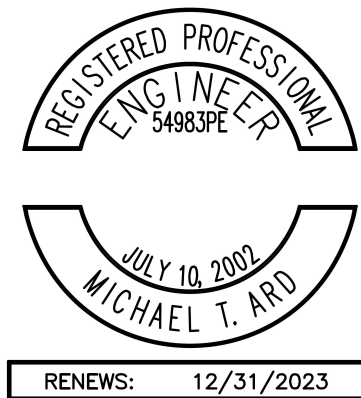




# BARLOW TRAIL VETERINARY CLINIC TRAFFIC IMPACT STUDY

SANDY, OREGON



**PREPARED FOR:**

Shan Hill – Barlow Trail Vet Clinic

**PREPARED BY:**

Michael Ard, PE  
Ard Engineering

**DATE:**

December 6, 2022



## TABLE OF CONTENTS

Executive Summary .....	3
Project Description & Location .....	4
Existing Conditions .....	5
Site Trips.....	10
Future Conditions Analysis .....	12
Safety Analysis .....	16
Conclusions .....	19
Appendix .....	20



## **EXECUTIVE SUMMARY**

1. A property located on the south side of Pioneer Boulevard immediately east of Strauss Avenue in Sandy, Oregon is proposed for development with a 5,772 square foot veterinary clinic. The site will take access via two driveways, with one on Strauss Avenue and one on Junker Street.
2. Upon completion of the proposed improvements within the subject property, the site is projected to accommodate 21 site trips during the morning peak hour, 20 trips during the evening peak hour, and 124 daily site trips.
3. The study intersections are currently operating acceptably per City of Sandy and ODOT standards and are projected to continue operating acceptably through 2024 either with or without the addition of site trips from the proposed development. No operational mitigations are necessary or recommended.
4. Strauss Avenue and Junker Street are classified as local streets. Both streets will accommodate fewer than 1,000 vehicle trips per day with completion of the proposed development.
5. The study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended in conjunction with the proposed site use.
6. No new turn lanes or traffic signals are recommended in conjunction with the proposed development.
7. Based on the intersection sight distance analysis and in consideration of the traffic patterns and conflicts surrounding the site access driveways, it is recommended that the driveway on Strauss Avenue be limited to entering vehicles only. The site access driveway on Junker Street can safely and efficiently accommodate both entering and exiting traffic.



## **PROJECT DESCRIPTION & LOCATION**

### ***INTRODUCTION***

A new 5,772 square foot veterinary clinic is proposed on a property located on the east side of Strauss Avenue immediately south of Pioneer Boulevard in the City of Sandy, Oregon. The proposed development will take access via driveways on Strauss Avenue and Junker Street.

This report addresses the impacts of the proposed development on the surrounding street system. An operational and safety analysis was conducted for the intersections of:

- Pioneer Boulevard at Strauss Avenue;
- Pioneer Boulevard at Junker Street;
- Strauss Avenue at the proposed site access; and
- Junker Street at the proposed site access.

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 comprises several tax lots, all of which are currently undeveloped. Immediately east of the project site is the Sandy Community Action Center/Second Time Around Thrift Store. Other uses in the site vicinity include existing homes along Junker Street and a variety of commercial land uses along Pioneer Boulevard in the site vicinity.

Pioneer Boulevard forms the eastbound half of the Highway 26 couplet through downtown Sandy. The section near the project site is classified by the Oregon Department of Transportation as a Statewide Highway, a Freight Route, and a Special Transportation Area. It has two eastbound through lanes, a bike lane to the right of the motor vehicle travel lanes, and on-street parking on both sides of the roadway. It has a posted speed limit of 25 in the site vicinity, with a 20-mph school speed zone that applies from 130 feet east of Strauss Avenue to 100 feet east of Shelley Avenue when children are present. Existing sidewalks are in place on both sides of the roadway.

Strauss Avenue is a one-way road serving southbound traffic. It is classified by the City of Sandy as a local street. Between Proctor Boulevard and Pioneer Boulevard it has a single southbound travel lane with parallel parking on the east side and angled parking on the west side. Existing sidewalks are in place on both sides of the roadway. South of Pioneer Boulevard it has a single southbound travel lane, with on-street parking available wherever sufficient shoulder width is provided. There are currently no sidewalks on either side of the roadway south of Pioneer Boulevard.

Junker Street is also classified by the City of Sandy as a local street. The east/west segment that extends approximately 280 feet east of Strauss Avenue is a one-way roadway with a single eastbound travel lane, and no on-street parking or sidewalks. The north/south segment which connects to Pioneer Boulevard between Strauss Street and Shelley Avenue has a single travel lane in



each direction with limited on-street parking and no sidewalks on either side of the roadway. Since Junker Street serves existing residential homes, it is also subject to the City of Sandy's requirement that local residential streets accommodate fewer than 1,000 daily trips.

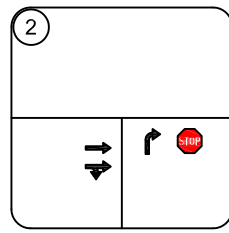
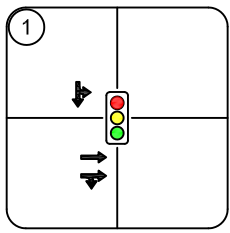
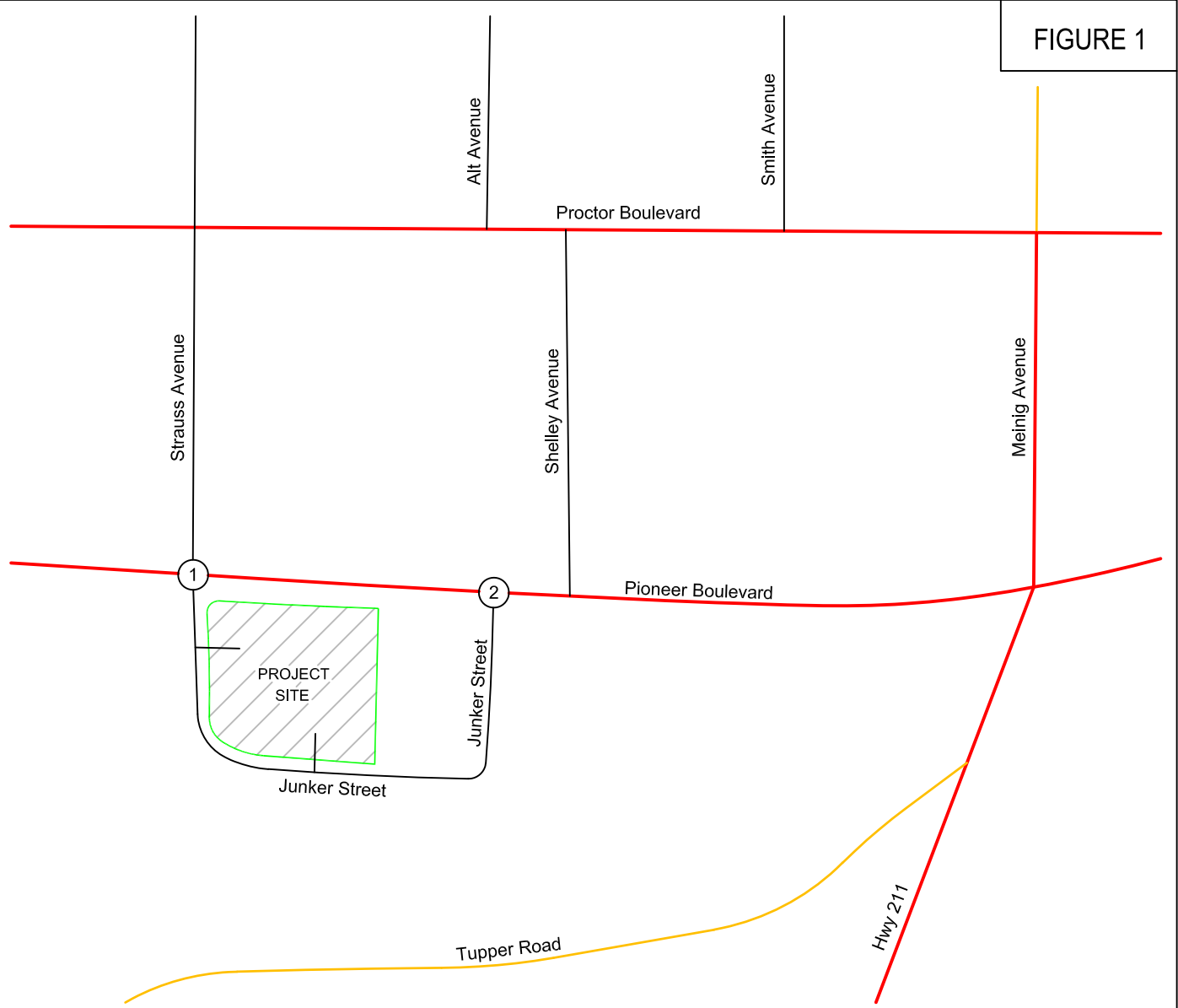
## **EXISTING CONDITIONS**

The intersection of Pioneer Boulevard at Strauss Avenue is controlled by a traffic signal. The eastbound approach has a dedicated left-turn lane, a shared through/right lane, and a bike lane. The southbound approach has a single lane which serves left-turn and through traffic. There are no westbound or northbound approaches since both roadways serve one-way traffic.

The intersection of Pioneer Boulevard at Junker Street is a T-intersection operating under stop control for the northbound Junker Street approach. The eastbound Pioneer Boulevard approach has a through lane and a through/right lane, with a bike lane to the right of the motor vehicle travel lanes. The northbound approach has a single lane which only accommodates right-turn movements.

A vicinity map displaying the project site, vicinity streets, and the study intersections including lane configurations is provided in Figure 1 on page 6.

