| RD DPT | E L G N H R TIME | FROM | SECOND STREET | LESS | TRAF- | DRVMY | LIGHT | SVRTY | VH TYPE | TO | SVRTY | E X RES | LOC | | | | | |
| UNLOC? | D C S V L K LAT | LONG | LRS | (#LANES) | CONTL | | | | 02 NONE | STOP | | | | | | | | |
| 00763 | N N N N 02/17/2016 | 16 | DUBARKO RD | CROSS | N | N | RAIN | S-1STOP | 01 NONE | 9 | STRGHT | | | | | | | 07 |
| | WE | | EAGLE CRK-SANDY HY | INTER | NONE | N | WET | REAR | N/A | | S -N | | | | | | | 00 |
| | 5P | | 017200100500 | 06 | 0 | N | DLIT | PDO | PSNGR CAR | | 01 DRVR | NONE | 00 | Unk | UNK | 000 | 000 | 00 |
| | 45 23 22.76 | -122 15 | | | | | | | | | | | | | | | | 00 |
| | | 48.39 | | | | | | | | | | | | | | | | 00 |
| 01324 | N N N N 04/19/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | | | | | | | 29 |
| | TH | | EAGLE CRK-SANDY HY | INTER | UNKNOMN | N | DRY | REAR | PRVTE | | SW-NE | | | | | | | 00 |
| | 6P | | 017200100500 | 06 | 0 | N | DAY | INJ | PSNGR CAR | | 01 DRVR | NONE | 19 | M | OR-Y | 026 | 000 | 29 |
| | 45 23 22.55 | -122 15 | | | | | | | | | | | | | | | | 00 |
| | | 48.5 | | | | | | | | | | | | | | | | 00 |
| 04952 | N N N N 11/22/2015 | 16 | DUBARKO RD | CROSS | N | N | CLD | ANGL-OTH | 01 NONE | 0 | TURN-L | | | | | | | 03 |
| | SU | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | DRY | TURN | PRVTE | | W -NE | | | | | | | 00 |
| | 4P | | 017200100500 | 03 | 0 | N | DAY | INJ | PSNGR CAR | | 01 DRVR | INJB | 53 | F | OTH-Y | 021 | 000 | 03 |
| | 45 23 22.76 | -122 15 | | | | | | | | | | | | | | | | 00 |
| | | 48.39 | | | | | | | | | | | | | | | | 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

