



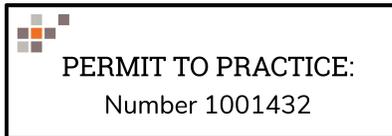
OAK STREET + AUDLEY CROSSING

Preliminary Design Report



Kristen Machina, P.Eng.
Senior Transportation Engineer
Author

Nadine King, P.Eng., PTOE
Vice President, Transportation
Reviewer



Prepared For: District of Saanich
Date: November 15, 2024
Our File No: 3814.B01

WATT VICTORIA
302 – 740 Hillside Ave
Victoria, BC V8T 1Z4
250-388-9877



TABLE OF CONTENTS

| | | |
|------------|--|-----------|
| 1.0 | INTRODUCTION..... | 1 |
| 2.0 | TRANSPORTATION CONTEXT | 4 |
| 3.0 | SAFETY REVIEW | 6 |
| 4.0 | POLICY CONTEXT | 12 |
| 5.0 | DESIGN DEVELOPMENT | 16 |
| 6.0 | TRAFFIC OPERATIONS ANALYSIS | 29 |
| 7.0 | CONCLUSIONS..... | 61 |

APPENDICES

Appendix A – Relevant Policies

Appendix B – Intersection Performance Results – Existing conditions

Appendix C – Intersection Performance Results – Scenario A (Continuous Oak Street)

Appendix D – Intersection Performance Results – Scenario B (Valley-Shamrock Closure)

Appendix E – Intersection Performance Results – Scenario C (Roderick-Staples Closure)



TABLES

| | |
|--|----|
| Table 1 – Speed Data Summary..... | 6 |
| Table 2 – UDP Conceptual Cross Sections – Key Challenges and Opportunities | 18 |
| Table 3 – Oak Street and Audley Crossing Proposed Cross Sections | 19 |
| Table 4 – Level of Service Criteria..... | 30 |
| Table 5 – Turning Movement Counts..... | 32 |
| Table 6 – Trip Generation Rates..... | 36 |
| Table 7 – Trip Distribution | 40 |
| Table 8 – Scenario A – Critical Movements and Mitigation Measures..... | 43 |
| Table 9 – Scenario B – Critical Movements and Mitigation Measures..... | 49 |
| Table 10 – Scenario C – Critical Movements and Mitigation Measures | 54 |



FIGURES

| | |
|--|----|
| Figure 1 – Study Area..... | 3 |
| Figure 2 – Collision Diagram – Oak Street / Saanich Road | 9 |
| Figure 3 – Collision Diagram - Oak Street / Cloverdale Avenue | 10 |
| Figure 4 – Douglas-Oak Hub Land Use and Density | 13 |
| Figure 5 – Park Priority Area | 15 |
| Figure 6 – Oak Street Conceptual Cross Section (UDP) | 16 |
| Figure 7 – Audley Crossing Conceptual Cross Sections (UDP) | 17 |
| Figure 8 – Oak Street Proposed Cross Sections..... | 20 |
| Figure 9 – Audley Crossing Proposed Cross Sections..... | 21 |
| Figure 10 – Conceptual Audley Crossing Alignment (UDP) | 22 |
| Figure 11 – Proposed Audley Crossing Alignment..... | 25 |
| Figure 12 – Oak Street / Cloverdale Avenue Preliminary Intersection Design | 27 |
| Figure 13 – Oak Street / Tolmie Avenue Preliminary Intersection Design | 28 |
| Figure 14 – Existing Traffic Volumes (AM) | 33 |
| Figure 15 – Existing Traffic Volumes (PM)..... | 34 |
| Figure 16 – Estimated Change in Residential Units | 37 |
| Figure 17 – Future Residential Trips | 38 |
| Figure 18 – Net Commercial Trips | 39 |
| Figure 19 – Trip Generation Zones and Gates | 42 |
| Figure 20 – Scenario A Traffic Volumes (AM)..... | 45 |
| Figure 21 – Scenario A Traffic Volumes (PM) | 47 |
| Figure 22 – Scenario B Traffic Volumes (AM) | 50 |
| Figure 23 – Scenario B Traffic Volumes (PM) | 52 |
| Figure 24 – Scenario C Traffic Volumes (AM) | 56 |
| Figure 25 – Scenario C Traffic Volumes (PM) | 58 |



1.0 INTRODUCTION

WATT Consulting Group is retained by the District of Saanich to provide transportation consulting services in support of a modelling and design effort to reimagine Oak Street and conceptualize a new laneway known as Audley Crossing. The study area is illustrated in **Figure 1**.

1.1 Background

The Uptown-Douglas area is expected to see major growth over the next 20 to 30 years. Identified in the 2022 Uptown Douglas Plan (UDP) and 2024 Official Community Plan as the ‘heart’ of Saanich, a complete transformation of the area from a predominantly low-rise, low-density neighbourhood to a dense, walkable community hub is planned.

Pre-zoning of the Uptown-Douglas area will facilitate future densification by reducing the need for developers to independently apply for rezoning for each new development. In April 2024, Saanich Council endorsed the Terms of Reference for the Uptown Douglas Pre-Zoning and Network Design Project.

Oak Street has been identified in the UDP as a “special street”, to be designed with a blend of commercial activity, and medium-to-high density residential uses. A new laneway, known as Audley Crossing, has also been identified in the UDP, to run between and parallel to Oak Street and Douglas Street.

The modelling and design of Oak Street and Audley Crossing has been identified as a key task in the Uptown Douglas Pre-Zoning and Network Design Project.



1.2 This Report

This report is the first of two reports that will be prepared in support of this project. It provides the following:

- An overview of the existing transportation context
- A safety review of existing conditions, including a review of volumes, speeds, and collision history
- A review of relevant municipal policies and plans and how they will inform the future design of Oak Street and Audley Crossing
- An outline of the design parameters for Oak Street and Audley Crossing
- Conceptual plan views for certain segments of Oak Street and Audley Crossing
- Forecast of vehicular travel demand on Oak Street and Audley Crossing, and assessment of future conditions



Figure 1 – Study Area

Base image courtesy of District of Saanich Uptown Douglas Plan (2022)



2.0 TRANSPORTATION CONTEXT

2.1 Oak Street

Oak Street is a collector road under the jurisdiction of the District of Saanich. It runs between Saanich Road (Uptown Shopping Centre) in the north, and Tolmie Avenue (Mayfair Shopping Centre) in the south. Oak Street runs parallel to Douglas Street and Blanshard Street, two MoTI-owned highways.

Oak Street currently has a two-lane urban cross section (one lane in each direction). The existing pavement width is approximately 12.5 metres between Saanich Road and Cloverdale Avenue, and approximately 11 metres between Cloverdale Avenue and Tolmie Avenue. The road profile is characterized by rolling hills, with high points at Saanich Road and Tolmie Avenue. The existing right-of-way width is generally between 19 and 20 metres. The speed limit is 50 km/h by default.

Left turn lanes are provided at key intersections (Saanich Road, Cloverdale Avenue, Roderick Street / Island Home Centre, and Tolmie Avenue). The Saanich Road, Cloverdale Avenue, and Tolmie Avenue intersections are signalized. The Tolmie Avenue intersection is owned and operated by the City of Victoria.

On-street parking is permitted in certain sections on both sides of the road between Saanich Road and Cloverdale Avenue. Lay-bys are not provided.

Sidewalks are provided on both sides of the road for the majority of the corridor, except along the frontage of the 760 Tolmie Avenue property (i.e. the west side of the road between Roderick Street and Tolmie Avenue). This creates a gap of approximately 130 metres where pedestrians must use the east side of the road or walk on the shoulder. Sidewalks on Oak Street are generally 1.7 metres wide, with some sections that are 2.5-3 metres wide fronting newer buildings. All sidewalks along Oak Street are directly adjacent to the roadway.

There are no dedicated cycling facilities on Oak Street. Cyclists must travel in mixed traffic.

No BC Transit bus routes currently travel along Oak Street, however the surrounding area is well-serviced by transit routes along Douglas Street and Saanich Road.



2.2 Major Cross Streets

There are three major cross streets that intersect Oak Street: Saanich Road, Cloverdale Avenue, and Tolmie Avenue. As noted in **Section 2.1** above, all three of these intersections are currently signalized.

Saanich Road is a major road under the jurisdiction of the District of Saanich. Within the study area, it has four thru lanes (two in each direction), auxiliary left turn lanes, and a channelized right turn lane into the Uptown Shopping Centre. It is also a designated truck route. A painted bike lane is provided in the westbound direction (i.e. north side of the road) only. A far side bus bay is also provided for westbound buses on the north side of the road. This stop acts as part of the Uptown Exchange at this time along with the stop on Douglas Street. The posted speed limit is 30 km/h.

Cloverdale Avenue is a major road under the jurisdiction of the District of Saanich. Within the study area, it has three thru lanes (one lane westbound, two lanes eastbound), and auxiliary left turn lanes in both directions. It is a designated truck route and has protected bike lanes in both directions. The speed limit is 50 km/h by default.

Tolmie Avenue is a collector road under the joint jurisdiction of the City of Victoria and the District of Saanich, however it is generally operated and maintained by the City of Victoria. Within the study area, it has two thru lanes (one in each direction) and auxiliary left turn lanes in both directions. Tolmie Avenue currently does not have dedicated cycling facilities, however protected bike lanes are planned to be installed in early 2025. The speed limit is 50 km/h by default: however it is under review by the District of Saanich to be reduced to 40 km/h in Phase 2 of Saanich's Speed Limit Reduction project.

2.3 Minor Cross Streets

There are currently four minor cross streets that intersect Oak Street: Short Street, Valley Avenue, Shamrock Street, and Roderick Street. All four of these streets have two-lane cross sections, and are stop-controlled at Oak Street. On-street parking is generally permitted on one or both sides of these roads. Signed and marked crosswalks are not provided across Oak Street at these intersections. Valley Avenue and Shamrock Street both dead-end east of Oak Street. The speed limit is 50 km/h by default on all four of these streets.



3.0 SAFETY REVIEW

3.1 Speed, Volume, Vehicle Classification

Speed, volume, and vehicle classification data along Oak Street was collected by McElhanney for a one-week period in March 2023. A summary of the data collected is provided in **Table 1**.

Table 1 – Speed Data Summary

| Parameter | Saanich-Cloverdale (25m North of Valley Avenue) | Cloverdale-Tolmie (40m North of Roderick Avenue) |
|---|--|---|
| Average Two-way Traffic Volume (weekday) | 7,500 vehicles per day | 6,500 vehicles per day |
| Average Speed | 45 km/h | 36 km/h |
| 85 th Percentile Speed | 51 km/h | 45 km/h |
| 95 th Percentile Speed | 56 km/h | 48 km/h |
| AM Peak Hour | 8:00 – 9:00 AM | 8:00 – 9:00 AM |
| PM Peak Hour | 4:00 – 5:00 PM | 4:00 – 5:00 PM |
| Percentage of Cars & Light Goods Vehicles | 99% | 96% |

Traffic on Oak Street is overwhelmingly categorized by passenger cars and light goods vehicles (up to 7 metres in length). Over 95% of vehicles on both segments studied were cars or light goods vehicles.

The average two-way traffic volume is in the range of 6,500-7,500 vehicles per day. The typical volume for a collector road in the *TAC Geometric Design Guide for Canadian Roads* (2017) is between 3,000-8,000 vehicles per day. As such, Oak Street currently experiences the volume of traffic appropriate for its classification.



The speed limit along the length of Oak Street is the default 50 km/h. On the northern section between Saanich Road and Cloverdale Avenue, the average speed was 45 km/h. The 85th percentile speed was 51 km/h, and the 95th percentile speed was 56 km/h, which both exceed the speed limit of 50 km/h, however only slightly. This is particularly notable given that the study location is at a low point along the roadway, and there is a 10 metre elevation drop travelling southbound from Saanich Road. Speeds were generally consistent between northbound and southbound traffic, with the northbound direction generally seeing slightly higher speeds on average throughout the day.

Speeds in the southern section were generally lower, with an average speed of 36 km/h, an 85th percentile speed of 45 km/h, and a 95th percentile speed of 48 km/h. All of these values are lower than the posted speed limit of 50 km/h, however it is notable that the count location is in close proximity to several commercial driveways, as well as the Roderick Street and Cloverdale Avenue intersections, which may skew vehicle speeds downwards. The friction from the intersections may also be helping to keep the speeds below 50km/h. At this location, southbound speeds were generally 2-4 km/h faster than northbound speeds throughout the day. Single unit trucks were slightly more prevalent along this segment than the northern segment.

In summary, no major speed or volume issues are apparent based on this data.

3.2 Collision History

Collision data between 2018 and 2022 for the Oak Street corridor has been provided by ICBC. After sanitizing the data set to remove duplicates and collisions that occurred entirely within private property, a total of 161 collisions were reported within the study area over the five year period.

3.2.1 General Collision Trends

The number of collisions generally remained consistent year-over-year (30-35 collisions per year), with a substantial drop in 2020 (26) when vehicle volumes decreased due to the COVID-19 global pandemic.

Collision frequency was generally higher during the week (Monday through Thursday), and decreased on the weekend (Friday through Sunday). Collision frequency was highest between 12:00 PM and 6:00 PM, with fewer collisions occurring overnight and in the morning. Both of these statistics are consistent with vehicle volumes on the



streets generally being higher during the week, and during the afternoon and early evening.

Collision frequency increased noticeably during the winter months (November-January). Road and weather conditions are not provided in the ICBC data.

3.2.2 Oak Street / Saanich Road

The Oak Street / Saanich Road intersection represents the majority of collisions occurring in the study area, with 131 (81%) of the 161 collisions reported to ICBC between 2018 and 2022. 35% of reported collisions at this intersection resulted in injuries, with the remaining 65% resulting in property damage only. No fatal collisions were reported at this intersection.

Collision trends were determined based on the ICBC collision data and reports. Of the 131 collisions recorded at this intersection, 7 were removed from the data set below as directionality could not be ascertained from the report, and 28 were removed as they occurred midblock, in relation to one of the adjacent retail plazas. **Figure 2** illustrates trends in the directionality and type of collision at the Oak Street / Saanich Road intersection.