FIGURE 1



**LEGEND**

- # Study Intersection #
- Traffic Signal
- Stop Sign





### ***TRAFFIC COUNT DATA***

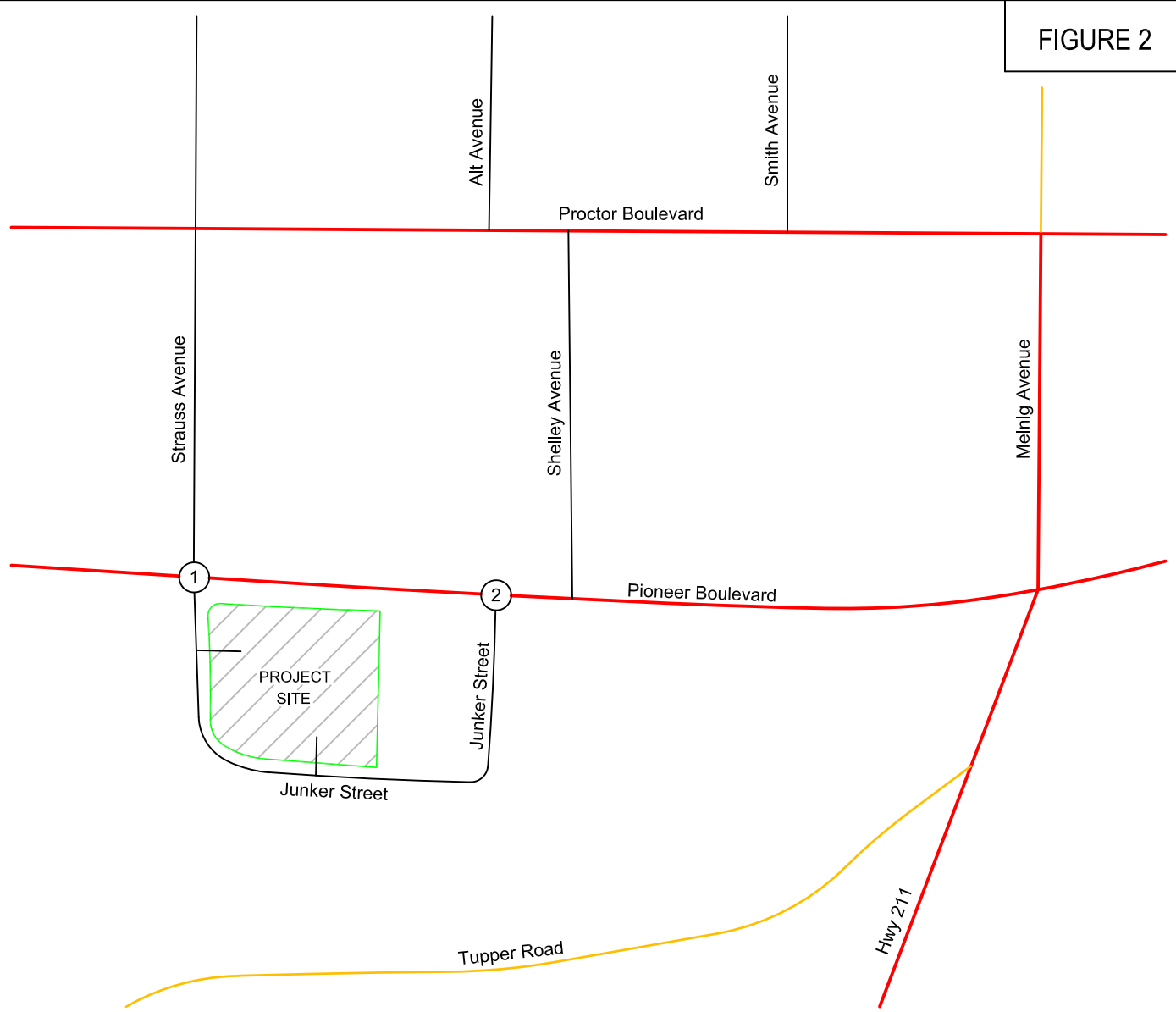
Traffic counts were conducted at the study area intersections on Tuesday November 8, 2022, from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. Data was used from the highest-volume hour for each study intersection during each analysis period.

Since the count data was not collected during the peak month of the year, the observed traffic volumes on Highway 26 were adjusted to account for seasonal traffic variations. In accordance with the Oregon Department of Transportation's *Analysis Procedures Manual*, this allows us to analyze operations based on traffic patterns that occur during the 30<sup>th</sup>-highest hour of the year.

The seasonal adjustment was calculated using data from ODOT's Automatic Traffic Recorder (ATR) Station 26-003, located on Highway 26 in Gresham, Oregon. This ATR station was determined to have substantially similar characteristics to Highway 26 within the City of Sandy and was also used to seasonally adjust traffic volume data collected for the City of Sandy's Transportation System Plan. The seasonal adjustment calculation used annual data from 2017 through 2021 (the most recent 5 years for which data is available). The seasonal adjustment used compared traffic volumes during the count month of November to the peak month of August for each year. After removing the highest and lowest values from the data set for the respective months, the remaining three data points were averaged to determine the appropriate seasonal adjustment. Accordingly, a seasonal adjustment of 1.135 was applied to the November count data to represent peak traffic conditions in August. This adjustment was applied to the morning and evening peak hour count data.

Figure 2 on page 8 shows the resulting seasonally adjusted existing year 2022 30<sup>th</sup>-highest hour traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 2



1

← 0	↓ 23
949 →	0 ↓

AM

1

← 0	↓ 31
1689 →	1 ↓

PM

2

966 →	0 ↓
0 →	0 ↓

AM

2

1693 →	0 ↓
1 →	1 ↓

PM







### ***OPERATIONAL ANALYSIS***

An operational analysis was conducted for the study intersections using Synchro 11 software, with outputs calculated based on the *HIGHWAY CAPACITY MANUAL, 6<sup>th</sup> Edition*. The analysis was conducted for the weekday morning and evening peak hours.

The purpose of the existing conditions analysis is to establish how the study area intersections operate currently and allow for calibration of the operational analysis if required.

The results of the operational analysis are reported based on delay, Level of Service (LOS), and volume-to-capacity ratio (v/c). Delays are reported in seconds. Level of service is reported as a letter grade and can range from A to F, with level of service A representing 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 Pioneer Boulevard at Strauss Avenue operate with a v/c ratio of 0.90 or less during the peak hours. The unsignalized intersection of Pioneer Boulevard at Junker Street is required to operate with a v/c ratio of 0.90 or less on the state highway approach and 1.0 or less on the stop-controlled Junker Street approach.

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 proposed site access intersections on Strauss Avenue and Junker Street.

A summary of the existing conditions operational analysis is provided in Table 1 on the following page. For the signalized intersection of Pioneer Boulevard at Strauss Avenue, the reported delays, levels-of-service, and v/c ratios represent the operation of the overall intersection. For the unsignalized intersection of Pioneer Boulevard at Junker Street the reported delays and levels-of-service represent the stop-controlled Junker Street approach (since Pioneer Boulevard is free-flowing and not subject to delay at the intersection). Volume-to-capacity ratios are reported for both intersection approaches.

Based on the analysis, the intersections are currently operating acceptably per the respective ODOT and City of Sandy standards. Detailed capacity analysis worksheets are included in the attached technical appendix.



**Table 1 - Operational Analysis Summary: Year 2022 30th-Highest Hour Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Pioneer Boulevard at Strauss Avenue	2.6	A	0.43	4.6	A	0.61
Pioneer Boulevard at Junker Street*	13.1	B	0.34/0.00	17.7	C	0.51/0.01

\* Reported v/c ratios reflect state highway approach/minor street approach

## SITE TRIPS

The proposed development consists of a new 5,772 square foot veterinary clinic. To estimate the number of trips that will be generated at the site trip rates from the *TRIP GENERATION MANUAL, 11<sup>th</sup> EDITION* were used. Data from land-use code 640, *Animal Hospital/Veterinary Clinic*, were used.

A summary of the trip generation calculations is provided in Table 2 below. A detailed trip generation worksheet is also included in the technical appendix.

**Table 2 - Proposed Development Trip Generation Summary**

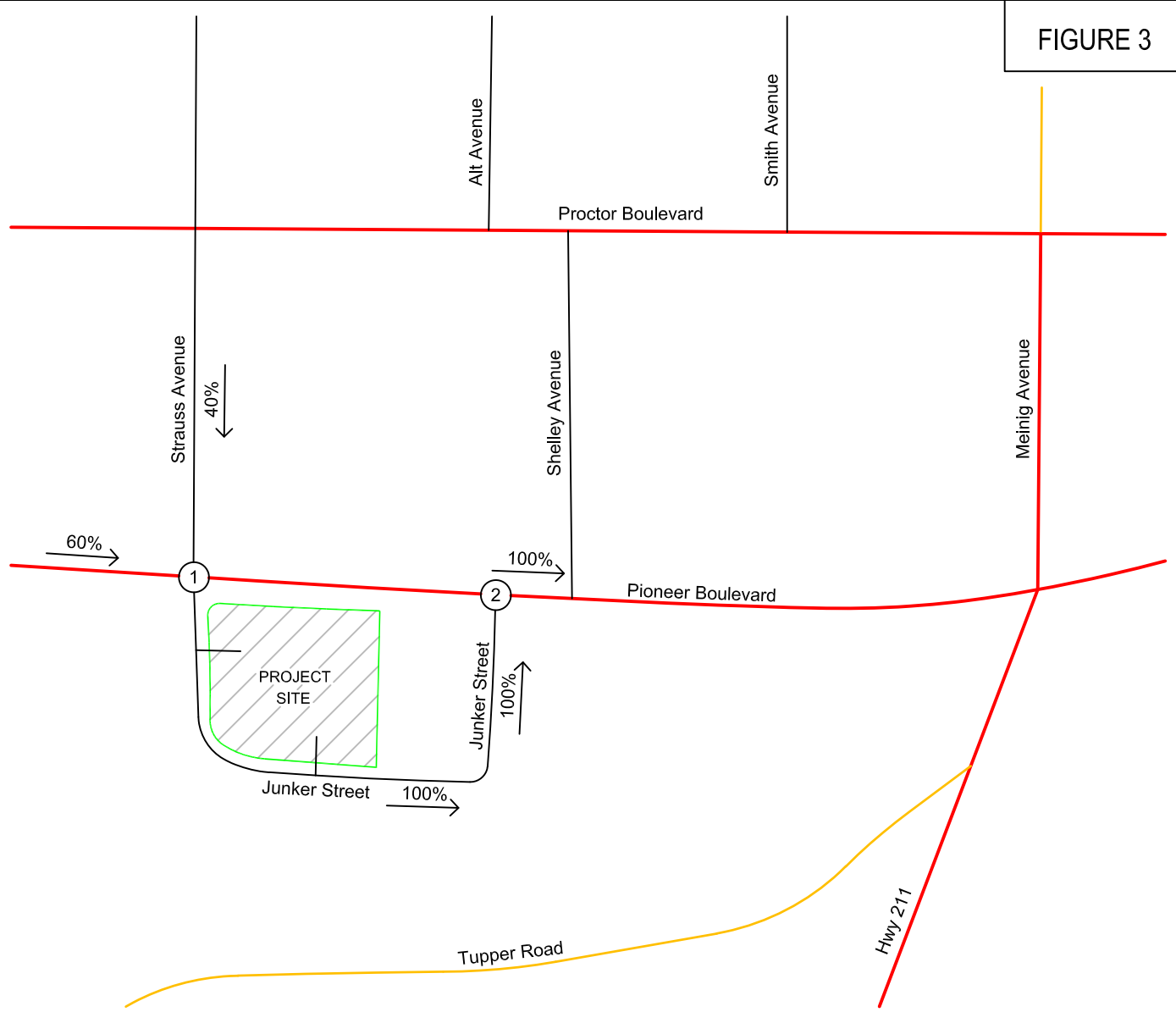
	AM Peak Hour			PM Peak Hour			Daily Total
	In	Out	Total	In	Out	Total	
5,772 sf Veterinary Clinic	14	7	21	8	12	20	124

## 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, 60 percent of entering site trips are projected to approach via Pioneer Boulevard eastbound, while 40 percent of entering site trips are projected to approach the site via Strauss Avenue southbound. Since Pioneer Boulevard operates as a one-way road all trips exiting the site will travel to the east on Junker Street to Pioneer Boulevard eastbound.

The trip distribution percentages and trip assignment for the proposed development are shown in Figure 3 on page 11.

FIGURE 3



1

← 6	→ 0
→ 0	← 0

AM

1

← 3	→ 0
→ 0	← 5

PM

2

→ 0	← 0
→ 7	← 0

AM

2

→ 0	← 0
→ 12	← 0

PM





## **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 fully occupied within two years. Accordingly, the analysis was conducted for year 2024 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 2040 Future Volume Table, the growth rate for traffic volumes on Highway 26 in the site vicinity was calculated to be 2.19 percent per year (linear). This growth rate was applied to the year 2022 traffic volumes over a period of two years to generate the projected year 2024 traffic volumes.