CITY OF SANDY, CLACKAMAS COUNTY

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 W DATE | CLASS | CITY STREET | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | A S | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT. EVENT | CAUSE |
|--------|----------------------|-------------|--------------------|----------|-----------|-------|-------|----------|-----------|----------|---------|---------|-----------|---------|-----|-------|------------|-------|
| INVEST | E A U I C O DAY | DIST | FIRST STREET | (MEDIAN) | INT-REL | ANDBT | SURF | COLL | OWNER | FROM | INJ | INJ | G E LICNS | PED | | | | |
| RD DFT | E L G N H R TIME | FROM | SECOND STREET | LESS | TRAF- | DRVMY | LIGHT | SVRTY | VH TYPE | TO | PH TYPE | SVRTY | E X RES | LOC | | | | |
| UNLOC# | D C S V L K LAT | LONG | LR# | (#LANES) | CONTL | DRVMY | LIGHT | SVRTY | VH TYPE | TO | PH TYPE | SVRTY | E X RES | LOC | | | | |
| 05614 | N N N N N 12/25/2015 | 16 | DUBARKO RD | CROSS | N | N | CLD | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | 02 |
| CITY | FR | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | WET | ANGL | PRVTE | N -S | 01 DRVR | NONE | 58 M | OR-Y | | | 000 | 00 |
| N | 6P | 45 23 22.76 | 017200100500 | 0 | | N | DLIT | INJ | PSNGR CAR | | | | | OR>25 | | | 000 | 00 |
| N | 45 23 22.76 | -122.15 | | | | | | | | | | | | | | | 015 | 00 |
| | | 48.39 | | | | | | | 02 NONE | 0 | STRGHT | | | | | | 000 | 00 |
| | | | | | | | | | PRVTE | E -W | 01 DRVR | INJC | 53 M | OR-Y | | | 000 | 00 |
| | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 028 | 02 |
| 02172 | N N N N N 06/05/2015 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | 02 |
| CITY | FR | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | DRY | TURN | PRVTE | W -E | | | | | | | 015 | 00 |
| N | 7A | 45 23 22.76 | 017200100500 | 0 | | N | DAY | PDO | PSNGR CAR | | 01 DRVR | NONE | 24 M | OR-Y | | | 000 | 02 |
| N | 45 23 22.76 | -122.15 | | | | | | | | | | | | OR<25 | | | 028 | 00 |
| | | 48.39 | | | | | | | 02 NONE | 0 | TURN-L | | | | | | 000 | 00 |
| | | | | | | | | | PRVTE | SW-W | 01 DRVR | NONE | 29 M | OR-Y | | | 000 | 00 |
| | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 03589 | N N N N N 08/05/2016 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | 02 |
| CITY | FR | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | DRY | ANGL | PRVTE | E -W | | | | | | | 015 | 00 |
| N | 6P | 45 23 22.76 | 017200100500 | 0 | | N | DAY | INJ | PSNGR CAR | | 01 DRVR | INJC | 77 M | OTH-Y | | | 000 | 02 |
| N | 45 23 22.76 | -122.15 | | | | | | | | | | | | N-RES | | | 028 | 00 |
| | | 48.39 | | | | | | | 02 NONE | 0 | STRGHT | | | | | | 000 | 00 |
| | | | | | | | | | PRVTE | N -S | 01 DRVR | NONE | 40 M | OR-Y | | | 000 | 00 |
| | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 03967 | N N N N N 08/30/2016 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | 02 |
| CITY | TU | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | DRY | ANGL | PRVTE | W -E | | | | | | | 015 | 00 |
| N | 12P | 45 23 22.76 | 017200100500 | 0 | | N | DAY | INJ | PSNGR CAR | | 01 DRVR | INJC | 61 F | OTH-Y | | | 000 | 02 |
| N | 45 23 22.76 | -122.15 | | | | | | | | | | | | N-RES | | | 028 | 00 |
| | | 48.39 | | | | | | | 01 NONE | 0 | STRGHT | | | | | | 015 | 00 |
| | | | | | | | | | PRVTE | W -E | 02 PSNG | INJC | 06 F | | | | 000 | 00 |
| | | | | | | | | | PSNGR CAR | | | | | | | | 000 | 00 |
| | | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | 000 | 00 |
| | | | | | | | | | PRVTE | S -N | 01 DRVR | INJB | 53 F | OR-Y | | | 000 | 00 |
| | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 02427 | N N N N N 05/31/2016 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 9 | STRGHT | | | | | | | 03,32 |