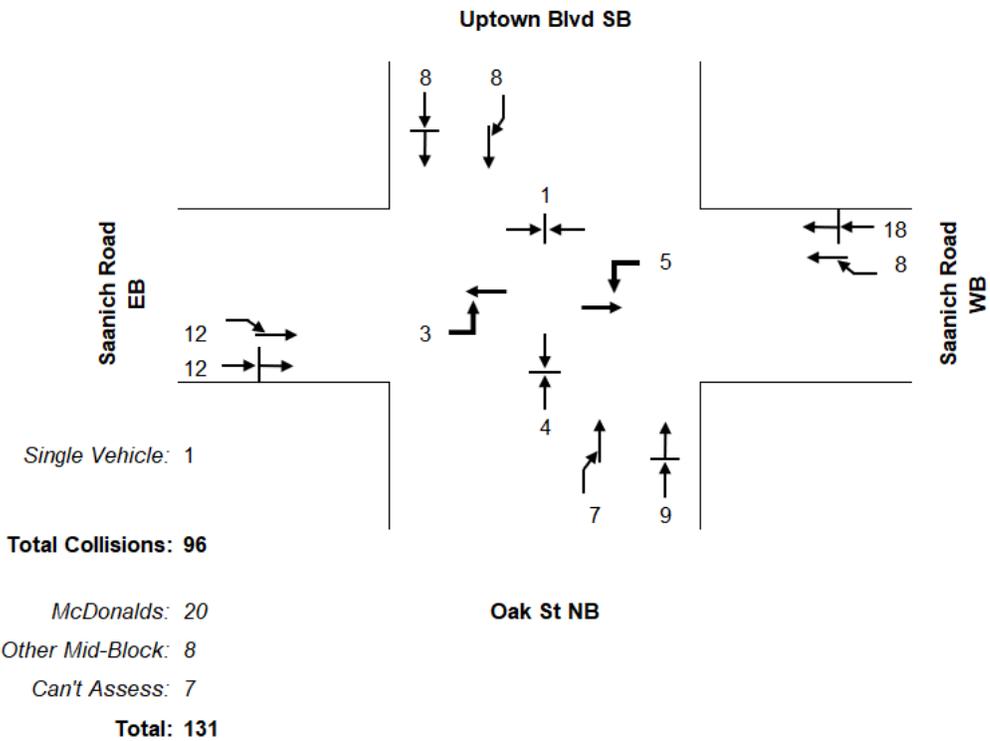


Figure 2 – Collision Diagram – Oak Street / Saanich Road

Eastbound and westbound collisions on Saanich Road represented the majority of collisions at this intersection, with westbound rear-end collisions representing the most common collision type. Based on the reports, side-swipe collisions at this intersection are predominantly due to vehicles attempting to change lanes and striking the vehicle in the adjacent lane. Two of the eight westbound sideswipe collisions were bus-related.

Of the 28 collisions noted above that occurred mid-block, 20 of these collisions occurred at the McDonald's parking lot accesses on Oak Street and Saanich Road, predominantly with vehicles exiting McDonald's to the left or right striking northbound vehicles on Oak Street. This suggests that visibility for vehicles exiting the McDonald's access may be poor. The BMO plaza accesses on Oak Street and Saanich Road represent a smaller portion of midblock collisions, with 5 associated collisions.



3.2.3 Oak Street / Cloverdale Avenue

The Oak Street / Cloverdale Road intersection represents the second highest number of collisions occurring in the study area, with 17 (11%) of the 161 collisions reported to ICBC between 2018 and 2022. This represents an average of 3.4 collisions per year. 65% of reported collisions at this intersection resulted in injuries, with the remaining 35% resulting in property damage only. No fatal collisions were reported at this intersection.

Collision trends were determined based on the ICBC collision data and reports. Of the 17 collisions recorded at this intersection, two were removed from the data set below as directionality could not be ascertained from the report, and four were removed as they occurred midblock, in relation to the access of adjacent commercial businesses. **Figure 3** illustrates trends in the directionality and type of collision at the Oak Street / Cloverdale Avenue intersection.

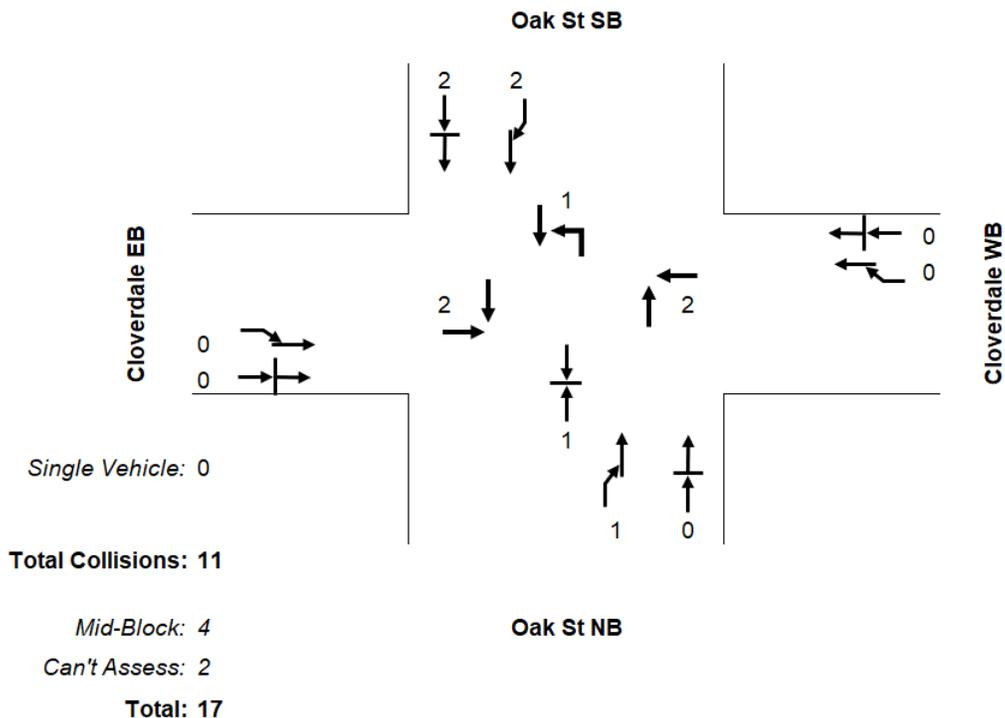
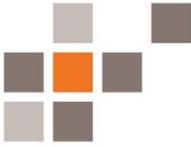


Figure 3 – Collision Diagram - Oak Street / Cloverdale Avenue



Northbound and southbound collisions along Oak Street make up the majority of collisions at this intersection, including rear ends and sideswipes. There were four reported side-impact ('T-bone') collisions at this intersection, resulting from failure to stop at a red light.

3.2.4 Other Intersections

The other intersections in the study area of Oak Street and Shamrock Street, Short Street, Tolmie Avenue, and Valley Avenue demonstrated a combined collision total of 13 (8%) of the 161 reported collisions. This represents 2.6 collisions per year at these five intersections. 69% of reported collisions at the rest of the intersections within the study area resulted in injuries, with the remaining 31% resulting in property damage only. No fatal collisions were reported at any of these intersections.

Collision diagrams were not prepared for these other intersections, however, the general collision trends observed include:

- Side impact collisions resulting from left turn movements to/from Short Road.
- Side impact collisions caused by limited visibility when turning onto Oak Street from various driveways and parking lots.
- Side swipe collisions occurring when vehicles exit parking spots along Oak Street and fail to see oncoming traffic.



4.0 POLICY CONTEXT

There are five (5) District of Saanich policy documents that will serve to inform the future design of Oak Street:

- Uptown Douglas Plan (2022) (UDP)
- Active Transportation Plan (2024) (ATP)
- Official Community Plan (2024) (OCP)
- Road Safety Action Plan (2024) (RSAP)
- Urban Forest Strategy (2024) (UFS)

Key themes are summarized in the sections below. A full list of relevant policies is provided in **Appendix A**.

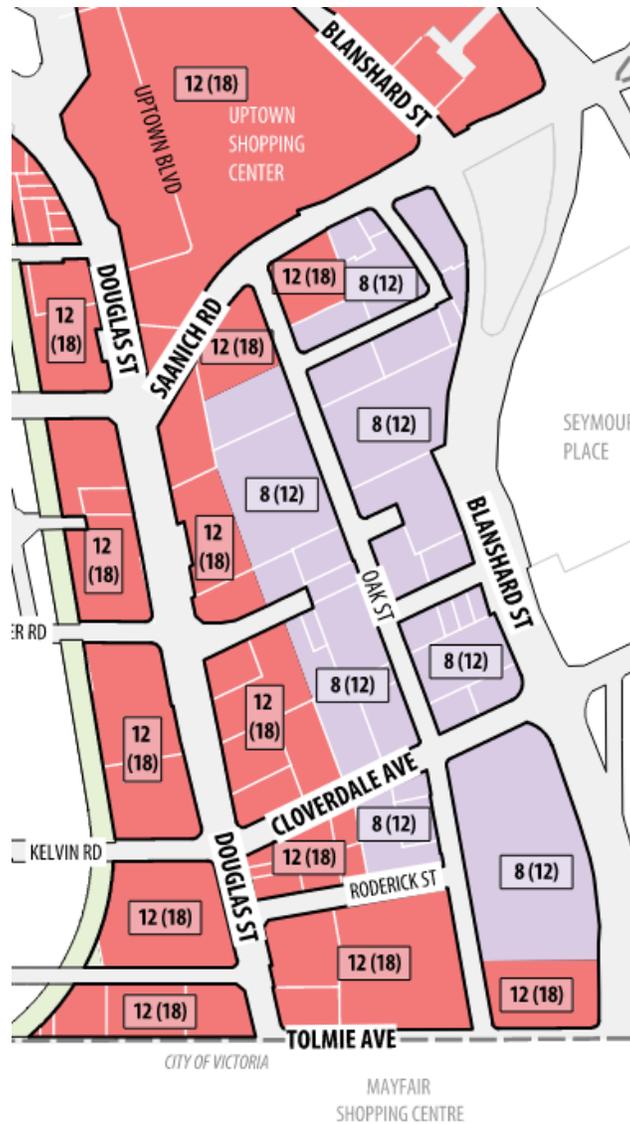
4.1 Vision

The Douglas-Oak Hub is planned to become the “heart” of Saanich, with Oak Street as its main street. Oak Street is intended to be people-oriented, while a new north-south laneway (Audley Crossing) will support buildings in the area by prioritizing access, servicing, and goods movement.

4.2 Land Use, Density, Built Form

Development along Oak Street is intended to be intensified from its current scale, characterized by mid- and high-rise buildings ranging between 8 and 18 storeys. New development should be predominantly mixed-use, with pedestrian-oriented commercial uses (e.g. coffee shops, restaurants, small retail shops) at ground level, and residential uses above-grade. Activation of the development frontages through plazas, patios, etc. is encouraged. Land use and height in the Douglas-Oak Hub is illustrated in **Figure 4**.

Parking in new developments is required to be underground. Loading is required to be integrated into the building. Parking and loading accesses are required to be located at the rear of the building, off of adjacent minor streets or laneways where feasible.



BUILDING HEIGHT DESIGNATIONS

X "X (X)" NUMBERS INDICATE BUILDING HEIGHT IN STOREYS ALLOWED UNDER "BASE" AND "(MAX)" HEIGHT CONDITIONS

LAND USE DESIGNATIONS

CORE URBAN MIXED-USE

Figure 4 – Douglas-Oak Hub Land Use and Density
 Courtesy of District of Saanich Uptown Douglas Plan (2022)



4.3 Pedestrians

The pedestrian experience should be prioritized above all else, with improvements to accessibility, safety, connectivity, and comfort.

On Oak Street, wide sidewalks should be provided on both sides of the street, and physically separated from vehicle traffic. Strengthening the pedestrian connection between Oak Street and the Uptown Shopping Centre is highlighted as a key priority, with improvements to wayfinding, safety, and convenience (such as exploring a scramble intersection).

Audley Crossing is intended to be a shared street that serves to accommodate both building access and servicing, and pedestrian movements between Oak Street and the planned Audley Transit Hub on Douglas Street. To reinforce pedestrian safety and comfort, reduced speeds, distinctive and varied paving materials, landscaping, lighting and other features are encouraged. Activation of building frontages onto Audley Crossing is also encouraged.

4.4 Cyclists

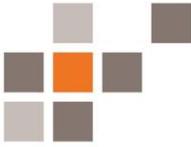
Cycling sits one rung below pedestrians for mode prioritization. Oak Street is identified as a cycling route. While not part of the AAA spine network in the ATP, Saanich policy is generally supportive of the buildout of safe cycling facilities on major streets that are physically separated from vehicle traffic. Language surrounding connectivity for cyclists is generally consistent with the language supporting pedestrian connectivity, indicating that these connections should be mixed-use.

4.5 Motor Vehicles

Support for motor vehicle traffic prioritizes goods movement, car-share, and private vehicles, in that order, and support for active modes such as walking and cycling is to be prioritized over vehicle traffic.

Safety improvements through reduced speeds should be prioritized. On-street parking can be explored in commercial and residential areas to accommodate and prioritize short-term needs including through loading, time-limited, and metered parking zones. On-street car-share parking can also be explored.

Vehicle access to Oak Street should be restricted as much as possible, with access from Audley Crossing or other side streets prioritized.



4.6 Urban Forest, Parks, and Culture

Space for street trees should be provided along Oak Street, with a minimum 2-metre-wide planting area. Tree and shrub plantings should be clustered at major intersections or other focal points to break up large swaths of pavement.

A new public park is identified in the general vicinity of Oak Street and Audley Street. Space for plazas, parklets, public seating, street furniture, bike parking and public art should be provided. The park priority area is illustrated in **Figure 5**.

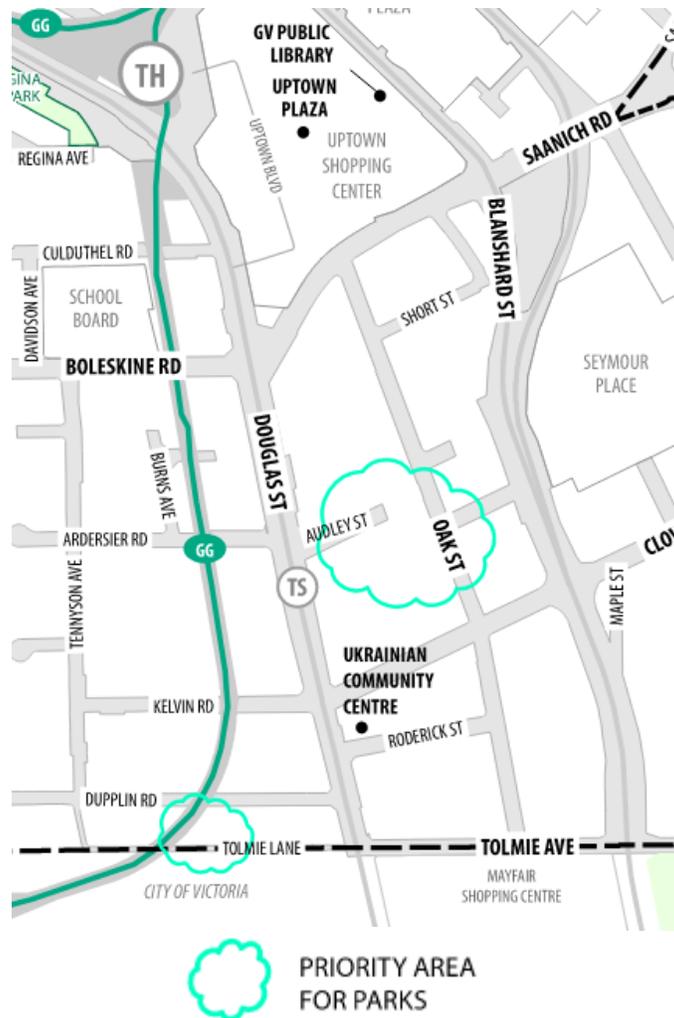


Figure 5 – Park Priority Area

Courtesy of District of Saanich Uptown Douglas Plan (2022)



5.0 DESIGN DEVELOPMENT

5.1 UDP Conceptual Cross Sections

The conceptual cross sections identified in the UDP (illustrated in **Figure 6** and **Figure 7**) were used as the basis for development of the proposed designs for Oak Street and Audley Crossing.

Review of the conceptual cross sections relative to the relevant policy yielded the following observations:

- Despite support for AAA cycling facilities on Saanich Roads and Oak Street being identified as a long-term bike route, the conceptual cross section for Oak Street does not provide any dedicated cycling facilities.
- 3.5m drive lanes are unnecessarily wide. The RSAP is supportive of narrower lane widths to promote slower speeds.
- 2.5 and 3.0m sidewalks are on the low end of what is considered desirable for an area of “high pedestrian activity” by the BC Active Transportation Design Guide (BCATDG), but appropriate for a commercial or multifamily residential context.