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 Mt. Hood Senior Living, The Pad, Cedar Heights Views, Shaylee Meadows, Trimble PD, Bornstedt Views, Cascade Creek Multifamily, Tickle Creek Village, Double Creek Condos, Jewelberry Ridge, Jewelberry Meadows, Sandy Plaza Apartments, FreeUp Storage, Johnson RV, and a mixed-use development at 38015 Highway 26. The projected site trips for these residential developments are shown in Figure 6 in the attached technical appendix.

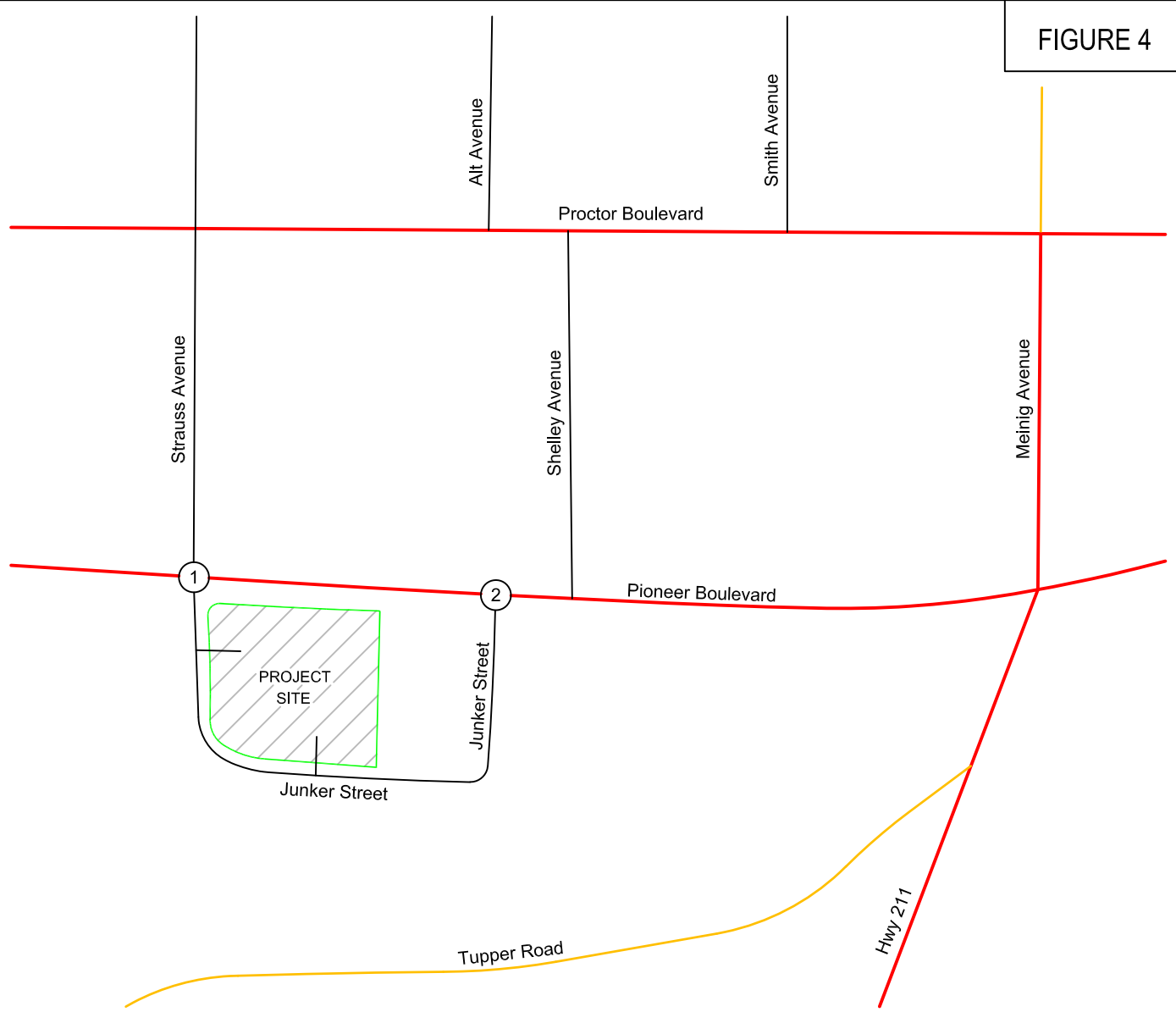
Figure 4 on page 13 shows the projected year 2024 background traffic volumes at the study intersections during the morning and evening peak hours.

### ***BACKGROUND VOLUMES PLUS SITE TRIPS***

Peak hour trips calculated to be generated by the proposed development were added to the projected year 2024 background traffic volumes to obtain the year 2024 total traffic volumes following completion of the proposed development.

Figure 5 on page 14 shows the projected year 2024 peak hour volumes including background growth, and site trips from the proposed development for the morning and evening peak hours.

FIGURE 4



1

← 0	→ 24
1046 →	0 ↓

AM

1

← 0	→ 32
1861 →	1 ↓

PM

2

1063 →	0 →
0 ↓	

AM

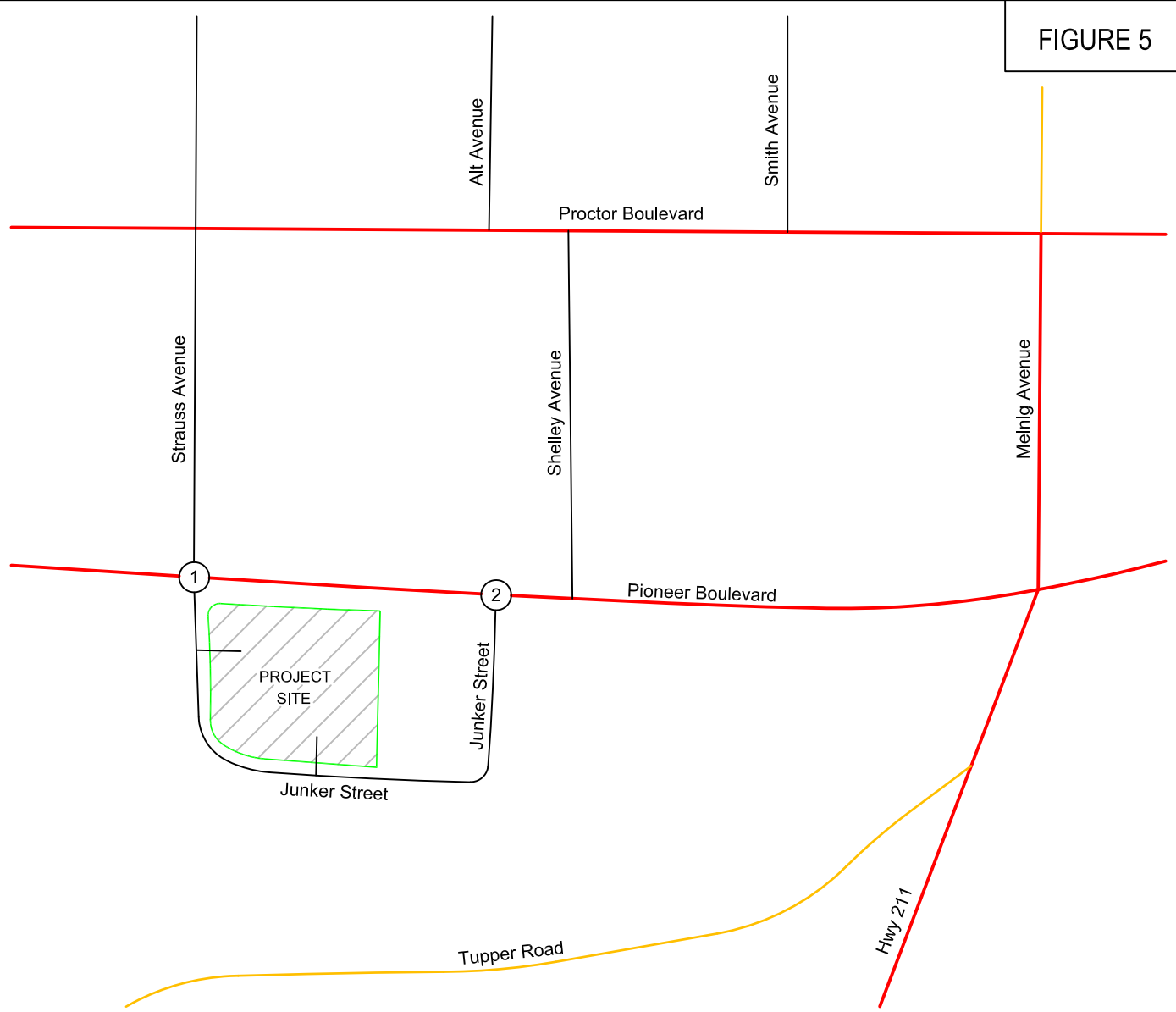
2

1865 →	1 →
0 ↓	

PM



FIGURE 5



1

← 6	→ 24
1046 →	8 ↓

AM

1

← 3	→ 32
1861 →	6 ↓

PM

2

1063 →	7 →
0 ↓	

AM

2

1865 →	13 →
0 ↓	

PM





### **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 2024 Future Conditions**

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Pioneer Blvd. at Strauss Ave.						
2024 Background Conditions	2.8	A	0.47	5.6	A	0.67
2024 Background plus Site	3.7	A	0.48	5.8	A	0.67
Pioneer Blvd. at Junker St.*						
2024 Background Conditions	13.9	B	0.37/0.00	19.6	C	0.56/0.01
2024 Background plus Site	14.0	B	0.37/0.02	20.4	C	0.56/0.06
Strauss Ave. at Site Access						
2024 Background plus Site	8.7	A	0.01	8.6	A	0.01
Junker St. at Site Access						
2024 Background plus Site	8.6	A	0.01	8.6	A	0.02

\* Reported v/c ratios reflect state highway approach/minor street approach

Upon completion of the proposed development, all study intersections are projected to operate acceptably per the appropriate jurisdictional standards.

### Local Street Traffic Volumes

Local street traffic volumes were examined to determine whether the proposed development will comply with the requirements of the City of Sandy’s Development Code, Section 17.10.30 “Street”, Sub-section E “Local Streets”, which reads in part:

“Average daily traffic (ADT) shall not exceed 1,000 vehicles/day. Proposed projects that result in more than 1,000 ADT on an existing or proposed local street shall be modified to not exceed the 1,000 ADT threshold on the local street or the proposal may be processed through the procedures in Chapter 17.66 of the Sandy Development Code.”

Based on the analysis, under year 2024 background plus site trips conditions the loop formed by Strauss Avenue and Junker Street will carry approximately 140 vehicles per day. This traffic volume falls well below the maximum allowable threshold. As such, no mitigation is required to meet the city’s local street traffic volume standards.



## **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 2016 through December 2020) was performed for the study intersections. The crash data was evaluated based on the number, type, and severity of collisions, as well as the intersection crash rate. Crash rates allow comparison of relative safety risks at intersections with different lane configurations, volumes, and traffic control devices by accounting for both the number of crashes that occur during the study period and the number of vehicles that traveled through the intersection during that period. Crash rates are calculated using the standard assumption that evening peak hour volumes are approximately 10 percent of the average daily traffic volume at an intersection. The crash rates were compared to statewide crash rates for similar intersection types to identify any locations with crash rates in excess of the 90<sup>th</sup> percentile.