| CITY | TU | | EAGLE CRK-SANDY HY | INTER | STOP SIGN | N | UNK | ANGL | N/A | W -E | | | | | | | 000 | 00 |
| N | 11A | 45 23 22.76 | 017200100500 | 0 | | N | DAY | PDO | PSNGR CAR | | 01 DRVR | NONE | 00 | UNK | | | 000 | 00 |
| N | 45 23 22.76 | -122.15 | | | | | | | | | | | | UNK | | | 000 | 00 |
| | | 48.39 | | | | | | | | | | | | | | | 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# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | OWNER | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|-------------|---------|--------|-----------------|------------|-------------|--------------------|----------|-----------|-------|-------|----------|-----------|----------|-----------|---------|---------|-------|---------|------|-------|-----------|---------|
| N | N | N | N | N | LONG | FRS | LOCIN | (LANES) | CONTL | DRVMY | LIGHT | SVRTY | 02 NONE | 02 NONE | 02 NONE | 02 NONE | 01 DRVR | NONE | 00 | Unk | Unk | 000 | 000 |
| 02031 | N | N | N | N | 05/06/2016 | 16 | DUBARKO RD | INTER | CROSS | N | CLR | ANGL-OTH | 01 NONE | 9 | PSNGR CAR | STRGHT | 01 DRVR | NONE | 00 | Unk | Unk | 000 | 000 |
| CITY | FR | | | | | | EAGLE CRK-SANDY HY | CN | STOP SIGN | N | DRY | ANGL | N/A | | | N -S | | | | | | | |
| N | 4P | | | | | | 017200100500 | 01 | 0 | N | DAY | PDO | PSNGR CAR | | | 01 DRVR | NONE | 00 | Unk | Unk | 000 | 000 | |
| N | 45 23 22.76 | -122 15 | | | 48 .39 | | | | | | | | 02 NONE | 9 | STRGHT | | | | | | | | |
| | | | | | | | | | | | | | N/A | | E -W | | | | | | | | |
| | | | | | | | | | | | | | PSNGR CAR | | | 01 DRVR | NONE | 00 | Unk | Unk | 000 | 000 | |
| 00805 | N | N | N | N | 03/01/2017 | 16 | DUBARKO RD | INTER | CROSS | N | CLD | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | | 082,013 |
| CITY | WE | | | | | | EAGLE CRK-SANDY HY | CN | STOP SIGN | N | DRY | ANGL | PRVTE | | | W -E | | | | | | | 015 |
| N | 3P | | | | | | 04 | 0 | 0 | N | DAY | INJ | PSNGR CAR | | | 01 DRVR | INJC | 17 | F | OR-Y | 028 | 000 | 082 |
| N | 45 23 22.76 | -122 15 | | | 48 .39 | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | | S -N | | | | | | | | 000 |
| | | | | | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 43 | M | OR-Y | 000 | 000 | |
| | | | | | | | | | | | | | 03 NONE | 0 | STOP | | | | | | | | 022 |
| | | | | | | | | | | | | | PRVTE | | E -W | | | | | | | | 000 |
| | | | | | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 27 | F | OR-Y | 000 | 000 | |
| 00846 | N | N | N | N | 03/04/2017 | 16 | DUBARKO RD | INTER | CROSS | N | RAIN | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | | 02 |
| CITY | SA | | | | | | EAGLE CRK-SANDY HY | CN | STOP SIGN | N | WET | ANGL | PRVTE | | | W -E | | | | | | | 015 |
| N | 6P | | | | | | 04 | 0 | 0 | N | DLIT | INJ | PSNGR CAR | | | 01 DRVR | NONE | 21 | M | OR-Y | 028 | 000 | 02 |
| N | 45 23 22.76 | -122 15 | | | 48 .39 | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | | | 000 |
| | | | | | | | | | | | | | PRVTE | | N -S | | | | | | | | 000 |
| | | | | | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 21 | F | OR-Y | 000 | 000 | |
| 02225 | N | N | N | N | 06/07/2017 | 16 | DUBARKO RD | INTER | CROSS | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | | | | | | | | 02 |
| CITY | WE | | | | | | EAGLE CRK-SANDY HY | CN | STOP SIGN | N | DRY | ANGL | PRVTE | | | S -N | | | | | | | 000 |
| N | 4P | | | | | | 04 | 0 | 0 | N | DAY | INJ | PSNGR CAR | | | 01 DRVR | INJC | 40 | M | OR-Y | 000 | 000 | |
| N | 45 23 22.76 | -122 15 | | | 48 .39 | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | | | 015 |
| | | | | | | | | | | | | | PRVTE | | W -E | | | | | | | | 000 |
| | | | | | | | | | | | | | PSNGR CAR | | | 01 DRVR | INJC | 38 | M | OR-Y | 028 | 000 | |