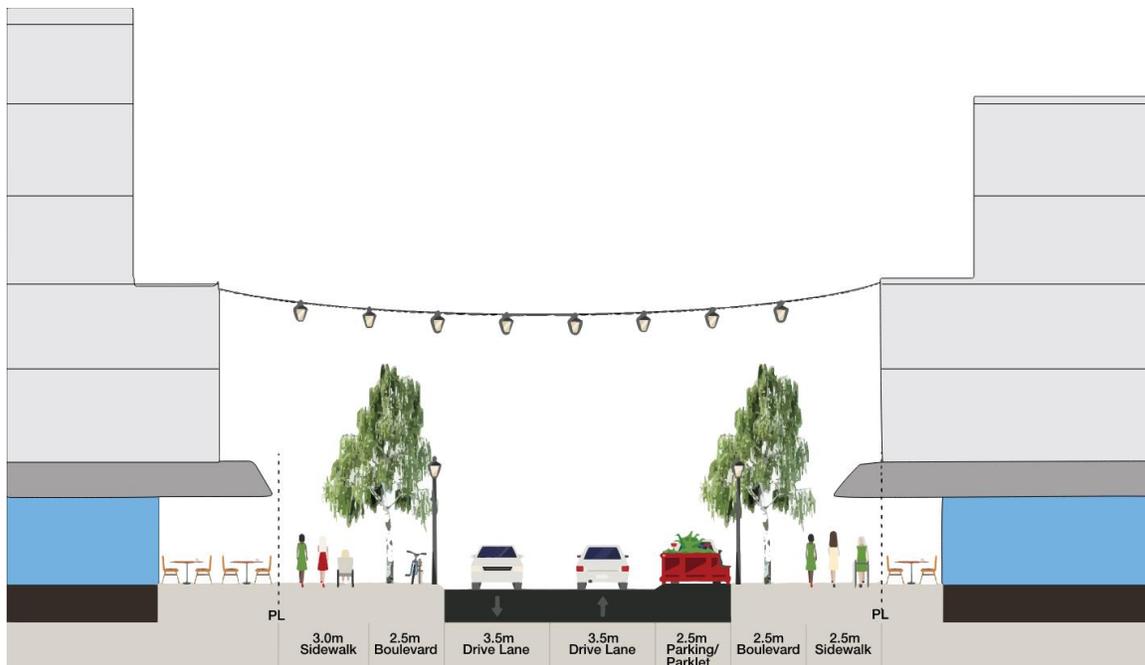


Figure 6 – Oak Street Conceptual Cross Section (UDP)

Courtesy of District of Saanich Uptown Douglas Plan (2022)



- Based on the degree of high-rise developments expected in the area, a single 4.0m travel lane is likely insufficient for the degree of vehicle traffic that would be generated, particularly if the majority of parking and loading access come from Audley Crossing. Vehicle activity would likely spill out into the adjacent “shared spaces”, which would no longer be comfortable for pedestrian traffic. This width may also impact emergency (fire) access.
- There is no designated space for short-term parking or loading activity

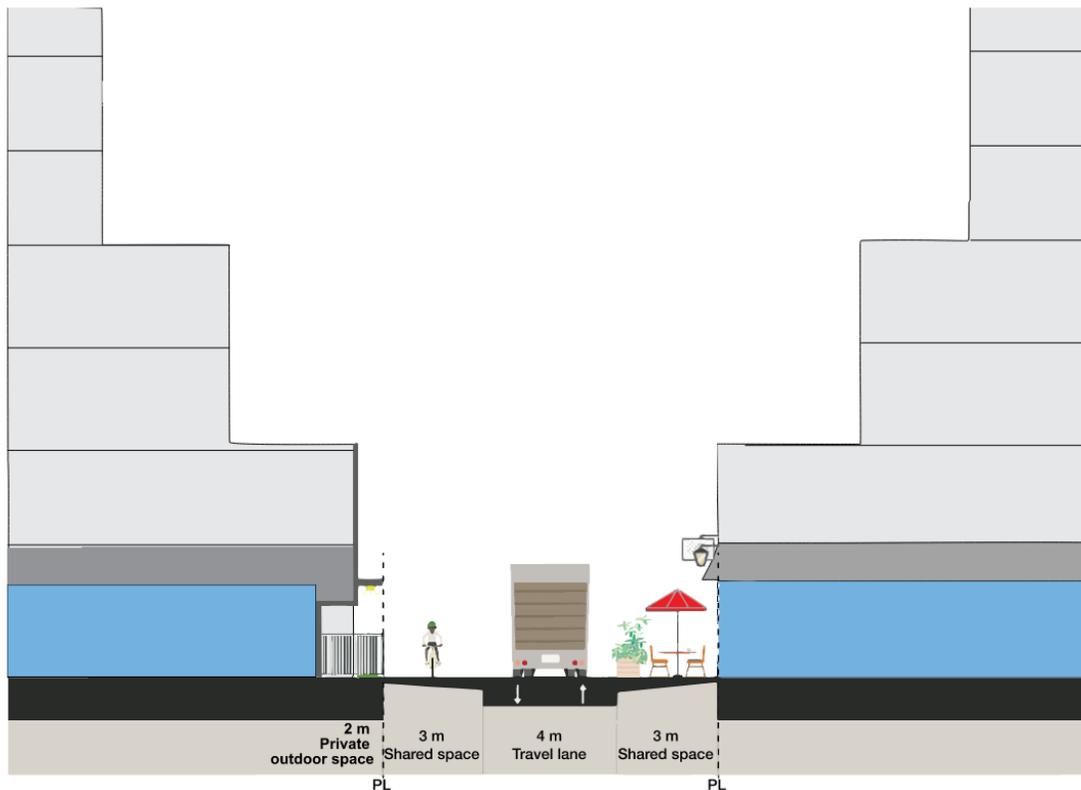


Figure 7 – Audley Crossing Conceptual Cross Sections (UDP)

Courtesy of District of Saanich Uptown Douglas Plan (2022)

5.2 Key Challenges and Opportunities

Based on a review of traffic and safety conditions, relevant policies, current transportation best practices, and the overarching goals for the area, several key challenges and opportunities were identified for the Oak Street and Audley Crossing corridors as illustrated in the UDP. These challenges and opportunities are summarized in **Table 2**.



Table 2 – UDP Conceptual Cross Sections – Key Challenges and Opportunities

| | Oak Street | Audley Crossing |
|----------------------|---|--|
| Challenges | <ul style="list-style-type: none"> No dedicated cycling facilities, despite being a designated bike route Cut-through traffic between Uptown and Mayfair Mall is undesirable with increased development-related traffic in the area Accommodation of on-street parking encourages driving trips to Oak Street | <ul style="list-style-type: none"> 4m shared travel lane does not adequately support the expected level of development planned for the area Curbside uses (short-term parking, pick-up / drop-off, parcel and mail delivery, food couriers, etc.) are likely to spill into the 3m shared space or block the through lane, introducing conflicts with pedestrians and cyclists 7-8m of width is generally required for large service trucks to turn around, reducing the viability of the 3m shared space for non-vehicle uses A narrow service lane is not likely to be a pleasant place for street-facing uses such as patios |
| Opportunities | <ul style="list-style-type: none"> Increased space for cyclists and pedestrians to encourage sustainable travel and foot traffic to future businesses on Oak Street Opportunity for a north-south AAA cycling connection that does not require crossing over Douglas or Blanshard streets Opportunity to reinforce Oak Street as a people-focused street by minimizing travel lane widths and removing on-street parking Opportunity in to introduce trees and landscaping to soften the environment, create meeting spaces, and reduce the heat island of the corridor | <ul style="list-style-type: none"> Support the level of development planned in the area by providing increased travel lane width for vehicles Reinforce Audley Crossing's intent as an access and service road by providing additional in-road space for curbside uses Keep the intent of the conceptual cross section by maintaining the road and the active user space at the same elevation Continue to provide 3m of shared space in the form of a multi-use pathway on both sides to support travel to / from Douglas Street and the future Audley Transit Hub |



5.3 Cross Section Refinement

With the challenges and opportunities above in mind, WATT undertook a design exercise to identify a suite of options for both Oak Street and Audley Crossing. In conjunction with input from staff, several options were explored, including a variety of right-of-way widths, people vs. vehicle priority, on-street parking, cycling facilities (including unidirectional vs bidirectional and location relative to the sidewalk), and space for urban forestry / street furniture / parklets.

The ultimate cross sections for Oak Street and Audley Crossing are illustrated in **Figure 8** and **Figure 9**, respectively. Dimensions are summarized in **Table 3**.

Table 3 – Oak Street and Audley Crossing Proposed Cross Sections

| | Oak Street | Audley Crossing |
|-------------------------|--|--|
| Midblock | <ul style="list-style-type: none"> • 24.0m right-of-way • 2x 3.0m travel lanes • 2x 2.5m landscaped buffer / flex space • 2x 2.5m bike lanes • 2x 4.0m sidewalks | <ul style="list-style-type: none"> • 14.5m right-of-way • 8.5m shared travel lane (flexible, can generally accommodate two-way travel and curbside uses on one side OR large truck manoeuvring with parking absent) • 2x 3.0m multi-use pathway • Mountable curb |
| At Intersections | <ul style="list-style-type: none"> • 24.0m right-of-way • 3x 3.0m travel lanes (addition of left turn lane) • 2x 2.5m bike lane bend-out • 2x 2.0m bike lanes (0.5m reduction) • 2x 3.0m sidewalks (1.0m reduction) | <ul style="list-style-type: none"> • 14.5m right-of-way • 3x 3.0m travel lanes (including left turn lane) • 2x 2.75m multi-use pathway (0.25m reduction) |

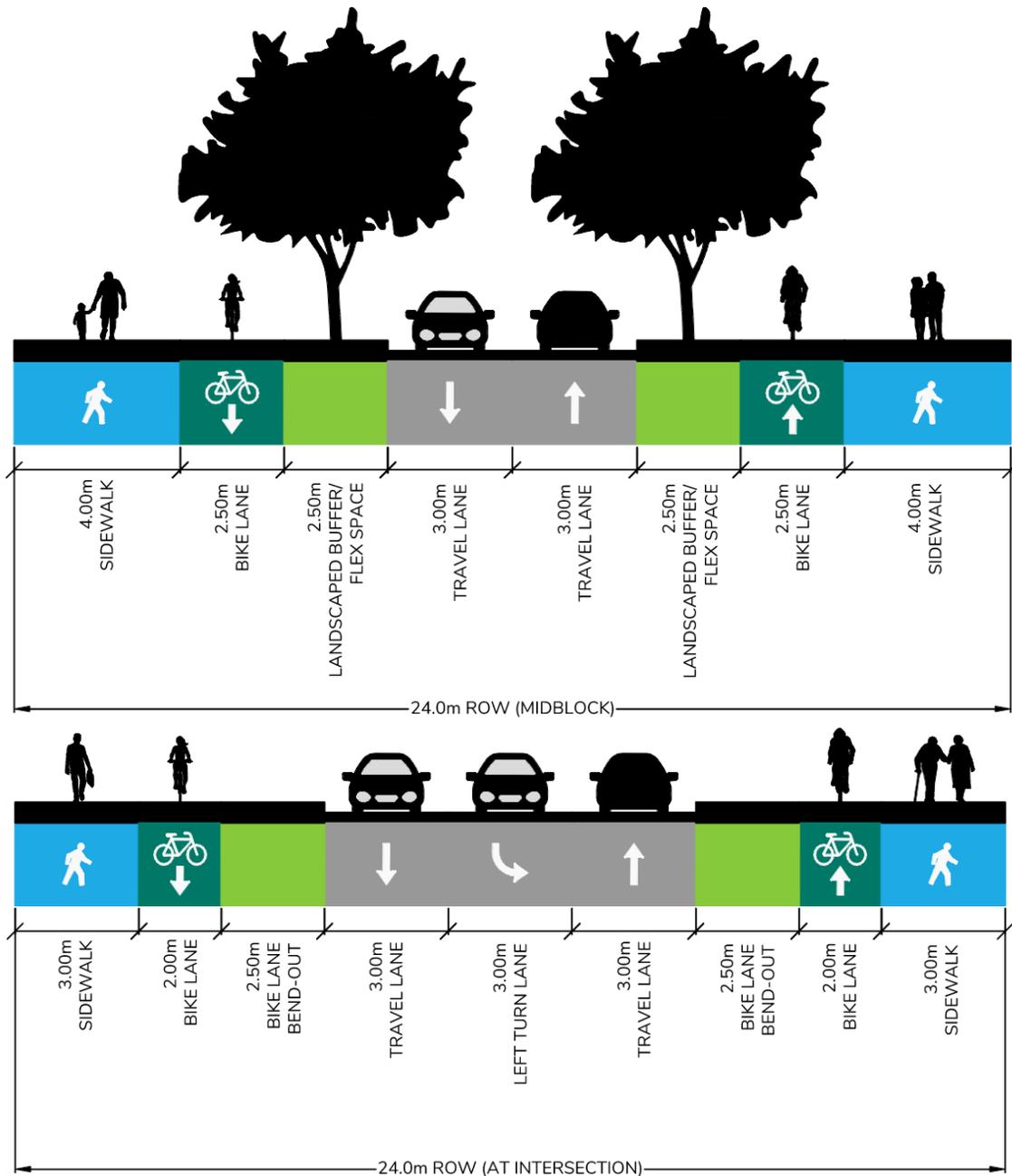


Figure 8 – Oak Street Proposed Cross Sections

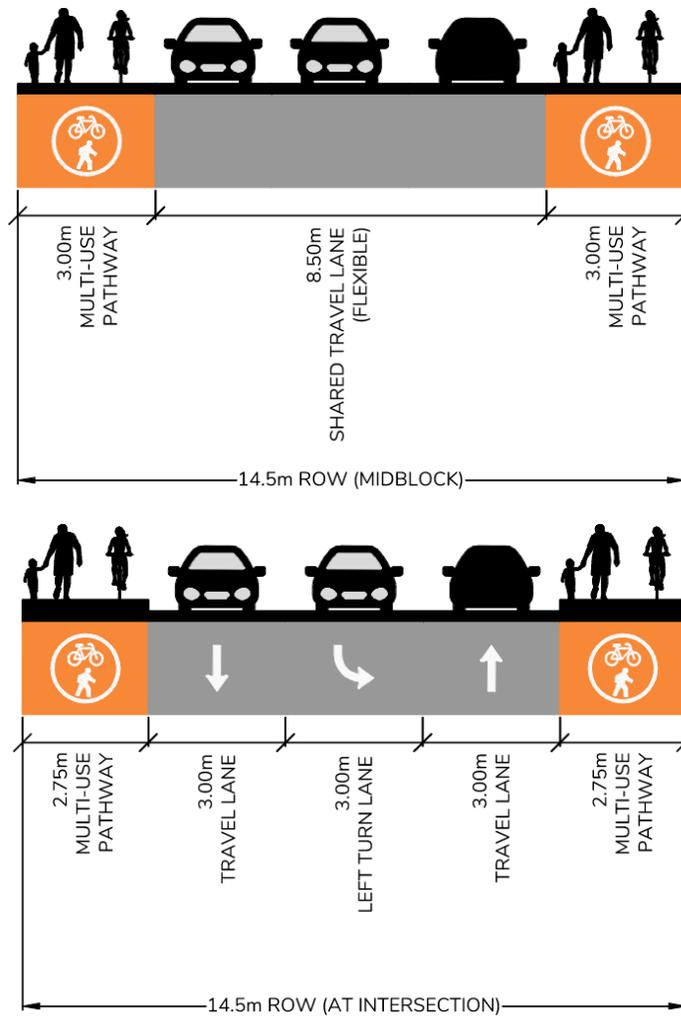


Figure 9 – Audley Crossing Proposed Cross Sections



5.4 Audley Crossing Alignment

A conceptual alignment for Audley Crossing is illustrated in the UDP. At its north end, it starts at the Oak Street / Short Street intersection, proceeds west, and turns south, approximately midway through the 3377 Douglas Street lot (the current Ford dealership). This alignment continues to Cloverdale Avenue. South of Cloverdale Avenue, the alignment shifts slightly west, along the western edge of the 751 Cloverdale Avenue and 750 Roderick Street lots. South of Roderick Street, the alignment shifts slightly further west, along the western edge of the 760 Tolmie Avenue lot. With the approved Superstore development at 760 Tolmie Avenue, the alignment of Audley Crossing between Roderick Street and Tolmie Avenue is effectively set. **Figure 10** illustrates the conceptual alignment for Audley Crossing, as shown in the UDP.