The intersection of Pioneer Boulevard at Strauss Avenue had two total reported collisions during the five-year analysis period. These consisted of one rear-end collision and one turning movement collision. The crashes resulted in two reports of a “possible injury/complaint of pain.” No serious injuries or fatalities were reported. The crash rate for the intersection was 0.072 crashes per million entering vehicles, which is well below the 90<sup>th</sup> percentile crash rate of 0.509 crashes per million entering vehicles for signalized three-way urban intersections in Oregon.

There were no reported crashes at the intersection of Pioneer Boulevard and Junker Street during the five-year analysis period.

Based on the crash data, the study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended for the study area intersections.

### ***TRAFFIC SIGNAL WARRANT ANALYSIS***

The intersection of Pioneer Boulevard at Strauss Avenue is currently signalized. By inspection, all other study intersections have insufficient traffic volumes on the side-street approaches to warrant signalization. Accordingly, no new traffic signals are recommended in conjunction with the proposed development.

### ***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 a 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. Similarly, right-turn lane warrants are intended to evaluate whether a meaningful safety benefit may be expected if a right-turn lane is provided, allowing right-turning vehicles to move out of the through travel lane while decelerating and making turns.





Generally, turning movement volumes of fewer than 10 major street left turns are too low to warrant installation of dedicated left-turn lanes. All study intersections are projected to have fewer than 10 major street left turns during each of the peak hours. As such, no new left turn lanes are warranted in conjunction with the proposed development.

Turning movement volumes of fewer than 20 major street right turns are similarly too low to warrant installation of dedicated right-turn lanes. All study intersections are also projected to have fewer than 20 major street right turns during each of the peak hours. As such, no new right turn lanes are warranted in conjunction with the proposed development.

Based on the analysis, no new turn lanes are recommended for the study intersections.

### ***INTERSECTION SIGHT DISTANCE ANALYSIS***

Intersection sight distance was examined for the proposed site access intersections on Strauss Avenue and Junker Street.

In accordance with the methodologies described in A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway and Transportation Officials (the AASHTO Green Book), intersection sight distance was measured from the centerline of the respective driveways 15 feet behind the edge of the traveled way and 3.5 feet above the driveway surface to an oncoming driver's eye position 3.5 feet above the approaching travel lanes.

For the proposed driveway on Strauss Avenue, intersection sight distance to the northwest (i.e., approaching from Pioneer Boulevard eastbound) was measured to be 88 feet. Sight distance was limited by the existing vacant building located in the southwest corner of the intersection of Pioneer Boulevard and Strauss Avenue. Intersection sight distance to the north (i.e., vehicles approaching via Strauss Avenue southbound) was measured to be 165 feet. Sight distance was limited by on-street parking along the east side of Strauss Avenue.

The minimum required intersection sight distance for safe operation of the proposed access was calculated to be 80 feet to the northwest and 155 feet to the northwest and north, respectively. These minimums were calculated based on stopping sight distance for vehicles making eastbound right turns from Pioneer Boulevard onto Strauss Avenue at 15 mph and for southbound vehicles on Strauss Avenue traveling at 25 mph. Based on the sight distance analysis, the proposed access could operate safely.

Although the available intersection sight distances at the site access driveway meet minimum stopping sight distance standards for safety, the full required intersection sight distances for these approaches would be 170 feet and 280 feet for the approach design speeds described above. As such, conflicts between exiting vehicles and through traffic on Strauss Avenue would be expected to result in the need for major-street traffic on Strauss Avenue to slow or stop to avoid conflicts. If this slowing or stopping is accompanied by a southbound travel demand of more than 2 vehicles, it could also result in queues backing up into Pioneer Boulevard due to the close spacing between the access and the existing public intersection.



If the site access on Strauss Avenue was limited to entering traffic only, no conflicts or delays would occur at this site access driveway, and southbound traffic on Strauss Avenue would be free flowing. Notably, utilization of this driveway for exiting movements from the site would also result in increased travel distances for exiting drivers, since all vehicles exiting westbound from the site would be required to turn south onto Strauss Avenue, then east on Junker Street. As such, it would be more efficient both for operation of Strauss Avenue and for operation of the site to restrict this driveway to entering vehicles only. Additionally, restriction of the site access driveway on Strauss Avenue to entering traffic only would ensure that errant drivers do not attempt to turn right onto Strauss Avenue against the one-way southbound restriction when trying to return to Pioneer Boulevard. Based on these factors, it is recommended that the site access driveway on Strauss Avenue be restricted to entering vehicles only.

For the proposed driveway on Junker Street, intersection sight distance to the northwest was measured to be in excess of 280 feet. The available intersection sight distance for this driveway is sufficient for safe and efficient operation of the access, without the need for through traffic on Junker Street to significantly slow or stop to avoid collisions. Accordingly, the south site access driveway on Junker Street can adequately accommodate both entering and exiting traffic.



## CONCLUSIONS

The study intersections are currently operating acceptably per City of Sandy and ODOT standards and are projected to continue operating acceptably through 2024 either with or without the addition of site trips from the proposed development. No operational mitigations are necessary or recommended.

Strauss Avenue and Junker Street are classified as local streets. Both streets will accommodate fewer than 1,000 vehicle trips per day with completion of the proposed development.

The study intersections are currently operating acceptably with respect to safety. No specific safety improvements are recommended in conjunction with the proposed site use.

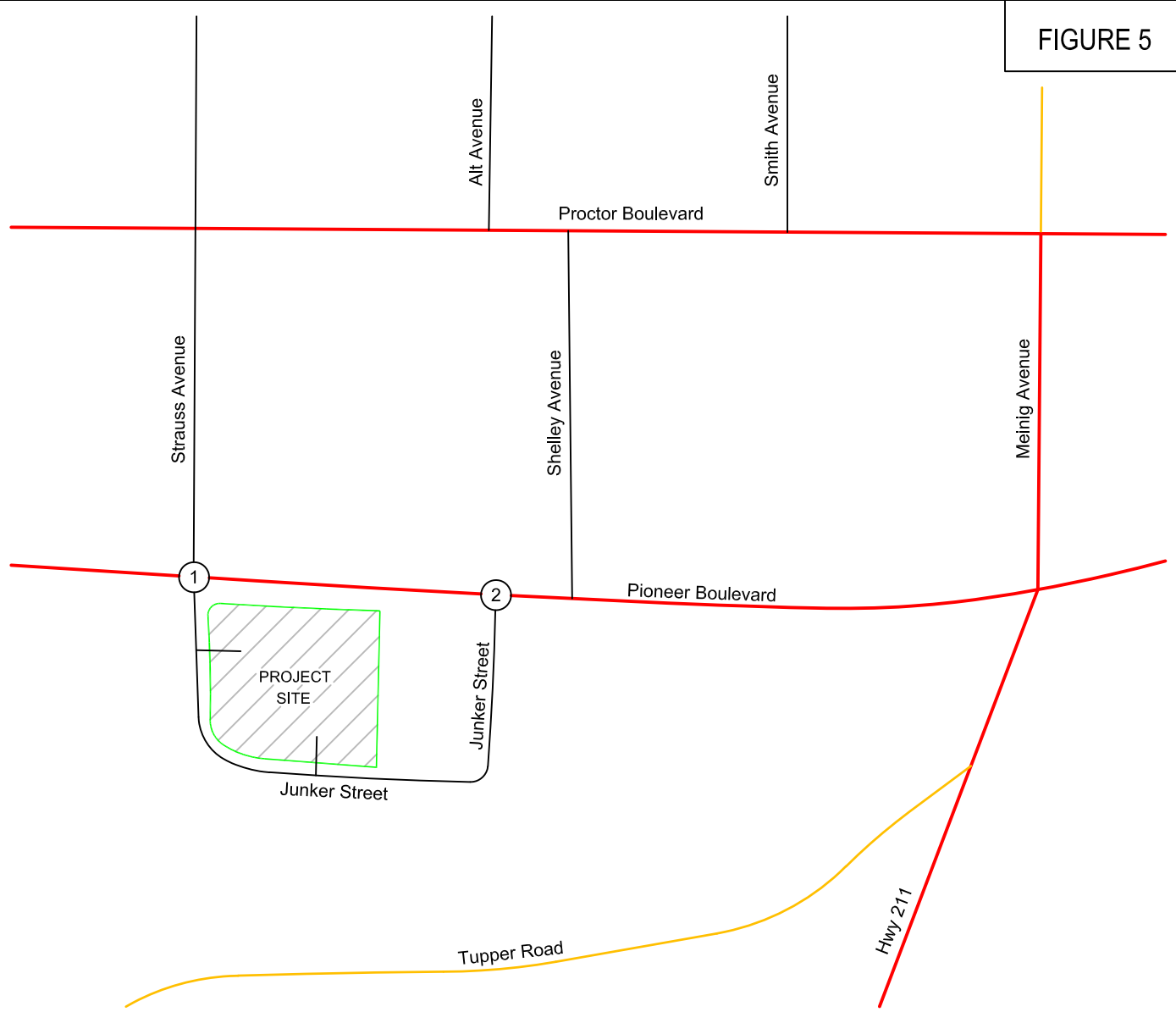
No new turn lanes or traffic signals are recommended in conjunction with the proposed development.

Based on the intersection sight distance analysis and in consideration of the traffic patterns and conflicts surrounding the site access driveways, it is recommended that the driveway on Strauss Avenue be limited to entering vehicles only. The site access driveway on Junker Street can safely and efficiently accommodate both entering and exiting traffic.



## APPENDIX

FIGURE 5



1

0	0
↓	↘
55	→
0	↘

AM

1

0	0
↓	↘
98	→
0	↘

PM

2

55	→
0	↘
0	↘
0	↘

AM

2

98	→
0	↘
0	↘
0	↘

PM





ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

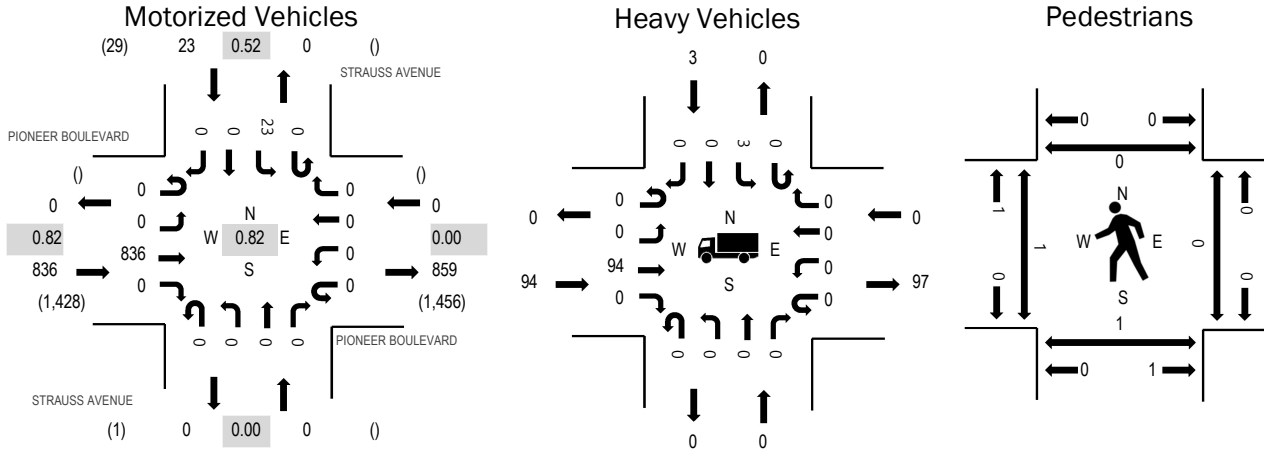
Location: 1 STRAUSS AVENUE & PIONEER BOULEVARD AM