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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

CITY OF SANDY, CLACKAMAS COUNTY

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.

| SER# | P R J S W DATE | CLASS | CITY STREET | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | SPL USE | TRLR QTY | OWNER | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|--------|----------------------|-------------|--------------------|----------|------------|-------|-------|----------|-----------|----------|--------|--------|---------|-------|---------|-----|-------|-----------|-------|
| INVEST | E A U I C O DAY | DIST | FIRST STREET | (MEDIAN) | INT-REL | ANDBT | SURF | COLL | TRUCK | COLL | FROM | TO | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
| RD DFT | E L G N H R TIME | FROM | SECOND STREET | LESS | TRAF- | DRVMY | LIGHT | SVRTY | VH TYPE | TO | TURN-L | TURN-L | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
| UNLOC# | D C S V L K LAT | LONG | LR | (#LANES) | CONTL | CLR | O-1 | L-TURN | 01 | NONE | 0 | TURN-L | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
| 02958 | N N N N N 07/21/2017 | 16 | DUBARKO RD | CROSS | N | N | CLR | O-1 | L-TURN | 01 | NONE | 0 | TURN-L | | | | | | 02 |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | STOP SIGN | N | DRY | TURN | PRVTE | S -W | | | 01 | DRVR | NONE | 28 | M | OR-Y | 00 |
| N | 8P | 45 23 22.76 | -122.15 | 0 | | N | DAY | INJ | PSNGR CAR | | | | | | | | | 028 | 00 |
| N | 45 23 22.76 | -122.15 | 48.39 | | | N | | | | | | | | | | | | OR<25 | 00 |
| 00647 | N N N N N 02/18/2017 | 16 | DUBARKO RD | CROSS | N | N | RAIN | ANGL-OTH | 01 | NONE | 9 | STRGHT | | | | | | | |
| CITY | SA | | EAGLE CRK-SANDY HY | INT-REL | STOP SIGN | N | WET | ANGL | N/A | W -E | | | | | | | | | 00 |
| N | 7P | 45 23 22.76 | -122.15 | 0 | | N | DLIT | PDO | PSNGR CAR | | | | 01 | DRVR | NONE | 00 | Unk | Unk | 00 |
| N | 45 23 22.76 | -122.15 | 48.39 | | | N | | | | | | | | | | | | Unk | 00 |
| 03467 | N N N N N 08/23/2017 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 9 | STRGHT | | | | | | | |
| CITY | WE | | EAGLE CRK-SANDY HY | INT-REL | STOP SIGN | N | DRY | ANGL | N/A | NE-SW | | | | | | | | | 00 |
| N | 8A | 45 23 22.76 | -122.15 | 0 | | N | DAY | PDO | PSNGR CAR | | | | 01 | DRVR | NONE | 00 | Unk | Unk | 00 |
| N | 45 23 22.76 | -122.15 | 48.39 | | | N | | | | | | | | | | | | Unk | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 082 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |
| 03265 | N N N N N 09/14/2018 | 16 | DUBARKO RD | CROSS | N | N | CLR | ANGL-OTH | 01 | NONE | 0 | TURN-L | | | | | | | |
| CITY | FR | | EAGLE CRK-SANDY HY | INT-REL | FLASHCON-R | N | DRY | TURN | PRVTE | W -N | | | | | | | | | 015 |
| N | 9P | 45 23 22.52 | -122.15 | 0 | | N | DARK | INJ | PSNGR CAR | | | | 01 | DRVR | NONE | 38 | M | OR-Y | 00 |
| N | 45 23 22.52 | -122.15 | 48.53 | | | N | | | | | | | | | | | | 028 | 00 |
| | | | | | | N | | | | | | | | | | | | OR<25 | 00 |

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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

25 - 27 of 27 Crash records shown.