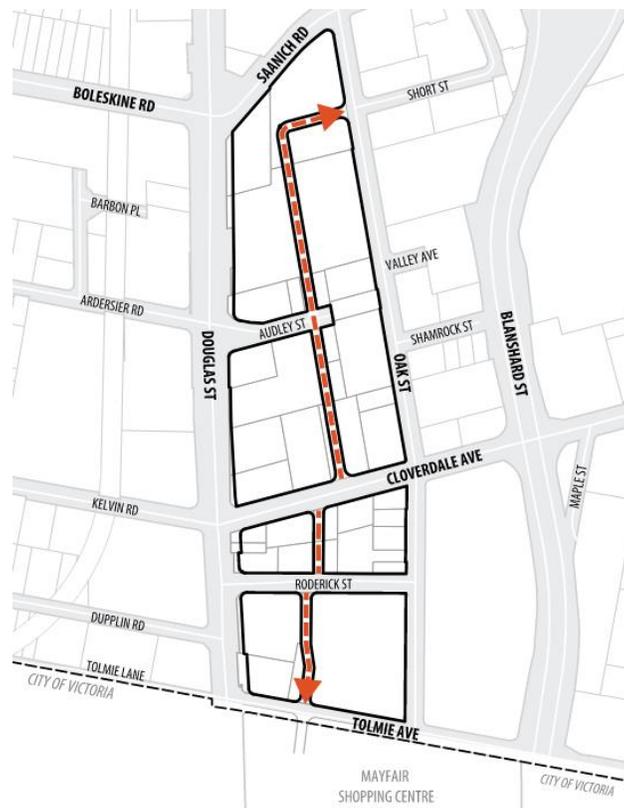


Figure 10 – Conceptual Audley Crossing Alignment (UDP)

Courtesy of District of Saanich Uptown Douglas Plan (2022)



With the commitment to an increased 14.5m right-of-way (relative to the 10m cross section in the UDP), the conceptual alignment of Audley Crossing was also reviewed in the design development process.

The introduction at Short Street remained, however the east-west alignment was shifted slightly to the east to A) line up with the shared boundary between six different parcels on Oak Street, Douglas Street, and Audley Street, B) capitalize on the potential opportunity for the District to outright purchase the 767 Audley Street parcel, and C) provide additional lot depth for future development on Douglas Street, which is slated for more dense development and taller towers than Oak Street.

Between Cloverdale Avenue and Roderick Street, the 751 Cloverdale Avenue and 750 Roderick Street lots remain the ideal candidates for Audley Crossing, given their small area and mid-block location. Given the relative newness of the VCA Veterinary Hospital at 760 Roderick Street, the overall development potential of the block bounded by Cloverdale Avenue, Audley Crossing, Roderick Street and Oak Street is somewhat reduced in comparison to the block to the west. As such, the alignment of Audley Crossing was pushed slightly to the east A) line up with the 760 Roderick Street lot boundary (which is likely to remain for a long time) and B) provide additional lot depth for future development on Douglas Street.

Given the in-progress development proposal at 760 Tolmie Avenue, the alignment of Audley Crossing along the western edge of that parcel was maintained.

The need for north-south continuity along Audley Crossing was examined. With the planned alignment noted above, the lane is divided into three discrete segments: Oak Street – Cloverdale Avenue, Cloverdale Avenue – Roderick Street, and Roderick Street – Tolmie Avenue. At the two interfaces between the three segments, the alignment is offset by 26m on Cloverdale Avenue, and 24m on Roderick Street.

Guidance in Chapter 9.2.4 of the *TAC Geometric Design Guide for Canadian Roads* (2017) recommends an intersection offset of less than 1.5m, or greater than 40m (potentially even higher on a major road like Cloverdale Avenue). Given the smaller size of the Cloverdale-Douglas-Tolmie-Oak block in comparison to the block north of Cloverdale, and the intent for Audley Crossing to be primarily a servicing access for the planned Superstore development at 760 Tolmie Avenue, the 24m offset on Roderick Street is acceptable. Given heavy volumes and multiple lanes on Cloverdale Avenue, however, restrictions to left turn movements out of Audley Crossing are recommended, and restrictions to left turns into the northern segment should be explored given the potential for queue spillback from the Oak Street intersection. Maintaining lefts into the



south leg from Cloverdale Avenue should be explored to permit improved circulation from the northern segment out to the east (via Roderick Street or Tolmie Avenue).

The revised conceptual alignment for Audley Crossing is illustrated in **Figure 11**.

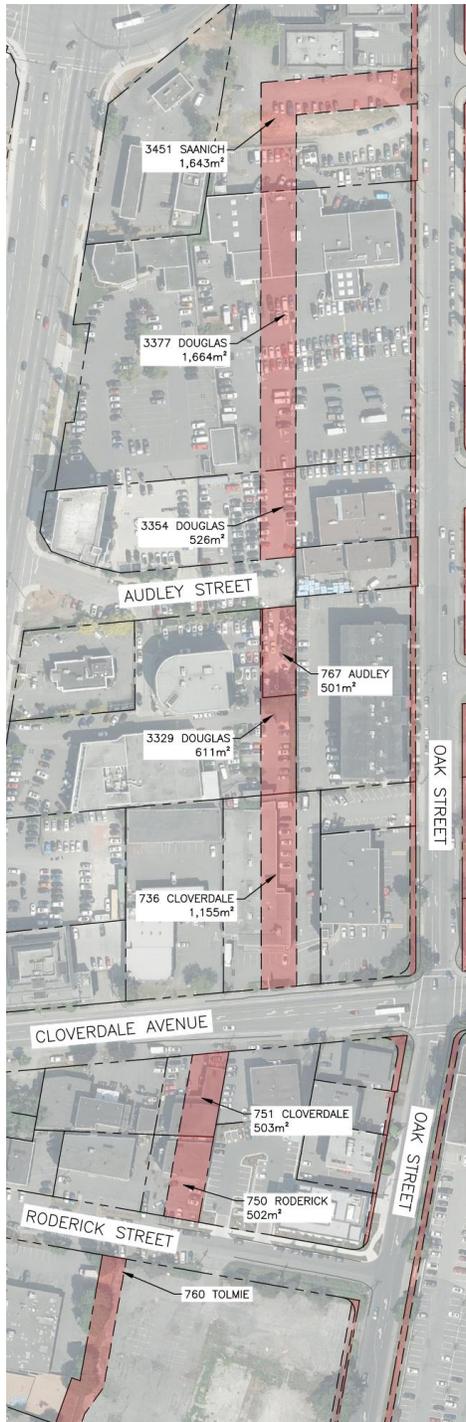


Figure 11 – Proposed Audley Crossing Alignment



5.5 Oak Street Continuity Options

Currently, Oak Street is continuous between Saanich Road and Tolmie Avenue. District staff have also requested the exploration of two options that would bisect Oak Street – one option is closure at the terminus of Audley Street (generally between Valley Avenue and Shamrock Street), and the other option is a closure between Roderick Street and the existing Staples access at 805 Cloverdale Avenue. These potential closures would serve to eliminate cut-through traffic between Mayfair Mall and Uptown on the planned people-oriented street, and the existing street space could be repurposed as a public park or plaza. A new park in the general vicinity of the northern closure option is proposed in the UDP. A review of the operational impacts of these closures is provided in **Sections 6.8** and **6.9**.

5.6 Preliminary Design Options

Preliminary design of the Oak Street and Audley Crossing corridors is underway at the time of writing. Conceptual plans for the Cloverdale Avenue and Tolmie Avenue intersections are illustrated in **Figure 12** and **Figure 13**, respectively.

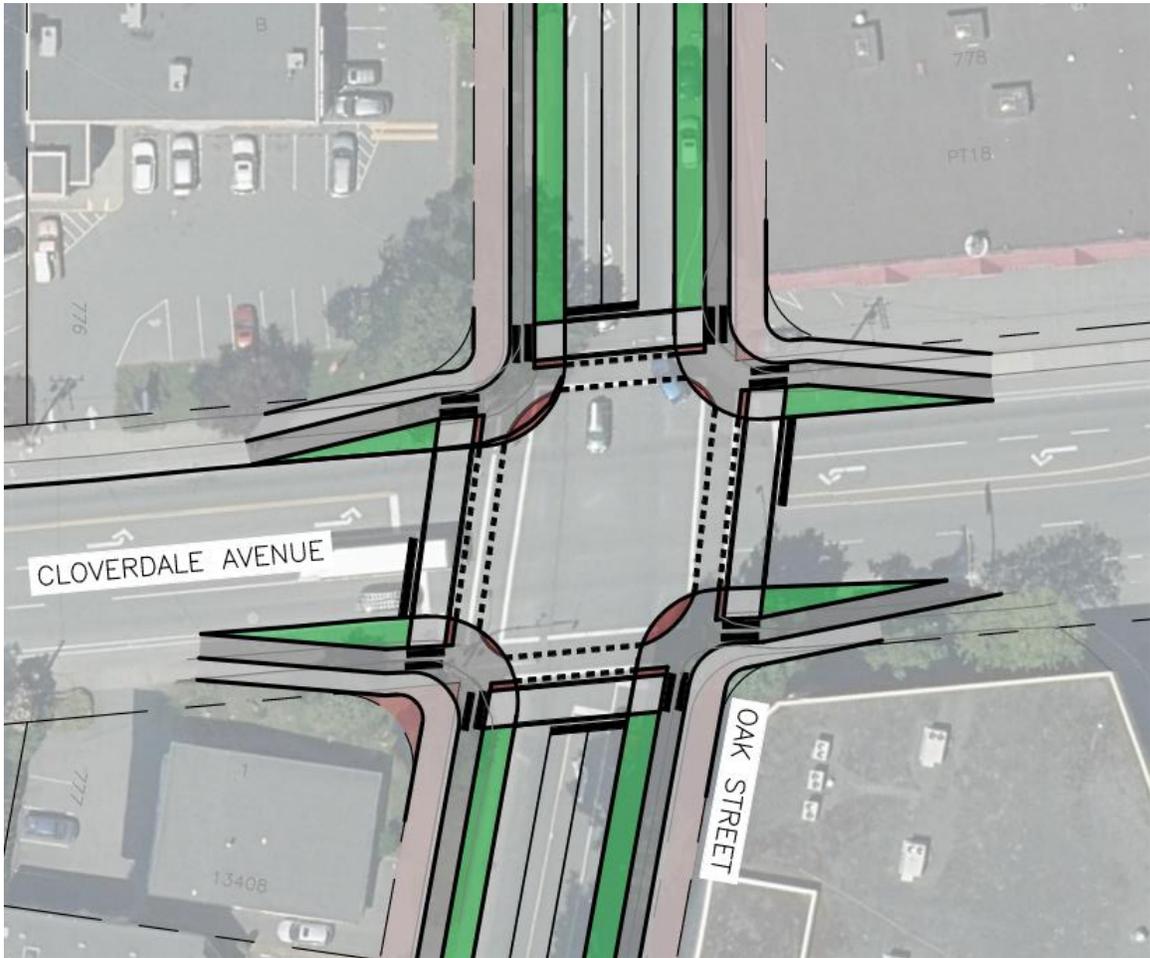


Figure 12 – Oak Street / Cloverdale Avenue Preliminary Intersection Design

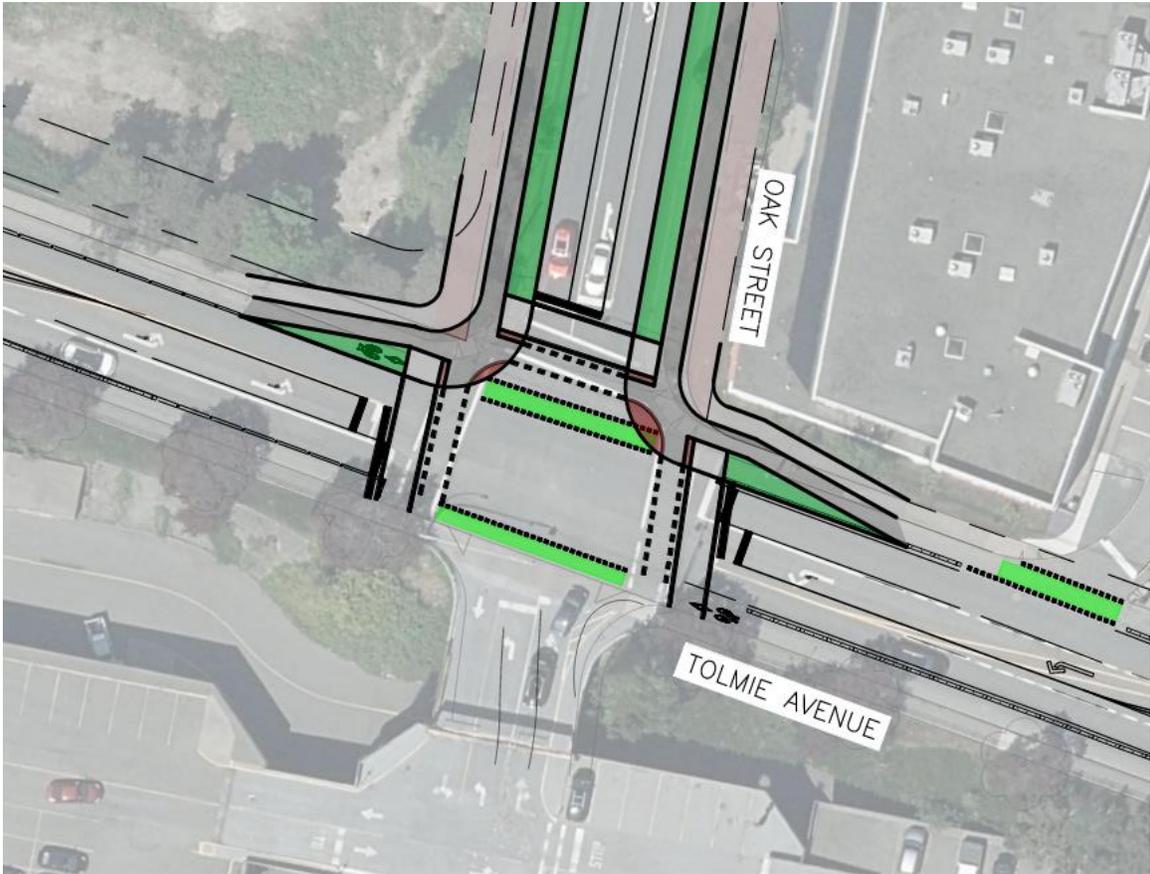


Figure 13 – Oak Street / Tolmie Avenue Preliminary Intersection Design



6.0 TRAFFIC OPERATIONS ANALYSIS

6.1 Traffic Analysis Scenarios and Time Periods

Traffic operations analysis has been undertaken during the weekday AM and PM periods for the following scenarios:

- Existing Conditions
- Full Buildout Scenario A – Continuous Oak Street
- Full Buildout Scenario B – Oak Street closed to vehicle traffic between Valley Avenue and Shamrock Street
- Full Buildout Scenario C – Oak Street closed to vehicle traffic between Roderick Street and Staples access

6.2 Methodology and Performance Evaluation Criteria

Intersection capacity analysis for the existing and proposed conditions was completed using the Vistro software package, which uses the Highway Capacity Manual (HCM) evaluation methodology. Results are measured level of service (LOS), and 95th percentile queue length (metres).