Date: Tuesday, November 8, 2022

Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:10 AM - 08:25 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	11.2%	0.82
WB	0.0%	0.00
NB	0.0%	0.00
SB	13.0%	0.52
All	11.3%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	PIONEER BOULEVARD Eastbound				PIONEER BOULEVARD Westbound				STRAUSS AVENUE Northbound				STRAUSS AVENUE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	41	598
7:05 AM	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	38	638
7:10 AM	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44	654
7:15 AM	0	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	47	708
7:20 AM	0	0	34	0	0	0	0	0	0	0	0	0	0	2	0	0	36	759
7:25 AM	0	0	36	1	0	0	0	0	0	0	0	0	0	0	0	0	37	790
7:30 AM	0	0	57	0	0	0	0	0	0	0	0	0	0	0	0	0	57	828
7:35 AM	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	52	838
7:40 AM	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	52	853
7:45 AM	0	0	62	0	0	0	0	0	0	0	0	0	0	2	0	0	64	855
7:50 AM	0	0	65	0	0	0	0	0	0	0	0	0	0	2	0	0	67	853
7:55 AM	0	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	63	850
8:00 AM	0	0	80	0	0	0	0	0	0	0	0	0	0	1	0	0	81	859
8:05 AM	0	0	49	0	0	0	0	0	0	0	0	0	0	5	0	0	54	
8:10 AM	0	0	93	0	0	0	0	0	0	0	0	0	0	5	0	0	98	
8:15 AM	0	0	96	0	0	0	0	0	0	0	0	0	0	2	0	0	98	
8:20 AM	0	0	66	0	0	0	0	0	0	0	0	0	0	1	0	0	67	
8:25 AM	0	0	72	0	0	0	0	0	0	0	0	0	0	3	0	0	75	
8:30 AM	0	0	65	0	0	0	0	0	0	0	0	0	0	2	0	0	67	
8:35 AM	0	0	65	0	0	0	0	0	0	0	0	0	0	2	0	0	67	
8:40 AM	0	0	54	0	0	0	0	0	0	0	0	0	0	0	0	0	54	
8:45 AM	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	62	
8:50 AM	0	0	63	0	0	0	0	0	0	0	0	0	0	1	0	0	64	
8:55 AM	0	0	71	0	0	0	0	0	0	0	0	0	0	1	0	0	72	
Count Total	0	0	1,427	1	0	0	0	0	0	0	0	0	0	29	0	0	1,457	
Peak Hour	0	0	836	0	0	0	0	0	0	0	0	0	0	23	0	0	859	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	8	0	0	0	8	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	6	0	0	0	6	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	9	0	0	0	9	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	5	0	0	0	5	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	9	0	0	0	9	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	8	0	0	0	8	7:25 AM	0	0	0	0	0	7:25 AM	1	0	0	0	1
7:30 AM	8	0	0	0	8	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	11	0	0	0	11	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	2	0	0	0	2	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	6	0	0	0	6	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	4	0	0	0	4	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	7	0	0	0	7	7:55 AM	0	0	0	0	0	7:55 AM	0	1	0	0	1
8:00 AM	7	0	0	0	7	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	5	0	0	2	7	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	16	0	0	0	16	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	12	0	0	0	12	8:15 AM	0	0	0	0	0	8:15 AM	1	0	0	0	1
8:20 AM	9	0	0	0	9	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	9	0	0	1	10	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	7	0	0	0	7	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	3	0	0	0	3	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	9	0	0	0	9	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	8	0	0	0	8	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	6	0	0	0	6	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	3	0	0	0	3	8:55 AM	0	0	0	0	0	8:55 AM	0	1	0	0	1
Count Total	177	0	0	3	180	Count Total	0	0	0	0	0	Count Total	2	2	0	0	4
Peak Hour	94	0	0	3	97	Peak Hour	0	0	0	0	0	Peak Hour	1	1	0	0	2





### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	9	0	0	0	9	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	7	0	0	0	7	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	8	0	0	0	8	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	7	0	0	0	7	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	9	0	0	0	9	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	6	0	0	0	6	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	8	1	0	0	9	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	12	0	0	0	12	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	3	0	0	0	3	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	5	0	0	0	5	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	7	0	0	0	7	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	8	0	0	0	8	7:55 AM	0	0	0	0	0	7:55 AM	0	1	0	0	1
8:00 AM	7	0	0	0	7	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	6	0	0	0	6	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	17	0	0	0	17	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	14	0	0	0	14	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	8	0	0	0	8	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	11	0	0	0	11	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	7	0	0	0	7	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	4	0	0	0	4	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	11	0	0	0	11	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	6	0	0	0	6	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	7	0	0	0	7	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	3	0	0	0	3	8:55 AM	0	0	0	0	0	8:55 AM	0	1	0	0	1
Count Total	190	1	0	0	191	Count Total	0	0	0	0	0	Count Total	0	2	0	0	2
Peak Hour	105	0	0	0	105	Peak Hour	0	0	0	0	0	Peak Hour	0	1	0	0	1



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

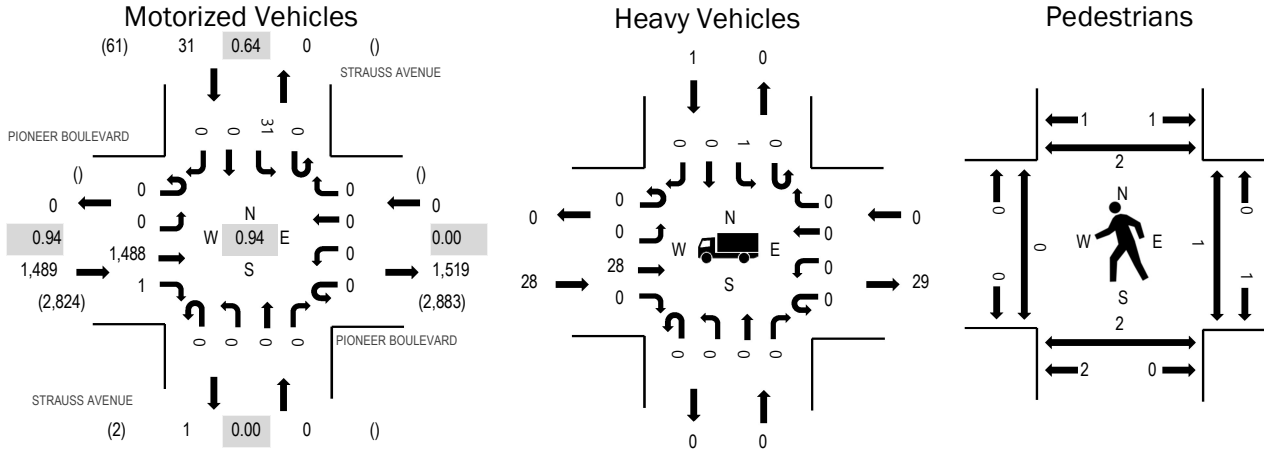
Location: 1 STRAUSS AVENUE & PIONEER BOULEVARD PM

Date: Tuesday, November 8, 2022

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.9%	0.94
WB	0.0%	0.00
NB	0.0%	0.00
SB	3.2%	0.64
All	1.9%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	PIONEER BOULEVARD Eastbound				PIONEER BOULEVARD Westbound				STRAUSS AVENUE Northbound				STRAUSS AVENUE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	102	0	0	0	0	0	0	0	0	0	0	3	0	0	105	1,439
4:05 PM	0	0	113	0	0	0	0	0	0	0	0	0	0	3	0	0	116	1,480
4:10 PM	0	0	124	0	0	0	0	0	0	0	0	0	0	1	0	0	125	1,495
4:15 PM	0	0	110	0	0	0	0	0	0	0	0	0	0	5	0	0	115	1,486
4:20 PM	0	0	122	0	0	0	0	0	0	0	0	0	0	5	0	0	127	1,503
4:25 PM	0	0	127	0	0	0	0	0	0	0	0	0	0	1	0	0	128	1,510
4:30 PM	0	0	106	0	0	0	0	0	0	0	0	0	0	1	0	0	107	1,520
4:35 PM	0	0	126	0	0	0	0	0	0	0	0	0	0	4	0	0	130	1,515
4:40 PM	0	0	133	0	0	0	0	0	0	0	0	0	0	2	0	0	135	1,487
4:45 PM	0	0	113	0	0	0	0	0	0	0	0	0	0	2	0	0	115	1,470
4:50 PM	0	0	119	0	0	0	0	0	0	0	0	0	0	1	0	0	120	1,460
4:55 PM	0	0	115	0	0	0	0	0	0	0	0	0	0	1	0	0	116	1,458
5:00 PM	0	0	142	0	0	0	0	0	0	0	0	0	0	4	0	0	146	1,446
5:05 PM	0	0	125	0	0	0	0	0	0	0	0	0	0	6	0	0	131	
5:10 PM	0	0	112	0	0	0	0	0	0	0	0	0	0	4	0	0	116	
5:15 PM	0	0	128	0	0	0	0	0	0	0	0	0	0	4	0	0	132	
5:20 PM	0	0	131	1	0	0	0	0	0	0	0	0	0	2	0	0	134	
5:25 PM	0	0	138	0	0	0	0	0	0	0	0	0	0	0	0	0	138	
5:30 PM	0	0	98	0	0	0	0	0	0	0	0	0	0	4	0	0	102	
5:35 PM	0	0	100	0	0	0	0	0	0	0	0	0	0	2	0	0	102	
5:40 PM	0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	118	
5:45 PM	0	0	104	0	0	0	0	0	0	0	0	0	0	1	0	0	105	
5:50 PM	0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	118	
5:55 PM	0	0	98	1	0	0	0	0	0	0	0	0	0	5	0	0	104	
Count Total	0	0	2,822	2	0	0	0	0	0	0	0	0	0	61	0	0	2,885	
Peak Hour	0	0	1,488	1	0	0	0	0	0	0	0	0	0	31	0	0	1,520	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	0	0	0	4	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:05 PM	5	0	0	1	6	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	1	1
4:10 PM	3	0	0	0	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	1	1
4:15 PM	4	0	0	0	4	4:15 PM	0	0	0	0	0	4:15 PM	0	1	0	2	3
4:20 PM	6	0	0	0	6	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	5	0	0	0	5	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	0	0	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	4	0	0	0	4	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	1	0	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	1	0	0	1
5:00 PM	3	0	0	1	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	0	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	1	1	0	2
5:10 PM	4	0	0	0	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	1	1
5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	3	0	0	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	0	0	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	1	0	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	1	0	0	1
5:45 PM	2	0	0	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	0	0	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	1	1
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	56	0	0	2	58	Count Total	0	0	0	0	0	Count Total	0	5	1	7	13
Peak Hour	28	0	0	1	29	Peak Hour	0	0	0	0	0	Peak Hour	0	2	1	2	5