| SER# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | CLASS | CITY STREET | RD CHAR | INT-TYPE | INT-REL | LEGS | TRAF- | CONTL | DRVMY | LIGHT | SVRTY | CRASH | WTHR | OFFRD | RNDBT | SURF | COLL | CRASH | TRLR QTY | SPCL USE | MOVE | FROM | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE | | | | |
|-------|--------|--------|--------|-----------------|-------|--------------------|---------|----------|---------|------|-----------|-------|-------|-------|----------|-------|------|-------|-----------|------|------|-------|----------|----------|------|------|---------|-------|---------|-------|-------|-----------|-------|----|--|--|--|
| 03399 | NNN | NN | NN | 10/03/2019 | 16 | DUBARKO RD | INTER | CROSS | N | N | STOP SIGN | N | N | RAIN | ANGL-OTH | 01 | NONE | PRVTE | ESNGR CAR | 02 | NONE | 0 | STRGHT | W-E | 01 | DRVR | NONE | 37 | M | OR-Y | OR-25 | 028 | 015 | 00 | | | |
| | | | | | | EAGLE CRK-SANDY HY | CN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | 017200100500 | 03 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04270 | NNN | NN | NN | 11/29/2019 | 16 | DUBARKO RD | INTER | CROSS | N | N | STOP SIGN | N | N | CLR | ANGL-OTH | 01 | NONE | PRVTE | ESNGR CAR | 02 | NONE | 0 | STRGHT | W-E | 01 | DRVR | NONE | 19 | M | OTH-Y | N-RES | 028 | 015 | 00 | | | |
| | | | | | | EAGLE CRK-SANDY HY | CN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | 017200100500 | 01 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

LANGENSAND RD at DUBARKO RD, City of Sandy, Clackamas County, 01/01/2015 to 12/31/2019
1 - 1 of 1 Crash records shown.

CITY OF SANDY, CLACKAMAS COUNTY

| SER# | INVEST | RD DFT | UNLOC? | D C S V L K LAT | N N N | 06/09/2015 | 16 | DUBARKO RD | CITY STREET | RD CHAR | INT-TYPE | INT-REL | OFFRD | WTHR | CRASH | COLL | DRVMY | LIGHT | SVRTY | VH TYPE | OWNER | TRLR QTY | SPCL USE | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE | | | | | | |
|-------|--------|--------|--------|-----------------|-------|------------|-------|---------------|---------------|---------|----------|---------|-----------|------|-------|------|-------|-------|----------|---------|-------|----------|----------|--------|---------|-------|---------|------|-------|-----------|-------|-------|-------|-----|-----|-----|----|
| 03066 | NONE | NONE | NONE | NONE | NONE | NONE | 0 | DUBARKO RD | LANGENSAND RD | CN | CROSS | N | STOP SIGN | N | DRY | ANGL | N | CLR | ANGL-OTH | 01 | NONE | 0 | STRGHT | N | -S | 01 | DRVR | NONE | 23 | M | OR-Y | OR<25 | 000 | 000 | 00 | | |
| N | N | N | N | N | N | N | 0 | LANGENSAND RD | | 03 | 0 | | N | DAY | PDO | | | | | | FSNGR | CAR | | | | | | | | | | | | | | | |
| N | N | N | N | N | N | N | 59.94 | | | | | | | | | | | | | | 02 | NONE | 0 | STRGHT | W | -E | 01 | DRVR | NONE | 16 | F | OR-Y | OR<25 | 015 | 000 | 083 | 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.