The LOS for unsignalized (stop-controlled and roundabout) intersections is determined by the calculated delay for each critical movement. The LOS for a signalized intersection includes additional factors such as geometry, traffic and pedestrian volumes, and signal phasing / timing. LOS is broken down into six letter grades, with LOS A being excellent operation, and LOS F being unstable / failing operations. **Table 4** summarizes the delay per vehicle with the corresponding LOS for both signalized and unsignalized intersections.



Table 4 – Level of Service Criteria

| Level of Service (LOS) | Unsignalized Intersections: Average Vehicle Delay (sec / veh) | Signalized Intersections: Average Vehicle Delay (sec / veh) |
|-------------------------------|--|--|
| A | 0-10 | 0-10 |
| B | > 10-15 | >10-20 |
| C | >15-25 | >20-35 |
| D | >25-35 | >35-55 |
| E | >35-50 | >55-80 |
| F | >50 | >80 |

The following values have been selected as the threshold between acceptable and unacceptable performance at the study area intersections:

- LOS: E or F
- Queue lengths: extending to next upstream intersection

6.3 Input and Calibration Parameters

Heavy Vehicle Percentage

The percentage of heavy vehicles for each movement was based on the information provided as part of the turning movement counts. Where not available, a default value of 2 percent heavy vehicles was assumed.

Peak Hour Factor

The Peak Hour Factor (PHF) was based on the information provided as part of the turning movement counts. PHFs were calculated for each intersection using the overall intersection volumes or individually per movement. Where not available, a default PHF of 0.90 was used.



Signal Timings

Existing signal timings were used for the Oak Street / Saanich Road and Oak Street / Cloverdale Avenue intersections. Signal timings for the Oak Street / Tolmie Avenue intersection (which is under the jurisdiction of the City of Victoria) were not available, and a default signalization was assumed.

Signal timings for future scenarios were optimized, assuming that with substantial development in the area, signal timings would be adjusted.

Corridor Growth

Any growth at the study area intersections is assumed to be directly related to new development in the immediate area. As such, no additional corridor growth rate has been applied to the future scenarios beyond adding the development density.

Exclusion of Douglas and Blanshard Streets from Study Area

The neighbouring Douglas and Blanshard Street corridors, which may occasionally have conditions that inhibit signal progression, are excluded from the scope of this study.

6.4 Base Traffic Volumes

Turning movement counts were collected for intersections in the study area for the weekday AM and PM peak periods. Traffic counts adopted as the basis of this study are summarized in **Table 5**.

Traffic volumes were not adjusted to account for potential difference between intersections given that there are multiple driveways between intersections along the corridor that could add or remove traffic from the road network these differences were determined to be appropriate. Volumes at the Oak Street / Short Street intersection were also not adjusted from the 2022 count, as no changes to land use or density along Short Street have occurred since 2022. Existing traffic volumes are illustrated in **Figure 14** and **Figure 15**.



Table 5 – Turning Movement Counts

| Intersection | Count Date | Time Period | Source |
|--|------------------------------|----------------------------------|---------------|
| Oak Street / Saanich Road / Uptown Shopping Centre | Tuesday March 5, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | McElhanney |
| Oak Street / Short Street | Thursday October 20, 2022 | 8:15 – 9:15 AM 4:15 – 5:15 PM | McElhanney |
| Oak Street / Valley Avenue | Wednesday September 11, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | WATT |
| Oak Street / Shamrock Street | Wednesday September 11, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | WATT |
| Oak Street / Cloverdale Avenue | Tuesday March 5, 2024 | 8:00 – 9:00 AM 3:00 – 4:00 PM | McElhanney |
| Oak Street / Roderick Street / Island Home Centre Access | Tuesday September 10, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | WATT |
| Oak Street / Tolmie Avenue / Mayfair Shopping Centre | Tuesday September 10, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | WATT |
| Douglas Street / Audley Street / Ardiersier Road | Tuesday September 10, 2024 | 8:00 – 9:00 AM 4:00 – 5:00 PM | WATT |

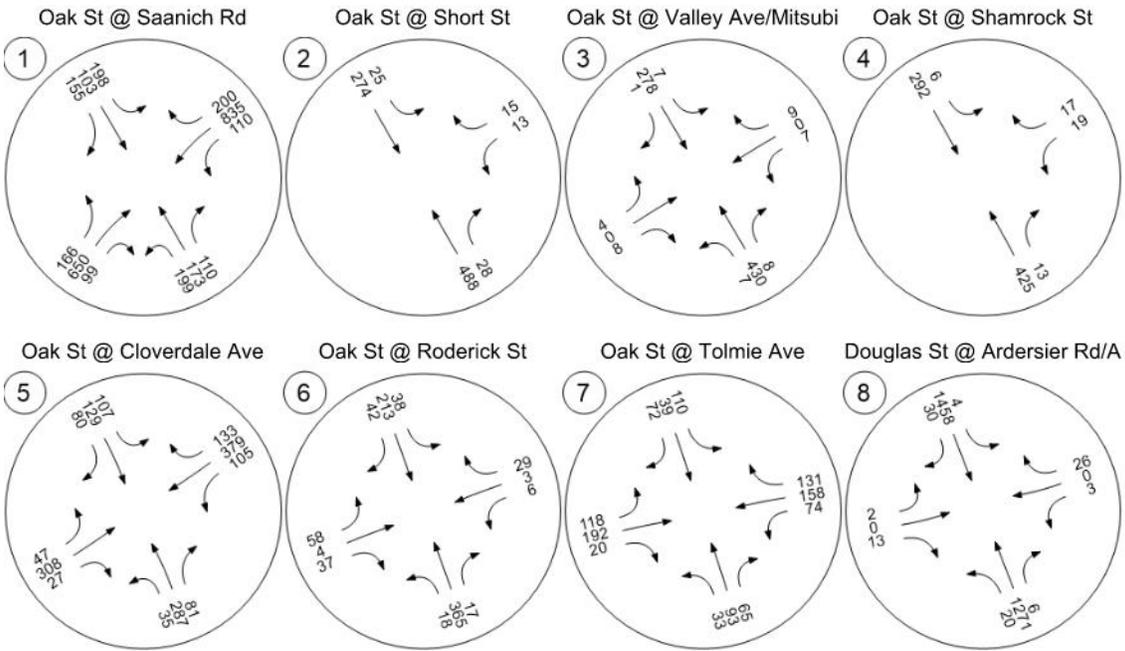
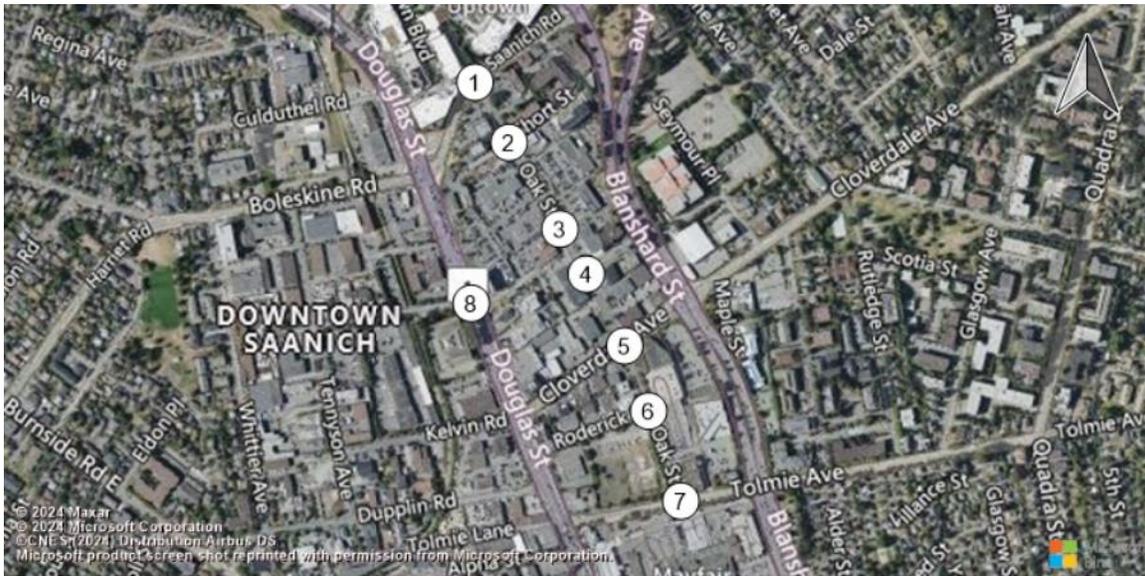
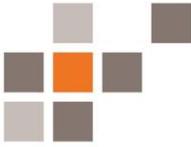


Figure 15 – Existing Traffic Volumes (PM)



6.5 Existing Conditions

Intersection performance analysis results for existing conditions are provided in **Appendix B**.

In general, operational performance at all intersections in the study area is within acceptable parameters under existing conditions at peak times. Intersections generally operate at LOS C or better in the morning peak hour, and LOS D or better in the afternoon peak hour. Queues generally do not extend past the next upstream intersection, however northbound queues at the Saanich Road / Oak Street intersection are within 2-3 car lengths of extending back to Short Street. There is currently a Do Not Block Intersection sign and stop bar south of the Short Street intersection for this purpose.

The left turn movement out of Audley Street onto Douglas Street is the exception to generally good existing performance within the study area; this movement currently operates at LOS F. Given that crossing four lanes is required to accomplish this movement and the high volumes on Douglas Street in the peak hours, this is not an unexpected result. Furthermore, only 3 vehicles during both the AM and PM peak hours were observed to attempt this movement on the day when data collection occurred, indicating that the majority of drivers avoid attempting this difficult turn.

6.6 Travel Demand Forecasting

6.6.1 Trip Generation

Trip generation rates for the Oak-Audley corridor were selected based on the future context anticipated for the neighbourhood. The Institute of Transportation Engineers (ITE) trip generation rate for high rise multifamily housing in a dense multi-use urban context, not close to rail transit was selected for the residential uses. Site-specific rates collected by WATT for a ground floor commercial use in a dense urban context were used for the commercial uses. The selected trip generation rates are summarized in **Table 6**.

For the planned Superstore development at 760 Tolmie Avenue, the trip generation rates remained consistent with Bunt & Associates' methodology in their July 2023 TIA.



Table 6 – Trip Generation Rates

| Use | AM Peak Hour | | | PM Peak Hour | | |
|--|--------------|------|-------|--------------|------|-------|
| | In | Out | 2-Way | In | Out | 2-Way |
| Trip Generation Rates | | | | | | |
| Multifamily Housing (High Rise) Dense Multi-use Urban Context Not Close to Rail Transit (ITE LU 222) ^[1] | 0.06 | 0.18 | 0.24 | 0.15 | 0.05 | 0.21 |
| Ground Floor Commercial (Site-Specific, 2023) ^[2] | 0.4 | 1.1 | 1.5 | 2.07 | 1.62 | 3.69 |

Notes:

1. Rate is per unit
2. Rate is per 1,000 sq. ft. GFA

Where available, residential unit forecasts from the District of Saanich were used to calculate future trips for each parcel in the study area. Existing commercial trips to each of these parcels were removed and replaced with future commercial trips calculated using the Ground Floor Commercial rate specified above in **Table 6**.

For parcels where a change in units was not provided by the District of Saanich, the density on a per-floor basis consistent with the 760 Tolmie Avenue development was assumed. A typical floor plan for a residential building was assumed from the Superstore site plan, which included nine units per floor over approximately 700 m² floor area. This methodology involved assuming a max building height as specified in the UDP for each parcel (12 or 18 stories), and determining how many buildings could fit within the existing lot area. Using this methodology, an assumed “max infill” scenario for the study area was generated. Existing commercial trips for each of these parcels were assumed to be forecasted into the future as “ground floor commercial”, and therefore no trips were removed or replaced with the above commercial rate.

The resulting change in residential units is provided in **Figure 16**, with the resulting total AM/PM trips generated provided in **Figure 17**. **Figure 18** displays the net change in commercial trips, and the parcels that retained existing commercial trips.



Figure 18 – Net Commercial Trips



6.6.2 Trip Distribution

Trips generated by the anticipated new developments were distributed to the public road network using a combination of existing travel patterns, key origins / destinations in the area (predominantly Uptown Shopping Centre and Mayfair Shopping Centre), and the 2022 CRD Origin Destination Household Travel Survey. The trip distribution for future developments in the study area is summarized in **Table 7**.

Table 7 – Trip Distribution

| Street | Direction | AM | PM |
|---|-----------|------------------|------------------|
| Saanich Road | East | 10% In / 15% Out | 10% In / 15% Out |
| | West | 10% In / 15% Out | 10% In / 10% Out |
| Cloverdale Avenue | East | 25% In / 25% Out | 20% In / 25% Out |
| | West | 15% In / 15% Out | 20% In / 10% Out |
| Tolmie Avenue | East | 10% In / 10% Out | 10% In / 20% Out |
| | West | 10% In / 5% Out | 10% In / 5% Out |
| Douglas Street (via Audley Street) | North | 5% In / 5% Out | 5% In / 5% Out |
| | South | 0% In / 0% Out | 0% In / 0% Out |
| Douglas Street (via Roderick Street) | North | 5% In / 5% Out | 5% In / 0% Out |
| | South | 0% In / 0% Out | 0% In / 0% Out |
| Uptown Shopping Centre | North | 5% In / 5% Out | 5% In / 5% Out |
| Mayfair Shopping Centre | South | 5% In / 0% Out | 5% In / 5% Out |

6.6.3 Trip Assignment

Once the general trip distribution to the study area was determined, trip distribution percentages were adjusted based on available and realistic routing between each zone-gate pair. For example, it was assumed that vehicles heading to/from zones to the north of Cloverdale Avenue would use either Cloverdale Avenue or Saanich Road, but not Tolmie Avenue. Using this methodology, future trips were assigned to the study area road network for each of the three analysis scenarios, including the proposed closures.



A summary of each trip generation zone and the trip gates for the study area, including the location of the proposed closures, is provided in **Figure 19**.

In addition to assigning new trips to the area, adjustments to existing background traffic were performed to account for the change in travel patterns for the closure options for each analysis scenario. In general, this included adjusting the percentage of eastbound and westbound traffic on Saanich Road / Cloverdale Avenue / Tolmie Avenue turning towards the closure into through traffic, and re-routing through traffic on the approach opposite to the closure into a 50-50 split of left and right turns and removing a percentage of traffic for all movements on the road segment with the closure.