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

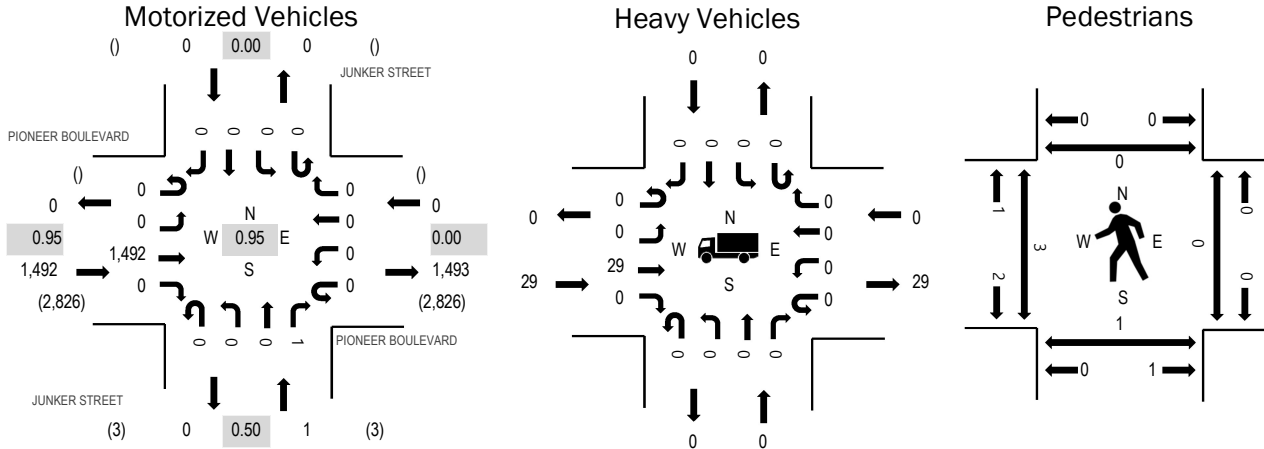
Location: 2 JUNKER STREET & PIONEER BOULEVARD PM

Date: Tuesday, November 8, 2022

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.9%	0.95
WB	0.0%	0.00
NB	0.0%	0.50
SB	0.0%	0.00
All	1.9%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	PIONEER BOULEVARD Eastbound				PIONEER BOULEVARD Westbound				JUNKER STREET Northbound				JUNKER STREET Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	113	0	0	0	0	0	0	0	0	1	0	0	0	0	114	1,422
4:05 PM	0	0	123	1	0	0	0	0	0	0	0	0	0	0	0	0	124	1,453
4:10 PM	0	0	110	1	0	0	0	0	0	0	0	0	0	0	0	0	111	1,459
4:15 PM	0	0	117	0	0	0	0	0	0	0	0	0	0	0	0	0	117	1,457
4:20 PM	0	0	123	0	0	0	0	0	0	0	0	0	0	0	0	0	123	1,471
4:25 PM	0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	118	1,475
4:30 PM	0	0	114	0	0	0	0	0	0	0	0	0	0	0	0	0	114	1,493
4:35 PM	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	0	125	1,482
4:40 PM	0	0	136	0	0	0	0	0	0	0	0	0	0	0	0	0	136	1,456
4:45 PM	0	0	116	0	0	0	0	0	0	0	0	0	0	0	0	0	116	1,433
4:50 PM	0	0	109	0	0	0	0	0	0	0	0	0	0	0	0	0	109	1,420
4:55 PM	0	0	115	0	0	0	0	0	0	0	0	0	0	0	0	0	115	1,424
5:00 PM	0	0	144	0	0	0	0	0	0	0	0	1	0	0	0	0	145	1,407
5:05 PM	0	0	130	0	0	0	0	0	0	0	0	0	0	0	0	0	130	
5:10 PM	0	0	109	0	0	0	0	0	0	0	0	0	0	0	0	0	109	
5:15 PM	0	0	131	0	0	0	0	0	0	0	0	0	0	0	0	0	131	
5:20 PM	0	0	127	0	0	0	0	0	0	0	0	0	0	0	0	0	127	
5:25 PM	0	0	136	0	0	0	0	0	0	0	0	0	0	0	0	0	136	
5:30 PM	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	103	
5:35 PM	0	0	98	1	0	0	0	0	0	0	0	0	0	0	0	0	99	
5:40 PM	0	0	112	0	0	0	0	0	0	0	0	1	0	0	0	0	113	
5:45 PM	0	0	103	0	0	0	0	0	0	0	0	0	0	0	0	0	103	
5:50 PM	0	0	113	0	0	0	0	0	0	0	0	0	0	0	0	0	113	
5:55 PM	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	98	
Count Total	0	0	2,823	3	0	0	0	0	0	0	0	3	0	0	0	0	2,829	
Peak Hour	0	0	1,492	0	0	0	0	0	0	0	0	1	0	0	0	0	1,493	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	0	0	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:05 PM	5	0	0	0	5	4:05 PM	0	0	0	0	0	4:05 PM	0	1	0	0	1
4:10 PM	2	0	0	0	2	4:10 PM	0	0	0	0	0	4:10 PM	3	1	0	0	4
4:15 PM	4	0	0	0	4	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	7	0	0	0	7	4:20 PM	0	0	0	0	0	4:20 PM	0	1	0	0	1
4:25 PM	3	0	0	0	3	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	5	0	0	0	5	4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1
4:35 PM	3	0	0	0	3	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	4	0	0	0	4	4:50 PM	0	0	0	0	0	4:50 PM	2	1	0	0	3
4:55 PM	1	0	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	3	0	0	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	0	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	4	0	0	0	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	3	0	0	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	0	0	0	2	5:40 PM	0	0	0	0	0	5:40 PM	0	1	0	0	1
5:45 PM	2	0	0	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	0	0	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	58	0	0	0	58	Count Total	0	0	0	0	0	Count Total	6	6	0	0	12
Peak Hour	29	0	0	0	29	Peak Hour	0	0	0	0	0	Peak Hour	3	1	0	0	4

## Barlow Trail Veterinary Clinic: Seasonal Adjustment Calculations

### Seasonal Adjustment Using ATR #26-003

	2021	2020	2019	2018	2017
Peak Month (August)	107%	115%	107%	113%	108%
Count Month (November)	98%	95%	97%	95%	97%

Average Peak Month (August) = 109.3%













Average Count Month (November) = 96.3%

**Seasonal Adjustment = 1.135**

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

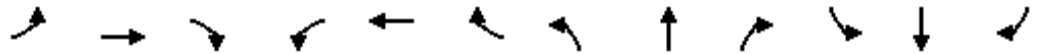
12/04/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑										↔
Traffic Volume (vph)	0	949	0	0	0	0	0	0	0	23	0	0
Future Volume (vph)	0	949	0	0	0	0	0	0	0	23	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.95									1.00	
Frbp, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		1.00									1.00	
Flt Protected		1.00									0.95	
Satd. Flow (prot)		2995									1630	
Flt Permitted		1.00									0.95	
Satd. Flow (perm)		2995									1630	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	1157	0	0	0	0	0	0	0	28	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	1157	0	0	0	0	0	0	0	0	2	0
Confl. Peds. (#/hr)			1									
Heavy Vehicles (%)	11%	11%	11%	13%	13%	13%	2%	2%	2%	2%	2%	2%
Parking (#/hr)	0		0							0		0
Turn Type		NA								Perm	NA	
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		77.0									5.0	
Effective Green, g (s)		77.0									5.0	
Actuated g/C Ratio		0.86									0.06	
Clearance Time (s)		4.0									4.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2562									90	
v/s Ratio Prot		0.39										
v/s Ratio Perm											0.00	
v/c Ratio		0.45									0.02	
Uniform Delay, d1		1.5									40.2	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.6									0.1	
Delay (s)		2.1									40.3	
Level of Service		A									D	
Approach Delay (s)		2.1			0.0			0.0			40.3	
Approach LOS		A			A			A			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			3.0		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			39.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑										↔
Traffic Volume (veh/h)	0	949	0	0	0	0	0	0	0	23	0	0
Future Volume (veh/h)	0	949	0	0	0	0	0	0	0	23	0	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	0.95	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1600	1600							1723	1723	0
Adj Flow Rate, veh/h	0	1157	0							28	0	0
Peak Hour Factor	0.82	0.82	0.82							0.82	0.82	0.82
Percent Heavy Veh, %	0	11	11							2	2	0
Cap, veh/h	0	2550	0							117	0	0
Arrive On Green	0.00	0.88	0.00							0.03	0.00	0.00
Sat Flow, veh/h	0	3120	0							1306	0	0
Grp Volume(v), veh/h	0	1157	0							28	0	0
Grp Sat Flow(s),veh/h/ln	0	1444	0							1306	0	0
Q Serve(g_s), s	0.0	7.0	0.0							1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.0	0.0							1.9	0.0	0.0
Prop In Lane	0.00		0.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2550	0							117	0	0
V/C Ratio(X)	0.00	0.45	0.00							0.24	0.00	0.00
Avail Cap(c_a), veh/h	0	2550	0							283	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.0	0.0							43.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.0							1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0							0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.6	0.0							44.5	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1157									28	
Approach Delay, s/veh		1.6									44.5	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		83.5		6.5								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		9.0		3.9								
Green Ext Time (p_c), s		13.0		0.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			2.6									
HCM 6th LOS			A									



HCM 6th TWSC  
2: Junker St & Pioneer Blvd

12/04/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	966	0	0	0	0	1
Future Vol, veh/h	966	0	0	0	0	1
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	108	1266	176	0
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	12	12	2	2	2	2
Mvmt Flow	1193	0	0	0	0	1

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	599
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	445
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	445
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-













Approach	EB	NB
HCM Control Delay, s	0	13.1
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	445	-	-
HCM Lane V/C Ratio	0.003	-	-
HCM Control Delay (s)	13.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

12/04/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑										↔	
Traffic Volume (vph)	0	1689	1	0	0	0	0	0	0	31	0	0	
Future Volume (vph)	0	1689	1	0	0	0	0	0	0	31	0	0	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.95									1.00		
Frbp, ped/bikes		1.00									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		1.00									1.00		
Flt Protected		1.00									0.95		
Satd. Flow (prot)		3259									1620		
Flt Permitted		1.00									0.95		
Satd. Flow (perm)		3259									1620		
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)	0	1797	1	0	0	0	0	0	0	33	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	31	0	
Lane Group Flow (vph)	0	1798	0	0	0	0	0	0	0	0	2	0	
Confl. Peds. (#/hr)			2								3		
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%	
Parking (#/hr)	0		0								0	0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		76.9									5.1		
Effective Green, g (s)		76.9									5.1		
Actuated g/C Ratio		0.85									0.06		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2784									91		
v/s Ratio Prot		c0.55											
v/s Ratio Perm											0.00		
v/c Ratio		0.65									0.02		
Uniform Delay, d1		2.1									40.1		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.2									0.1		
Delay (s)		3.3									40.2		
Level of Service		A									D		
Approach Delay (s)		3.3			0.0			0.0			40.2		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			4.0									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			61.6%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↔	
Traffic Volume (veh/h)	0	1689	1	0	0	0	0	0	0	31	0	0
Future Volume (veh/h)	0	1689	1	0	0	0	0	0	0	31	0	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	0.90							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1723	1723							1723	1723	0
Adj Flow Rate, veh/h	0	1797	1							33	0	0
Peak Hour Factor	0.94	0.94	0.94							0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2788	2							127	0	0
Arrive On Green	0.00	0.88	0.88							0.04	0.00	0.00
Sat Flow, veh/h	0	3271	2							1306	0	0
Grp Volume(v), veh/h	0	923	875							33	0	0
Grp Sat Flow(s),veh/h/ln	0	1637	1550							1306	0	0
Q Serve(g_s), s	0.0	14.5	14.5							2.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.5	14.5							2.3	0.0	0.0
Prop In Lane	0.00		0.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	1432	1357							127	0	0
V/C Ratio(X)	0.00	0.64	0.64							0.26	0.00	0.00
Avail Cap(c_a), veh/h	0	1432	1357							283	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.6	1.6							42.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	2.4							1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.8							0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.9	4.0							44.0	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1798									33	
Approach Delay, s/veh		3.9									44.0	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		82.8		7.2								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		16.5		4.3								
Green Ext Time (p_c), s		25.3		0.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			4.6									
HCM 6th LOS			A									