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)^a
 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 ^b | Minimum Volume | Warrant Satisfied? |
|---|-------------------------------|----------------|--------------------|
| Condition A - Minimum Vehicular Volume | | | |
| Major Street Volume | 1404 | 420 | |
| Minor Street Volume | 23 | 105 | No |
| Condition B - Interruption of Continuous Traffic | | | |
| Major Street Volume | 1404 | 630 | |
| Minor Street Volume | 23 | 53 | No |
| Combination Warrant^c | | | |
| Major Street Volume | 1404 | 504 | |
| Minor Street Volume | 23 | 84 | No |

^a Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

^b Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

^c 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)^a
 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 ^b | Minimum Volume | Warrant Satisfied? |
|---|-------------------------------|----------------|--------------------|
| Condition A - Minimum Vehicular Volume | | | |
| Major Street Volume | 473 | 350 | |
| Minor Street Volume | 49 | 105 | No |
| Condition B - Interruption of Continuous Traffic | | | |
| Major Street Volume | 473 | 525 | |
| Minor Street Volume | 49 | 53 | No |
| Combination Warrant^c | | | |
| Major Street Volume | 473 | 420 | |
| Minor Street Volume | 49 | 84 | No |

^a Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

^b Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

^c 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)^a
 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 ^b | Minimum Volume | Warrant Satisfied? |
|---|-------------------------------|----------------|--------------------|
| Condition A - Minimum Vehicular Volume | | | |
| Major Street Volume | 90 | 500 | |
| Minor Street Volume | 38 | 150 | No |
| Condition B - Interruption of Continuous Traffic | | | |
| Major Street Volume | 90 | 750 | |
| Minor Street Volume | 38 | 75 | No |
| Combination Warrant^c | | | |
| Major Street Volume | 90 | 600 | |
| Minor Street Volume | 38 | 120 | No |

^a Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

^b Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

^c 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)

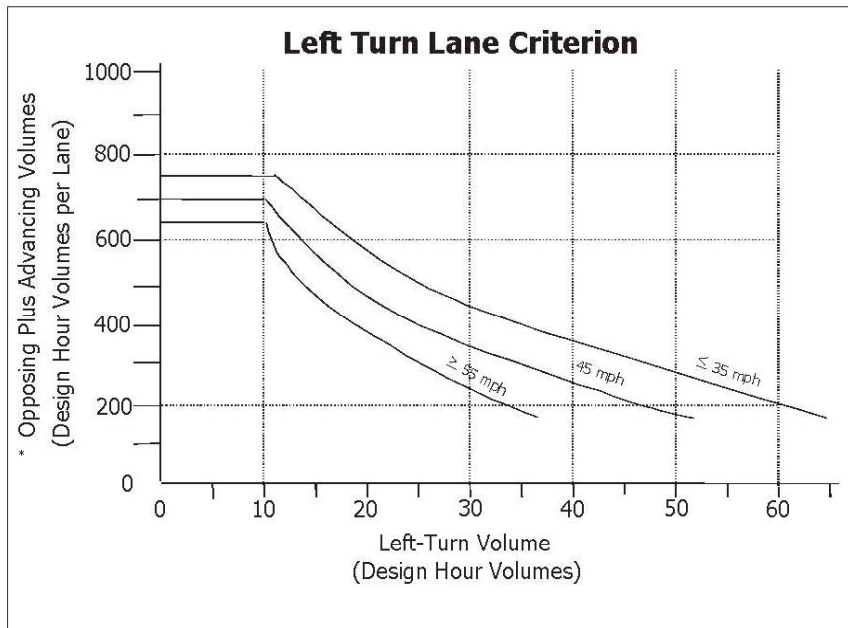


Project Name: Deer Meadows Development
 Approach: Highway 211 NB at Dubarko Road
 Scenario: 2021 Existing Conditions