For Scenario B (Valley-Shamrock closure), adjustments to the Oak-Cloverdale and Oak-Tolmie intersections were performed. In this scenario, it was assumed that 75% of the traffic heading to or coming from the closure was removed or reassigned.

For Scenario C (Roderick-Staples Closure), adjustments to the Oak-Cloverdale and Oak-Saanich intersections were performed. In this scenario, it was assumed that 50% of the traffic heading to or coming from the closure was removed or reassigned.

For example, in Scenario B, the 75% of the southbound background traffic was removed at the Cloverdale-Oak intersection, with 75% of the westbound right-turns and eastbound left-turns being re-assigned to the respective westbound and eastbound through movements, and 75% of the northbound through movements being evenly assigned to northbound left and right turns.



6.7 Future Conditions – Scenario A (Continuous Oak Street)

Intersection performance analysis results for Scenario A (Oak Street remains continuous) are provided in **Appendix C**. Traffic volumes for Scenario A are illustrated in **Figure 20** and **Figure 21**. The critical intersections, specific movements, and potential mitigation measures are summarized in **Table 8**.

Table 8 – Scenario A – Critical Movements and Mitigation Measures

| Intersection | Movement | Mitigation Measure |
|---|---|--|
| Oak Street / Saanich Road | NB queue extends back to Short Street (AM & PM) | Extend NBL lane to Short Street, maintain existing “Do Not Block Intersection” signage |
| Oak Street / Short Street / Audley Crossing | EBL movement (Audley turning left onto Oak) at LOS F (AM & PM) | Install a roundabout, greatly improves intersection performance for all movements |
| | WBL movement (Short turning left onto Oak) at LOS E (PM) | All way stop (AWSC) option benefits EB/WB at the expense of NB traffic |
| Oak Street / Valley Avenue | WBL movement (Valley turning left onto Oak) at LOS E (PM) | Separate WBL and WBR turn lanes to improve WBR; WBL may struggle with NB-SB gaps Option to install AWSC, at the expense of NB traffic |
| Oak Street / Shamrock Street | WBL movement (Shamrock turning left onto Oak) at LOS E (PM) | Separate WBL and WBR turn lanes to improve WBR; WBL may struggle with NB-SB gaps |
| Oak Street / Cloverdale Avenue | WBT/R movements at LOS F, queue extends back to Blanshard Street (PM) | Add a protected-permissive WBL phase |
| | SBL and EBL movements LOS F due to arriving just prior to the signal going red ((PM) | Add protected-permissive left turn phases on all approaches and dedicated WBR and NBR lanes |



| Intersection | Movement | Mitigation Measure |
|--------------------------------|--|---|
| Oak Street / Roderick Street | EB queue extends beyond future Superstore driveway (AM & PM) | Signalize or convert to roundabout due to increase in EB traffic Provide “Do Not Block Driveway” signage as needed |
| Douglas Street / Audley Street | WBL movement (Audley turning left onto Douglas) at LOS F (AM & PM) | Restrict to right-in / right-out only |

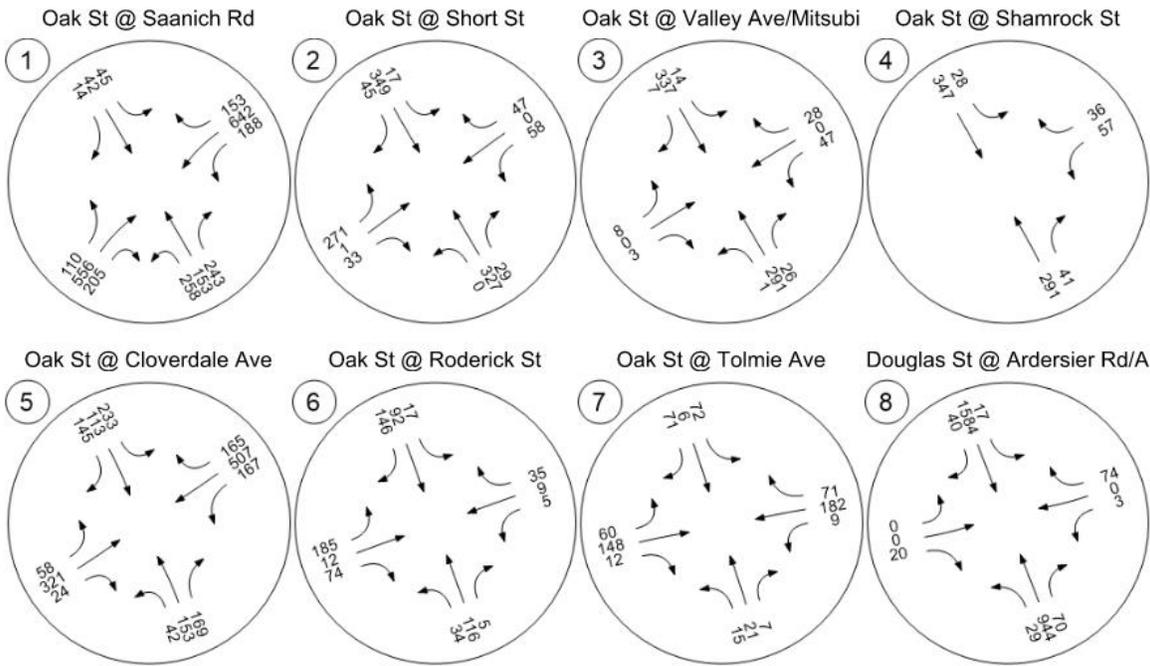
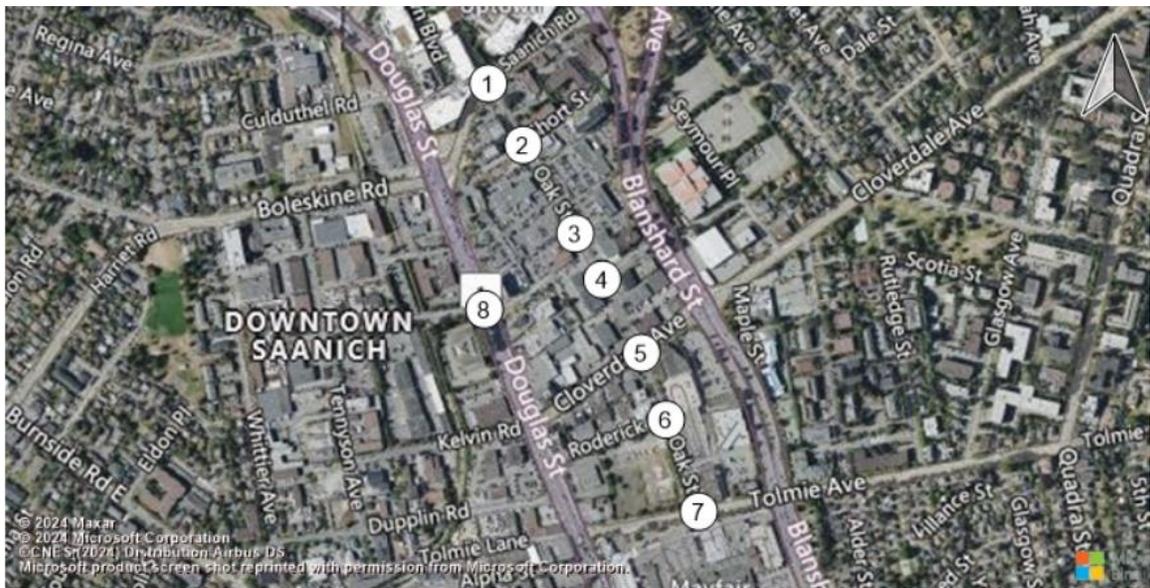
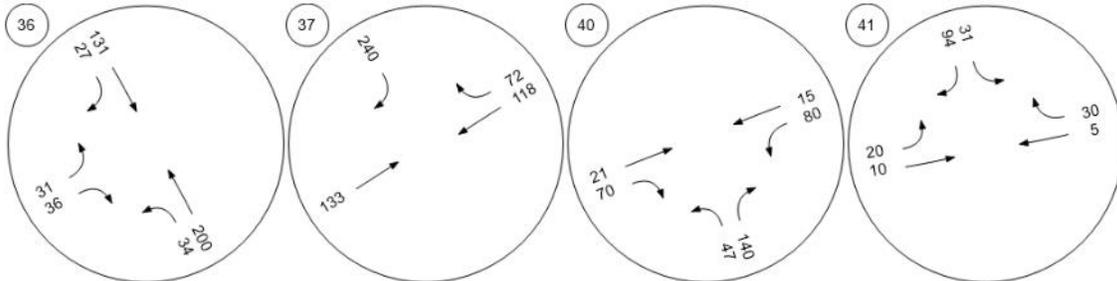


Figure 20 – Scenario A Traffic Volumes (AM)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

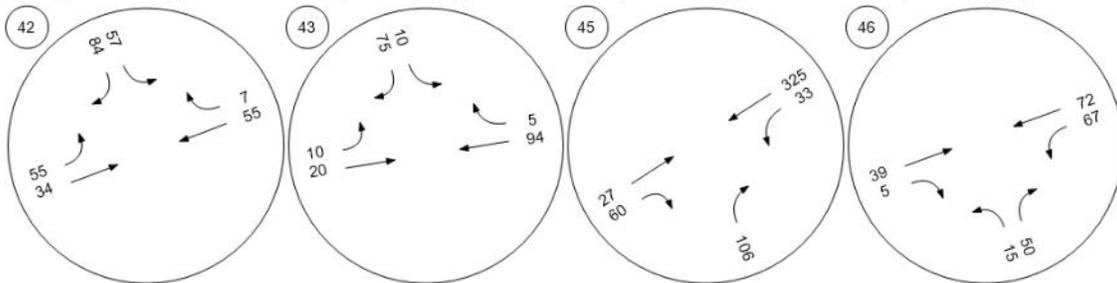


Figure 20 – Scenario A Traffic Volumes (AM) (Continued)

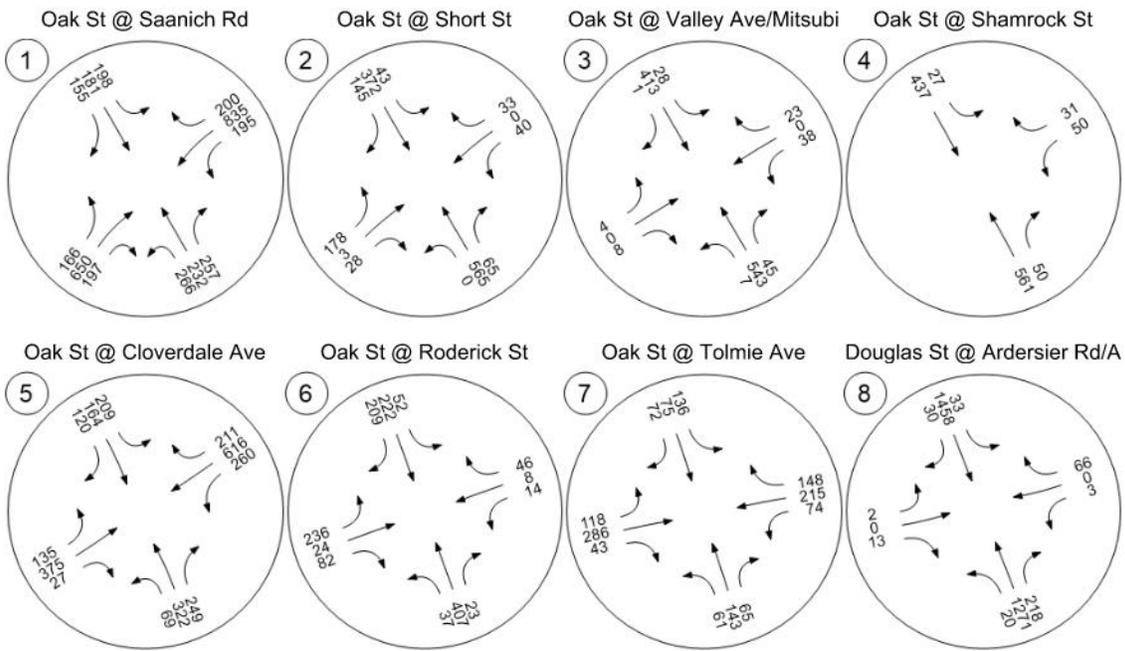
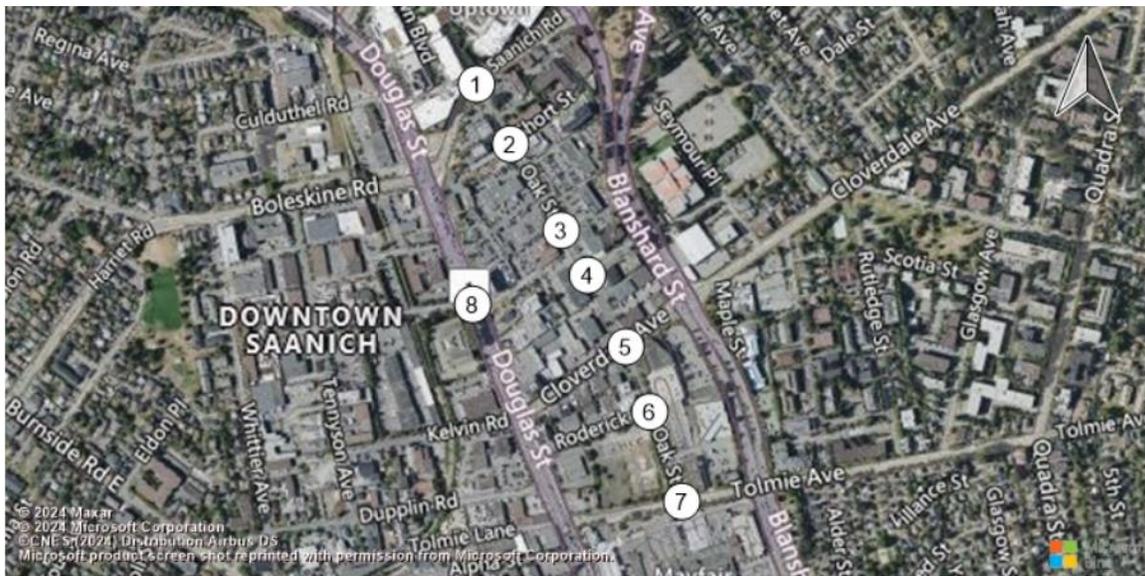
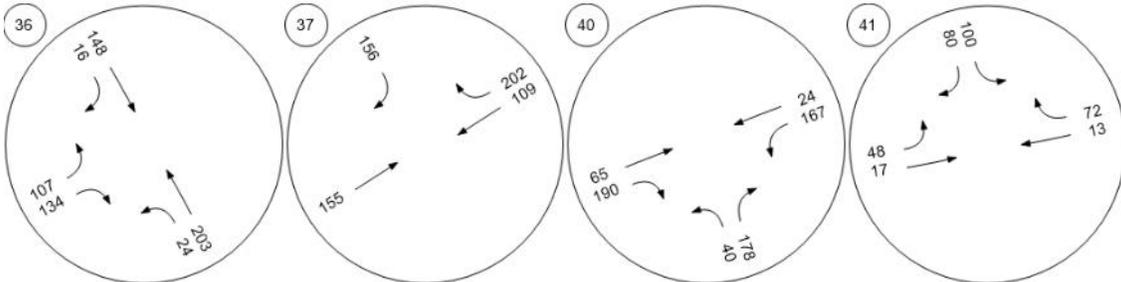


Figure 21 – Scenario A Traffic Volumes (PM)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

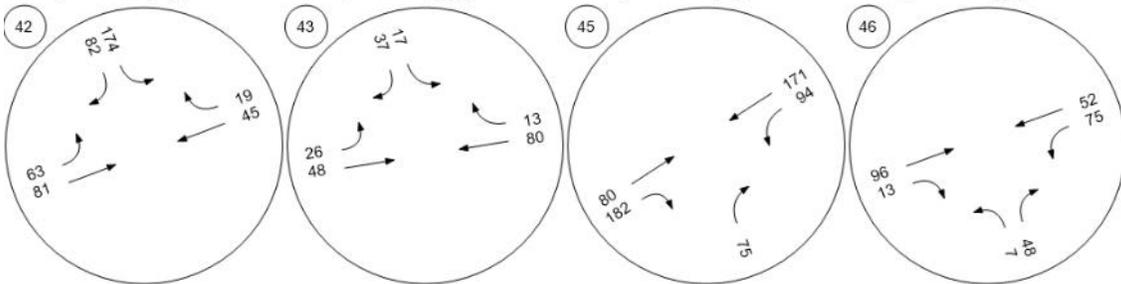


Figure 21 – Scenario A Traffic Volumes (PM) (Continued)



6.8 Future Conditions – Scenario B (Valley-Shamrock Closure)

Intersection performance analysis results for Scenario B (Oak Street is closed to through traffic between Valley Avenue and Shamrock Street) are provided in **Appendix D**.