HCM 6th TWSC  
2: Junker St & Pioneer Blvd

12/04/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	1693	0	0	0	0	1
Future Vol, veh/h	1693	0	0	0	0	1
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	108	1266	176	0
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1782	0	0	0	0	1

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	893
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	285
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	285
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	17.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	285	-	-
HCM Lane V/C Ratio	0.004	-	-
HCM Control Delay (s)	17.7	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0	-	-

# Trip Generation Calculation Worksheet



Land Use Description: Animal Hospital/Veterinary Clinic  
ITE Land Use Code: 640  
Independent Variable: Gross Floor Area  
Quantity: 5.772 Thousand Square Feet

## Summary of ITE Trip Generation Data

### **AM Peak Hour of Adjacent Street Traffic**

Trip Rate: 3.64 trips per ksf  
Directional Distribution: 67% Entering 33% Exiting

### **PM Peak Hour of Adjacent Street Traffic**

Trip Rate: 3.53 trips per ksf  
Directional Distribution: 40% Entering 60% Exiting

### **Total Weekday Traffic**

Trip Rate: 21.50 trips per ksf  
Directional Distribution: 50% Entering 50% Exiting

## Site Trip Generation Calculations

5.772 ksf Animal Hospital/Veterinary Clinic

	Entering	Exiting	Total
AM Peak Hour	14	7	21
PM Peak Hour	8	12	20
Weekday	62	62	124

\*\* Future Volume calculated based on 2017-2019 counts due to covid.













Site id	HWY	MP	DIR	HS	Description	2017	2018	2019	2020	2040**	RSQ
22590	026	20.60	1		Northwest of S.E. Kelso Road [0.50 mile]		30300			44000	MODEL
1777	026	21.40	1		Southeast of Southeast Kelso Road [0.30 mile]		30300			43000	MODEL
1778	026	22.72	1		Northwest of S.E. 362nd Drive, west city limits Sandy [0.02 mile]		33700			47900	MODEL
1779	026	23.85	1		West of Bluff Road [0.02 mile]		33300			47700	MODEL
1780	026	23.89	1		East of Bluff Road [0.02 mile]		15700			22700	MODEL
1781	026	24.02	1		West of Beers Avenue [0.02 mile]		16200			23500	MODEL
1782	026	24.35	1		West of Meining Ave (OR211) [0.05 mile]		16000			23700	MODEL
1783	026	24.42	1		East of Meining Ave (OR211) [0.02 mile]		12400			17900	MODEL
1784	026	24.59	1		West of Ten Eyek Road [0.02 mile]		12500			18100	MODEL
1785	026	23.89	2		East of Bluff Road [0.02 mile]		16600			23600	MODEL
1786	026	24.04	2		West of Beers Avenue [0.02 mile]		18300			26000	MODEL
1787	026	24.36	2		West of Meining Ave (OR211) [0.02 mile]		15900			23000	MODEL
1788	026	24.40	2		East of Meining Ave (OR211) [0.02 mile]		13700			19400	MODEL
1789	026	24.61	2		West of Ten Eyek Road [0.02 mile]		12600			17900	MODEL
1790	026	25.10	1		West of Langensand Road [0.02 mile]		20700			29600	MODEL
1791	026	25.66	1		East of Vista Loop Drive [0.10 mile]		23500			33300	MODEL
1792	026	26.76	1		West of S.E. Firwood Road [0.10 mile]		19000			26900	MODEL
1793	026	26.93	1		East of S.E. Firwood Road [0.07 mile]		17800			25600	MODEL
1794	026	29.66	1		West of Wagoneer Loop Drive (East Jct.) [0.23 mile]		16500			23700	MODEL
1795	026	34.87	1		West of E. Sleepy Hollow Drive [0.10 mile]		15000			21800	MODEL
1796	026	35.07	1		East of E. Sleepy Hollow Drive [0.10 mile]		17400			25200	MODEL
1797	026	38.54	1		West of E. Brightwood Loop Road (East Jct.) [0.10 mile]		12800			18500	MODEL
1798	026	41.19	1		West of Vine Maple Drive [0.02 mile]		13200			19100	MODEL
3006	026	46.38	1		East of Camp Creek Road (USFS 28) [0.30 mile] {Rhododendron ATR, Sta. 03-006}		10300			11400	0.5762
1800	026	52.78	1		West of road to Government Camp (West Jct.) [0.10 mile]		10500			14200	0.7927
1801	026	54.13	1		West of Timberline Highway [0.10 mile]		8300			10400	0.6114

Growth Rate  
2.05%  
2.19%

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

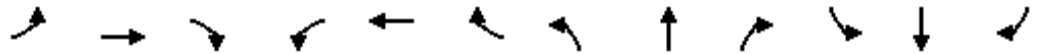
12/04/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑										↔	
Traffic Volume (vph)	0	1046	0	0	0	0	0	0	0	24	0	0	
Future Volume (vph)	0	1046	0	0	0	0	0	0	0	24	0	0	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.95									1.00		
Frbp, ped/bikes		1.00									1.00		
Flpb, ped/bikes		1.00									1.00		
Frt		1.00									1.00		
Flt Protected		1.00									0.95		
Satd. Flow (prot)		2995									1630		
Flt Permitted		1.00									0.95		
Satd. Flow (perm)		2995									1630		
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	
Adj. Flow (vph)	0	1276	0	0	0	0	0	0	0	29	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	27	0	
Lane Group Flow (vph)	0	1276	0	0	0	0	0	0	0	0	2	0	
Confl. Peds. (#/hr)			1										
Heavy Vehicles (%)	11%	11%	11%	13%	13%	13%	2%	2%	2%	2%	2%	2%	
Parking (#/hr)	0		0							0		0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		77.0									5.0		
Effective Green, g (s)		77.0									5.0		
Actuated g/C Ratio		0.86									0.06		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2562									90		
v/s Ratio Prot		c0.43											
v/s Ratio Perm											0.00		
v/c Ratio		0.50									0.02		
Uniform Delay, d1		1.6									40.2		
Progression Factor		1.00									1.00		
Incremental Delay, d2		0.7									0.1		
Delay (s)		2.3									40.3		
Level of Service		A									D		
Approach Delay (s)		2.3			0.0			0.0			40.3		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			3.2									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.47										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			42.2%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑										↔
Traffic Volume (veh/h)	0	1046	0	0	0	0	0	0	0	24	0	0
Future Volume (veh/h)	0	1046	0	0	0	0	0	0	0	24	0	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	0.95	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1600	1600							1723	1723	0
Adj Flow Rate, veh/h	0	1276	0							29	0	0
Peak Hour Factor	0.82	0.82	0.82							0.82	0.82	0.82
Percent Heavy Veh, %	0	11	11							2	2	0
Cap, veh/h	0	2548	0							117	0	0
Arrive On Green	0.00	0.88	0.00							0.03	0.00	0.00
Sat Flow, veh/h	0	3120	0							1306	0	0
Grp Volume(v), veh/h	0	1276	0							29	0	0
Grp Sat Flow(s),veh/h/ln	0	1444	0							1306	0	0
Q Serve(g_s), s	0.0	8.4	0.0							2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.4	0.0							2.0	0.0	0.0
Prop In Lane	0.00		0.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2548	0							117	0	0
V/C Ratio(X)	0.00	0.50	0.00							0.25	0.00	0.00
Avail Cap(c_a), veh/h	0	2548	0							283	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.1	0.0							43.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0							1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0							0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.8	0.0							44.5	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1276									29	
Approach Delay, s/veh		1.8									44.5	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		83.4		6.6								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		10.4		4.0								
Green Ext Time (p_c), s		15.3		0.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			2.8									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												



Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	1063	0	0	0	0	1
Future Vol, veh/h	1063	0	0	0	0	1
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	108+266	176	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	12	12	2	2	2	2
Mvmt Flow	1312	0	0	0	0	1

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	658
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	407
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	407
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-













Approach	EB	NB
HCM Control Delay, s	0	13.9
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	407	-	-
HCM Lane V/C Ratio	0.003	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

12/04/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑										↔	
Traffic Volume (vph)	0	1861	1	0	0	0	0	0	0	32	0	0	
Future Volume (vph)	0	1861	1	0	0	0	0	0	0	32	0	0	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.95									1.00		
Frbp, ped/bikes		1.00									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		1.00									1.00		
Flt Protected		1.00									0.95		
Satd. Flow (prot)		3260									1620		
Flt Permitted		1.00									0.95		
Satd. Flow (perm)		3260									1620		
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)	0	1980	1	0	0	0	0	0	0	34	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	30	0	
Lane Group Flow (vph)	0	1981	0	0	0	0	0	0	0	0	4	0	
Confl. Peds. (#/hr)			2								3		
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%	
Parking (#/hr)	0		0								0	0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		76.8									5.2		
Effective Green, g (s)		76.8									5.2		
Actuated g/C Ratio		0.85									0.06		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2781									93		
v/s Ratio Prot		0.61											
v/s Ratio Perm											0.00		
v/c Ratio		0.71									0.04		
Uniform Delay, d1		2.5									40.0		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.6									0.2		
Delay (s)		4.1									40.2		
Level of Service		A									D		
Approach Delay (s)		4.1			0.0			0.0			40.2		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			4.7									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.67										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			66.7%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↔	
Traffic Volume (veh/h)	0	1861	1	0	0	0	0	0	0	32	0	0
Future Volume (veh/h)	0	1861	1	0	0	0	0	0	0	32	0	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	0.90							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1723	1723							1723	1723	0
Adj Flow Rate, veh/h	0	1980	1							34	0	0
Peak Hour Factor	0.94	0.94	0.94							0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2786	1							128	0	0
Arrive On Green	0.00	0.87	0.87							0.04	0.00	0.00
Sat Flow, veh/h	0	3271	2							1306	0	0
Grp Volume(v), veh/h	0	1017	964							34	0	0
Grp Sat Flow(s),veh/h/ln	0	1637	1550							1306	0	0
Q Serve(g_s), s	0.0	18.5	18.5							2.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	18.5	18.5							2.3	0.0	0.0
Prop In Lane	0.00		0.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	1431	1356							128	0	0
V/C Ratio(X)	0.00	0.71	0.71							0.27	0.00	0.00
Avail Cap(c_a), veh/h	0	1431	1356							283	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.9	1.9							42.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.0	3.2							1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.4							0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.9	5.1							44.0	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1981									34	
Approach Delay, s/veh		5.0									44.0	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		82.7		7.3								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		20.5		4.3								
Green Ext Time (p_c), s		29.1		0.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			5.6									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	1865	0	0	0	0	1
Future Vol, veh/h	1865	0	0	0	0	1
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	108+266	176	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1963	0	0	0	0	1

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	984
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	248
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	248
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-













Approach	EB	NB
HCM Control Delay, s	0	19.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	248	-	-
HCM Lane V/C Ratio	0.004	-	-
HCM Control Delay (s)	19.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0	-	-