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? | YES | YES |

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

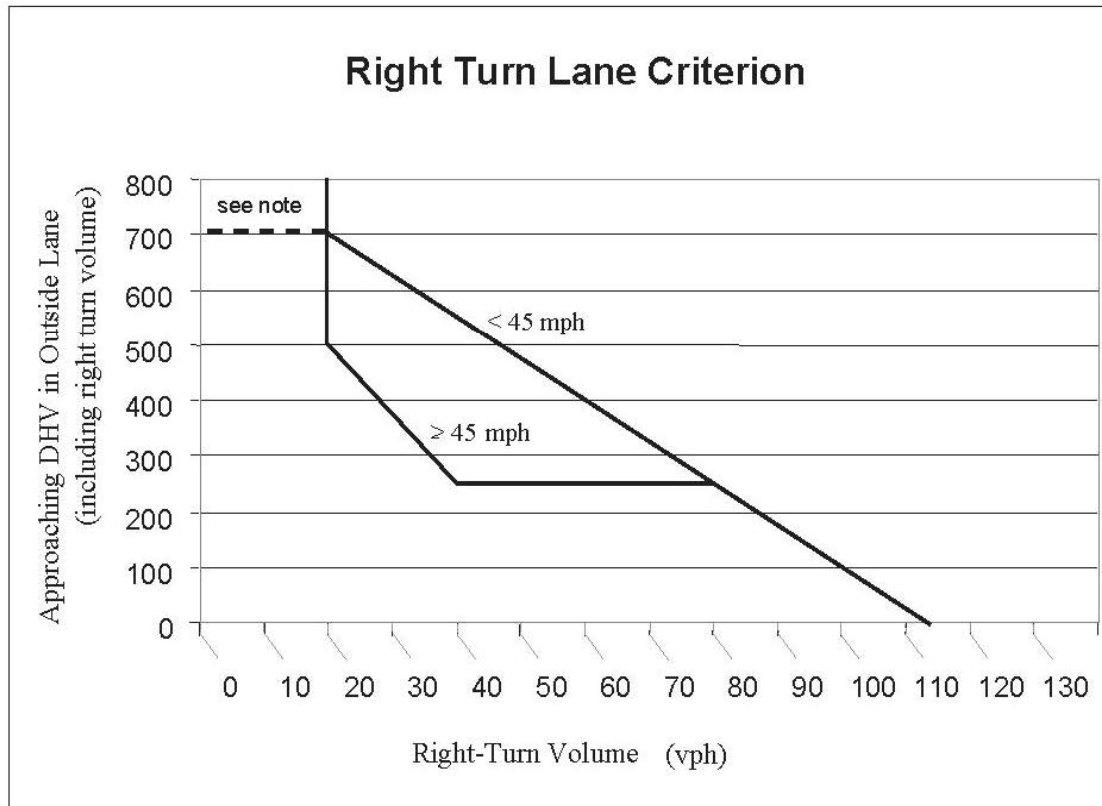
Major-Street Design Speed: 45 mph

| | 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? | NO | YES |

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)