Traffic volumes for Scenario B are illustrated in **Figure 22** and **Figure 23**. The critical intersections, specific movements, and potential mitigation measures are summarized in **Table 9**.

Table 9 – Scenario B – Critical Movements and Mitigation Measures

| Intersection | Movement | Mitigation Measure |
|---|---|---|
| Oak Street / Saanich Road | NB queue extends back to Short Street (AM & PM) | Extend NBL lane to Short Street, maintain existing “Do Not Block Intersection” signage |
| Oak Street / Short Street / Audley Crossing | EBL movement (Audley turning left onto Oak) at LOS F (AM & PM) | Install a roundabout, greatly balances intersection performance for all movements AWSC benefits EB/WB at the expense of NB traffic |
| | WBL movement (Short turning left onto Oak) at LOS E (PM) | |
| Oak Street / Roderick Street | WBL movement (plaza driveway turning left onto Oak) at LOS E (PM) | Signalize or convert to roundabout |
| | EB movements at LOS F, queue extends beyond proposed Superstore driveway (PM) | Provide “Do Not Block Driveway” signage as needed |
| Douglas Street / Audley Street | WBL movement (Audley turning left onto Douglas) at LOS F (AM & PM) | Restrict to right-in / right-out only |

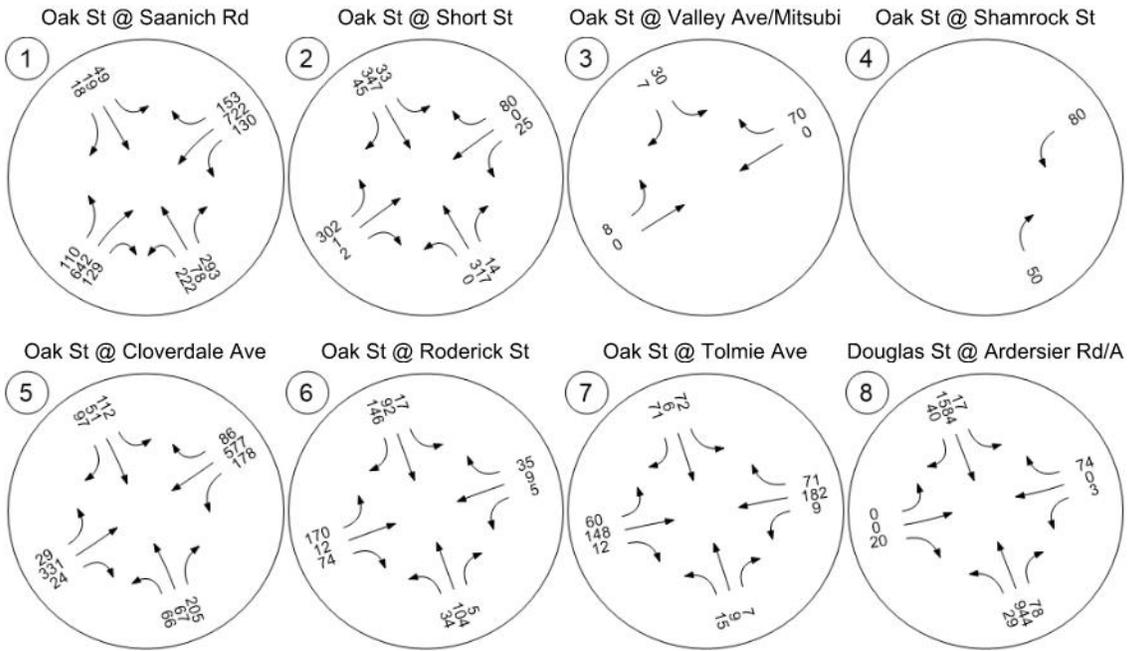
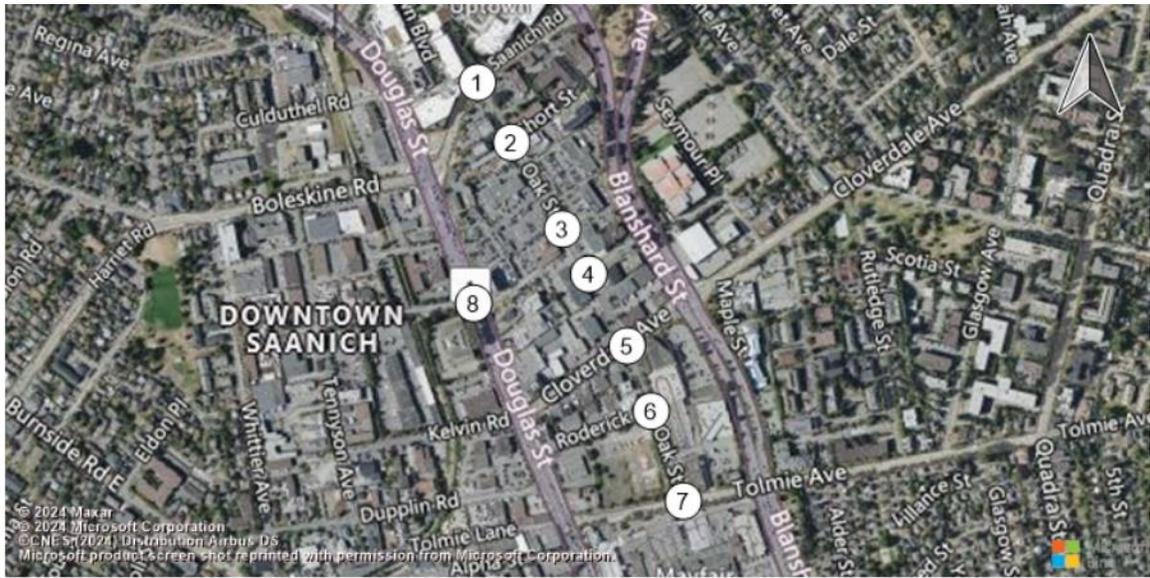
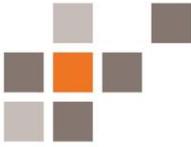
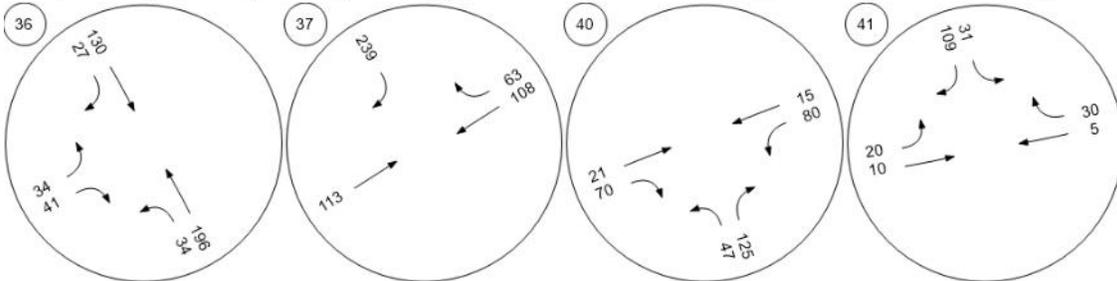


Figure 22 – Scenario B Traffic Volumes (AM)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

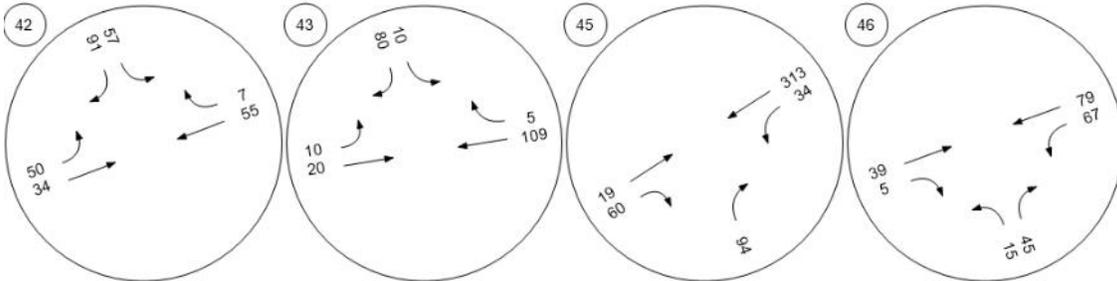
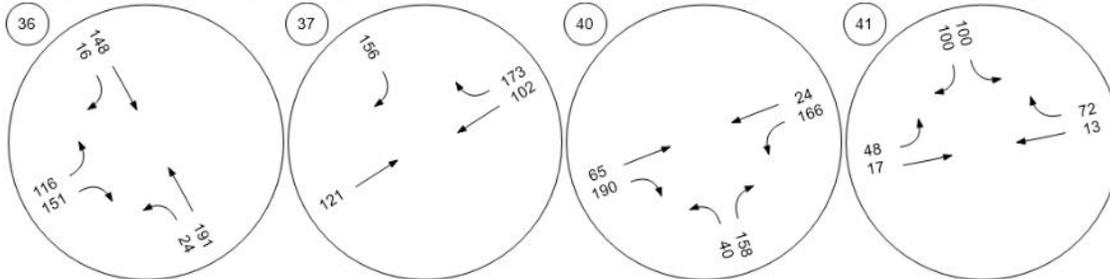


Figure 22 – Scenario B Traffic Volumes (AM) (Continued)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

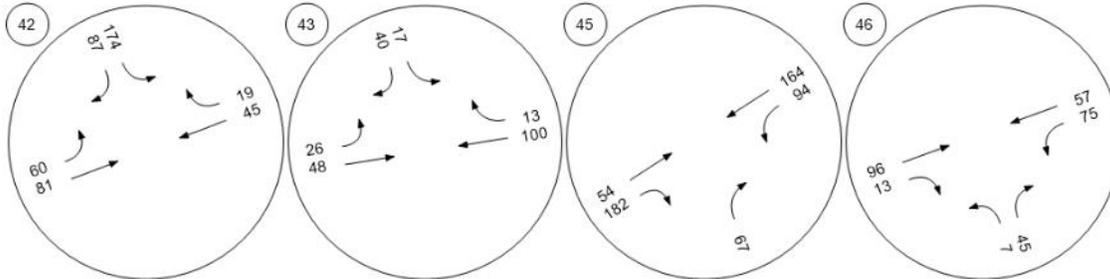


Figure 23 – Scenario B Traffic Volumes (PM) (Continued)



6.9 Future Conditions – Scenario C (Roderick-Staples Closure)

Intersection performance analysis results for Scenario C (Oak Street is closed to through traffic between Roderick Street and the Staples access) are provided in **Appendix E**. Traffic volumes for Scenario C are illustrated in **Figure 24** and **Figure 25**. The critical intersections, specific movements, and potential mitigation measures are summarized in **Table 10**.

Table 10 – Scenario C – Critical Movements and Mitigation Measures

| Intersection | Movement | Mitigation Measure |
|---|---|---|
| Oak Street / Saanich Road | NB queue extends back to Short Street (AM & PM) | Extend NBL lane to Short Street, maintain existing “Do Not Block Intersection” signage |
| Oak Street / Short Street / Audley Crossing | WBL movement (Short turning left onto Oak) at LOS F (AM & PM) | Install a roundabout, greatly balances intersection performance for all movements AWSC benefits EB/WB at the expense of NB traffic |
| Oak Street / Valley Avenue | WBL movement (Valley turning left onto Oak) at LOS E (PM) | Separate WBL and WBR turn lanes to improve WBR; WBL may struggle with NB-SB gaps Install AWSC, at the expense of NBT traffic |
| Oak Street / Shamrock Street | WBL movement (Shamrock turning left onto Oak) at LOS E (PM) | Separate WBL and WBR turn lanes to improve WBR; WBL may struggle with NB-SB gaps |
| Oak Street / Cloverdale Avenue | WB queue extends back to Blanshard Street (AM & PM) | Add a protected-permissive WBL phase |



| Intersection | Movement | Mitigation Measure |
|--------------------------------|--|---|
| | SBL, EBL movements at LOS F (PM) | Add protected-permissive left turn phases on all approaches and dedicated WBR and NBR lanes |
| Douglas Street / Audley Street | WBL movement (Audley turning left onto Douglas) at LOS F (AM & PM) | Restrict to right-in / right-out only |