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

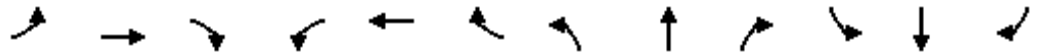
12/04/2022

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑										↔		
Traffic Volume (vph)	0	1046	8	0	0	0	0	0	0	24	6	0		
Future Volume (vph)	0	1046	8	0	0	0	0	0	0	24	6	0		
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750		
Total Lost time (s)		4.0									4.0			
Lane Util. Factor		0.95									1.00			
Frbp, ped/bikes		1.00									1.00			
Flpb, ped/bikes		1.00									1.00			
Frt		1.00									1.00			
Flt Protected		1.00									0.96			
Satd. Flow (prot)		2991									1649			
Flt Permitted		1.00									0.96			
Satd. Flow (perm)		2991									1649			
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82		
Adj. Flow (vph)	0	1276	10	0	0	0	0	0	0	29	7	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	27	0		
Lane Group Flow (vph)	0	1286	0	0	0	0	0	0	0	0	9	0		
Confl. Peds. (#/hr)			1											
Heavy Vehicles (%)	11%	11%	11%	13%	13%	13%	2%	2%	2%	2%	2%	2%		
Parking (#/hr)	0		0							0		0		
Turn Type		NA								Perm	NA			
Protected Phases		2									4			
Permitted Phases										4				
Actuated Green, G (s)		76.7									5.3			
Effective Green, g (s)		76.7									5.3			
Actuated g/C Ratio		0.85									0.06			
Clearance Time (s)		4.0									4.0			
Vehicle Extension (s)		3.0									3.0			
Lane Grp Cap (vph)		2548									97			
v/s Ratio Prot		c0.43												
v/s Ratio Perm											0.01			
v/c Ratio		0.50									0.09			
Uniform Delay, d1		1.7									40.1			
Progression Factor		1.00									1.00			
Incremental Delay, d2		0.7									0.4			
Delay (s)		2.4									40.5			
Level of Service		A									D			
Approach Delay (s)		2.4			0.0			0.0			40.5			
Approach LOS		A			A			A			D			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			3.5									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.48											
Actuated Cycle Length (s)			90.0								8.0			
Intersection Capacity Utilization			42.5%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↔	
Traffic Volume (veh/h)	0	1046	8	0	0	0	0	0	0	24	6	0
Future Volume (veh/h)	0	1046	8	0	0	0	0	0	0	24	6	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	0.90							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1600	1600							1723	1723	0
Adj Flow Rate, veh/h	0	1276	10							29	7	0
Peak Hour Factor	0.82	0.82	0.82							0.82	0.82	0.82
Percent Heavy Veh, %	0	11	11							2	2	0
Cap, veh/h	0	2575	20							109	9	0
Arrive On Green	0.00	0.88	0.88							0.03	0.03	0.00
Sat Flow, veh/h	0	3013	23							1104	266	0
Grp Volume(v), veh/h	0	661	625							36	0	0
Grp Sat Flow(s),veh/h/ln	0	1520	1436							1370	0	0
Q Serve(g_s), s	0.0	8.4	8.4							2.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.4	8.4							2.3	0.0	0.0
Prop In Lane	0.00		0.02							0.81		0.00
Lane Grp Cap(c), veh/h	0	1335	1261							117	0	0
V/C Ratio(X)	0.00	0.50	0.50							0.31	0.00	0.00
Avail Cap(c_a), veh/h	0	1335	1261							285	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.2	1.2							43.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	1.4							1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.9							0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.5	2.6							44.7	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1286									36	
Approach Delay, s/veh		2.5									44.7	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		83.0		7.0								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		10.4		4.3								
Green Ext Time (p_c), s		13.9		0.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			3.7									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

HCM 6th TWSC  
2: Junker St & Pioneer Blvd

12/04/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	1063	0	0	0	0	7
Future Vol, veh/h	1063	0	0	0	0	7
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	1081	266176	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	12	12	2	2	2	2
Mvmt Flow	1312	0	0	0	0	9

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	658
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	407
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	407
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	14
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	407	-	-
HCM Lane V/C Ratio	0.021	-	-
HCM Control Delay (s)	14	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

HCM 6th TWSC  
 3: Strauss Ave & Site Access

12/04/2022

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔				↔	
Traffic Vol, veh/h	1	0	0	0	14	0
Future Vol, veh/h	1	0	0	0	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	20	0

Major/Minor	Minor1	Major2	
Conflicting Flow All	40	-	0
Stage 1	0	-	-
Stage 2	40	-	-
Critical Hdwy	6.42	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	-	2.218
Pot Cap-1 Maneuver	972	0	-
Stage 1	-	0	-
Stage 2	982	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	972	-	-
Mov Cap-2 Maneuver	972	-	-
Stage 1	-	-	-
Stage 2	982	-	-

Approach	WB	SB
HCM Control Delay, s	8.7	
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	972	-	-
HCM Lane V/C Ratio	0.001	-	-
HCM Control Delay (s)	8.7	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-



HCM 6th TWSC  
4: Junker St & Site Access

12/04/2022

Intersection						
Int Delay, s/veh	7.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔			↔	
Traffic Vol, veh/h	0	1	0	0	7	0
Future Vol, veh/h	0	1	0	0	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	0	10	0

Major/Minor	Major1		Minor2	
Conflicting Flow All	0	0	1	-
Stage 1	-	-	0	-
Stage 2	-	-	1	-
Critical Hdwy	4.12	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	-
Pot Cap-1 Maneuver	-	-	1022	0
Stage 1	-	-	-	0
Stage 2	-	-	1022	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1022	-
Mov Cap-2 Maneuver	-	-	1022	-
Stage 1	-	-	-	-
Stage 2	-	-	1022	-













Approach	EB	SB
HCM Control Delay, s	0	8.6
HCM LOS		A

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	-	-	1022
HCM Lane V/C Ratio	-	-	0.01
HCM Control Delay (s)	0	-	8.6
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	-	-	0

# HCM Signalized Intersection Capacity Analysis

## 1: Strauss Ave & Pioneer Blvd

12/04/2022

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑										↑↑	
Traffic Volume (vph)	0	1861	6	0	0	0	0	0	0	32	3	0	
Future Volume (vph)	0	1861	6	0	0	0	0	0	0	32	3	0	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.95									1.00		
Frbp, ped/bikes		1.00									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		1.00									1.00		
Flt Protected		1.00									0.96		
Satd. Flow (prot)		3258									1632		
Flt Permitted		1.00									0.96		
Satd. Flow (perm)		3258									1632		
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)	0	1980	6	0	0	0	0	0	0	34	3	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	30	0	
Lane Group Flow (vph)	0	1986	0	0	0	0	0	0	0	0	7	0	
Confl. Peds. (#/hr)			2								3		
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%	
Parking (#/hr)	0		0								0	0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		76.7									5.3		
Effective Green, g (s)		76.7									5.3		
Actuated g/C Ratio		0.85									0.06		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2776									96		
v/s Ratio Prot		c0.61											
v/s Ratio Perm											0.00		
v/c Ratio		0.72									0.07		
Uniform Delay, d1		2.5									40.0		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.6									0.3		
Delay (s)		4.1									40.3		
Level of Service		A									D		
Approach Delay (s)		4.1			0.0			0.0			40.3		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			4.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.67										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			66.9%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

# HCM 6th Signalized Intersection Summary

## 1: Strauss Ave & Pioneer Blvd

12/04/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↔	
Traffic Volume (veh/h)	0	1861	6	0	0	0	0	0	0	32	3	0
Future Volume (veh/h)	0	1861	6	0	0	0	0	0	0	32	3	0
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	0.90							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1723	1723							1723	1723	0
Adj Flow Rate, veh/h	0	1980	6							34	3	0
Peak Hour Factor	0.94	0.94	0.94							0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2772	8							123	4	0
Arrive On Green	0.00	0.87	0.87							0.04	0.04	0.00
Sat Flow, veh/h	0	3262	10							1224	108	0
Grp Volume(v), veh/h	0	1020	966							37	0	0
Grp Sat Flow(s),veh/h/ln	0	1637	1549							1332	0	0
Q Serve(g_s), s	0.0	18.9	19.0							2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	18.9	19.0							2.5	0.0	0.0
Prop In Lane	0.00		0.01							0.92		0.00
Lane Grp Cap(c), veh/h	0	1429	1352							128	0	0
V/C Ratio(X)	0.00	0.71	0.71							0.29	0.00	0.00
Avail Cap(c_a), veh/h	0	1429	1352							284	0	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.9	1.9							42.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.1	3.3							1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	2.6							0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.0	5.2							44.1	0.0	0.0
LnGrp LOS	A	A	A							D	A	A
Approach Vol, veh/h		1986									37	
Approach Delay, s/veh		5.1									44.1	
Approach LOS		A									D	
Timer - Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		82.6		7.4								
Change Period (Y+Rc), s		4.0		4.0								
Max Green Setting (Gmax), s		68.0		14.0								
Max Q Clear Time (g_c+I1), s		21.0		4.5								
Green Ext Time (p_c), s		29.0		0.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			5.8									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

HCM 6th TWSC  
2: Junker St & Pioneer Blvd

12/04/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↑
Traffic Vol, veh/h	1865	0	0	0	0	13
Future Vol, veh/h	1865	0	0	0	0	13
Conflicting Peds, #/hr	0	1	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	108+266	176	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1963	0	0	0	0	14

Major/Minor	Major1		Minor1	
Conflicting Flow All	0	0	-	984
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	248
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	248
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB
HCM Control Delay, s	0	20.4
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	248	-	-
HCM Lane V/C Ratio	0.055	-	-
HCM Control Delay (s)	20.4	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-

HCM 6th TWSC  
3: Strauss Ave & Site Access

12/04/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔				↔	
Traffic Vol, veh/h	1	0	0	0	8	1
Future Vol, veh/h	1	0	0	0	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	0	0	11	1

Major/Minor	Minor1	Major2	
Conflicting Flow All	23	-	0
Stage 1	0	-	-
Stage 2	23	-	-
Critical Hdwy	6.42	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	-	2.218
Pot Cap-1 Maneuver	993	0	-
Stage 1	-	0	-
Stage 2	1000	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	993	-	-
Mov Cap-2 Maneuver	993	-	-
Stage 1	-	-	-
Stage 2	1000	-	-

Approach	WB	SB
HCM Control Delay, s	8.6	
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	993	-	-
HCM Lane V/C Ratio	0.001	-	-
HCM Control Delay (s)	8.6	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0	-	-

HCM 6th TWSC  
4: Junker St & Site Access

12/04/2022

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4			4	
Traffic Vol, veh/h	0	1	0	0	12	0
Future Vol, veh/h	0	1	0	0	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	0	0	17	0

Major/Minor	Major1		Minor2	
Conflicting Flow All	0	0	1	-
Stage 1	-	-	0	-
Stage 2	-	-	1	-
Critical Hdwy	4.12	-	6.42	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.42	-
Follow-up Hdwy	2.218	-	3.518	-
Pot Cap-1 Maneuver	-	-	1022	0
Stage 1	-	-	-	0
Stage 2	-	-	1022	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1022	-
Mov Cap-2 Maneuver	-	-	1022	-
Stage 1	-	-	-	-
Stage 2	-	-	1022	-

Approach	EB	SB
HCM Control Delay, s	0	8.6
HCM LOS		A

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	-	-	1022
HCM Lane V/C Ratio	-	-	0.017
HCM Control Delay (s)	0	-	8.6
HCM Lane LOS	A	-	A
HCM 95th %tile Q(veh)	-	-	0.1