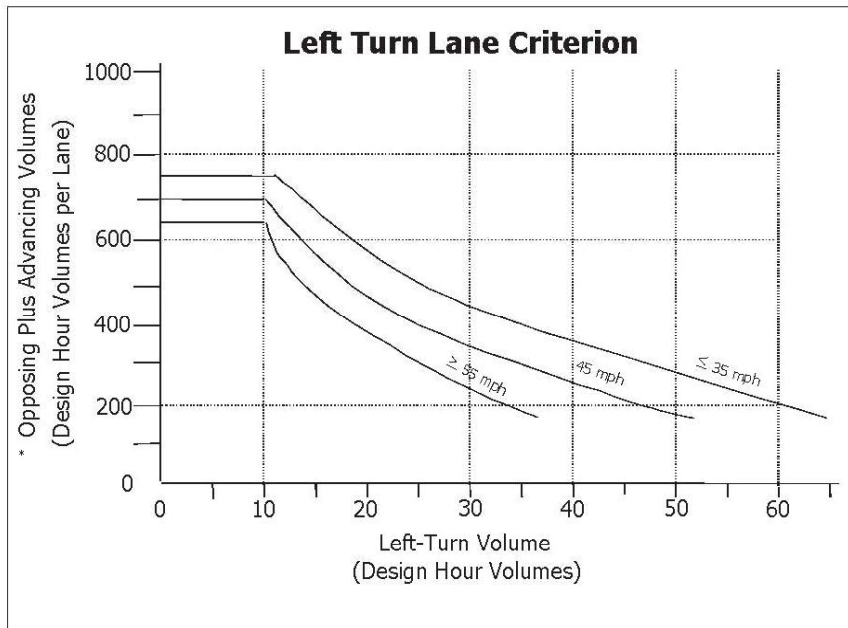


Project Name: Deer Meadows Development
 Approach: Dubarko Road westbound at Langensand Road
 Scenario: 2023 Background plus Site Trips

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? | NO | NO |

Exhibit 7-1 Left Turn Lane Criterion (TTI)



* $(\text{Advancing Volume} / \text{Number of Advancing Through Lanes}) + (\text{Opposing Volume} / \text{Number of Opposing Through Lanes})$

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

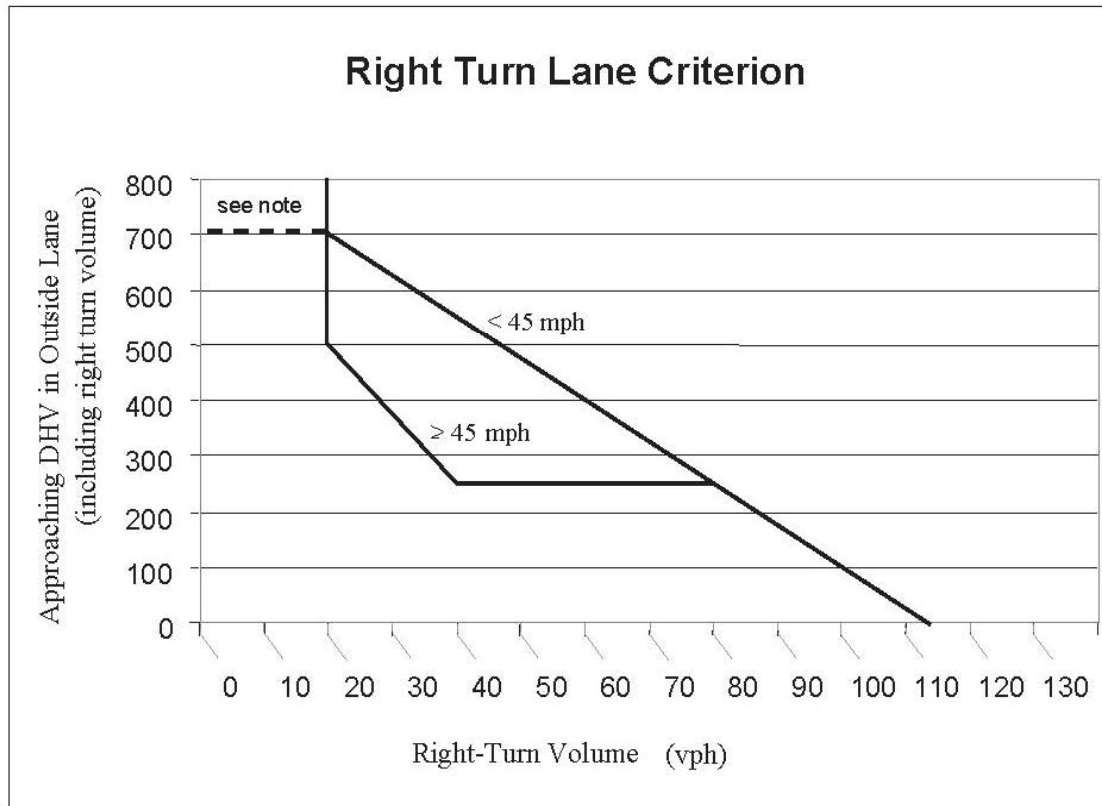
Major-Street Design Speed: 25 mph

| | 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? | NO | NO |

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.