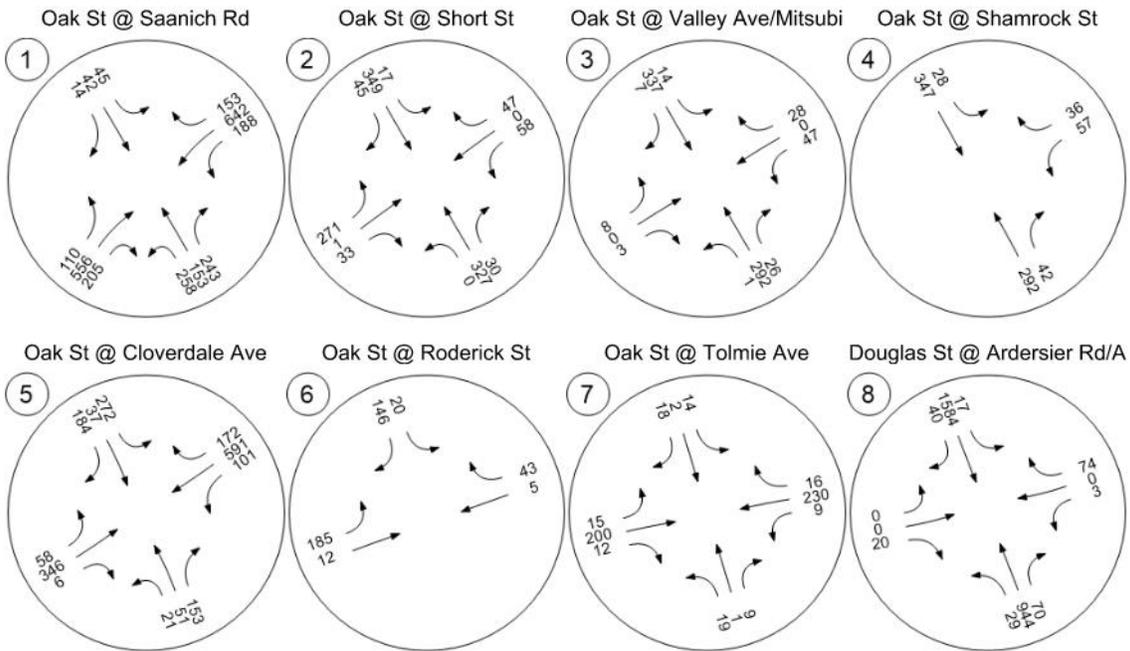
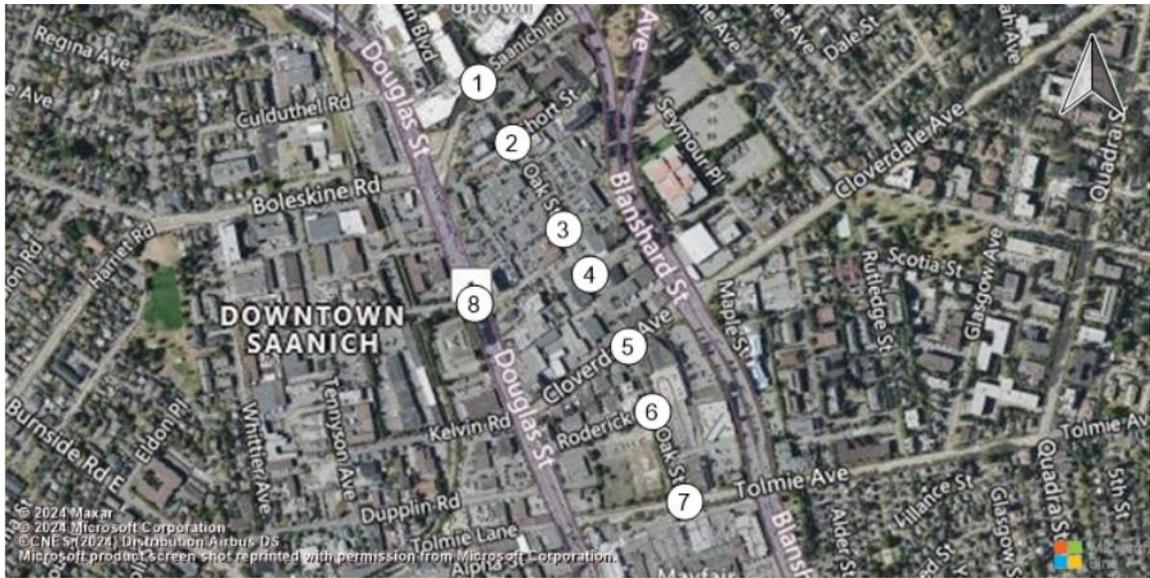
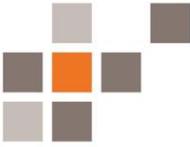
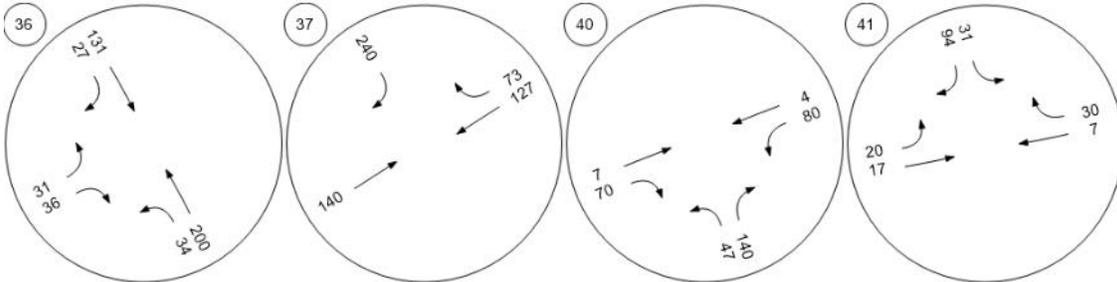


Figure 24 – Scenario C Traffic Volumes (AM)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

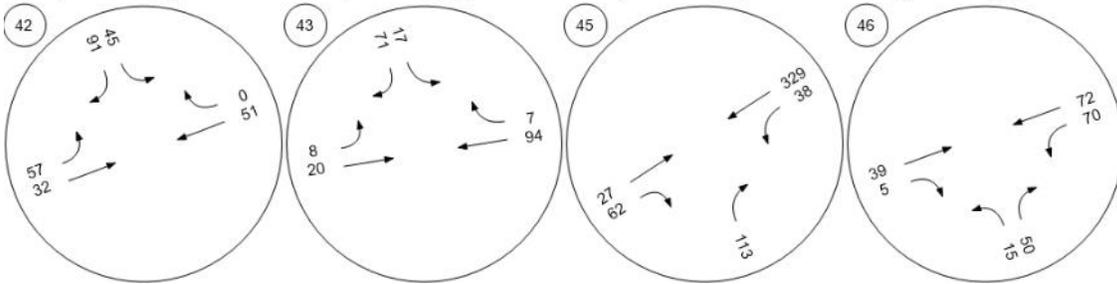


Figure 24 – Scenario C Traffic Volumes (AM) (Continued)

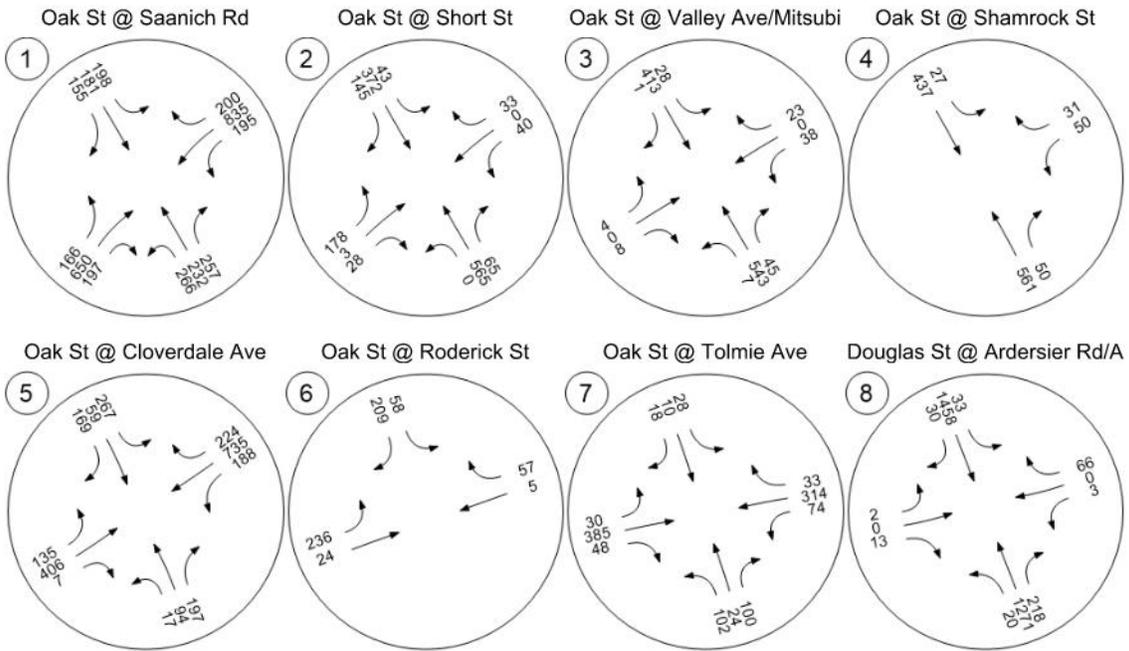
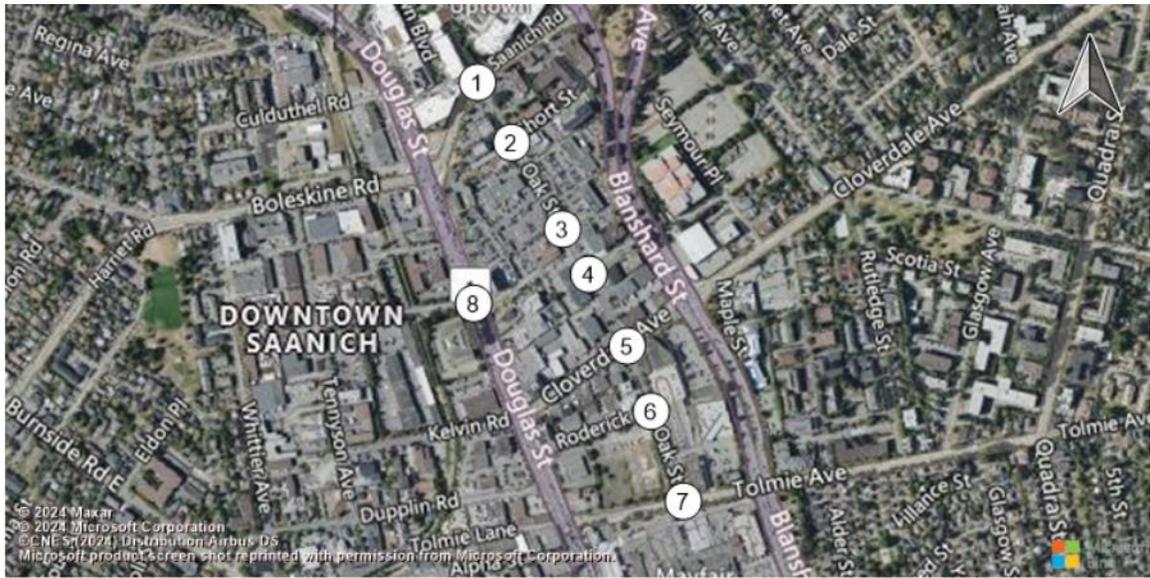
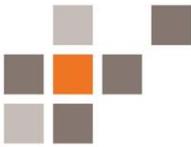
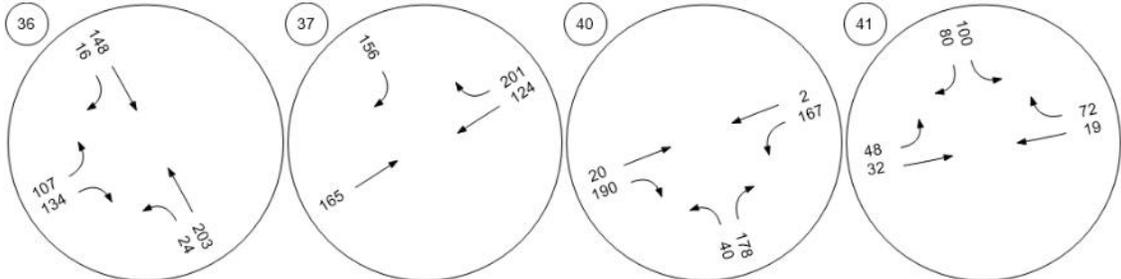


Figure 25 – Scenario C Traffic Volumes (PM)



Audley Crossing @ Audley St Audley Crossing @ Cloverdal Superstore Access @ Roderi Superstore Access @ Tolmie



Audley Crossing @ Roderick Audley Crossing @ Tolmie A Audley Crossing @ Cloverdal Audley Crossing @ Roderick

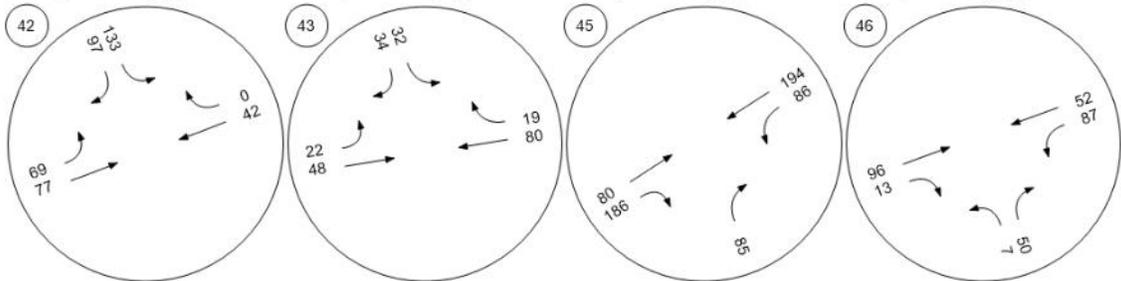


Figure 25 – Scenario C Traffic Volumes (PM) (Continued)



6.10 Analysis Summary

Of the three future scenarios explored, Scenario B (Oak Street is closed to through traffic between Valley Avenue and Shamrock Street) experiences the least amount of operational issues, and the issues encountered in the analysis can be easily mitigated with proper laning and intersection control. This is due to this scenario having the least amount of traffic diverted onto Cloverdale Avenue, which has several challenges regarding intersection spacing and capacity. This scenario also meets the District's goals of providing a public park in that general area, as the portion of Oak Street that becomes closed to through traffic can be converted into park space.

It is notable that the scope of this study does not include Douglas Street or Blanshard Street. Signal progression between Douglas, Oak, and Blanshard Streets will need to be coordinated closely with MoTI in the future to ensure that queues do not back up onto the highways.

Upon selection of the preferred option to proceed with detailed design, further analysis should be conducted to confirm intersection control type for new intersections and existing intersections that require mitigation, lane configuration, and storage lengths for turn lanes. Consideration for phasing for the closure of Oak Street (in Scenarios B and C) and the construction of Audley Crossing should also be examined as part of the final design effort.



7.0 CONCLUSIONS

As redevelopment in the Douglas-Oak Hub occurs, Oak Street is planned to be transformed into a people-centered street, and a new north-south laneway known as Audley Crossing is intended to provide support for parking access, loading access, and curbside uses. District of Saanich policy provides support for the prioritization of sustainable modes of travel over private vehicles.

A review of speed and volume data along the Oak Street corridor indicates that neither volumes nor vehicle speeds are an issue and meet the function of the corridor. A review of collision data indicates that the Oak Street / Saanich Road intersection experiences the most collisions along the corridor by an order of magnitude (131 of 161 reported collisions over a 5-year period). Eastbound and westbound collisions on Saanich Road represented the majority of collisions at this intersection, with westbound rear-end collisions representing the most common collision type. The 131 collisions include 20 collisions at the McDonald's accesses onto Saanich Road and Oak Street over a 5-year period.

The conceptual cross sections for Oak Street and Audley Crossing in the UDP do not support safe travel for cyclists, and do not support the volume of traffic anticipated to use Audley Crossing. Revised cross sections have been developed in cooperation with District of Saanich staff to support Oak Street as a street for people, and Audley Crossing as a street that will adequately support vehicular uses, while also accommodating sustainable modes of travel.

Three scenarios for Oak Street were analyzed: Oak Street remains continuous, Oak Street is closed to through traffic between Valley Avenue and Shamrock Street, and Oak Street is closed to through traffic between Roderick Street and the Staples access. Of the three scenarios, Scenario B (Oak Street is closed to through traffic between Valley Avenue and Shamrock Street) has the least amount of operational issues, and these issues can be mitigated with proper laning and intersection control.



APPENDIX A – RELEVANT POLICIES



UPTOWN-DOUGLAS PLAN

The 2022 Uptown-Douglas Plan provides a comprehensive framework for the transformation of the area. The transformation of Oak Street is identified as one of several overarching directions in the plan, supported by several key policies to support the transformation.

Douglas-Oak Hub – Vision

Section 3.4 of the UDP sets out the vision for the Douglas-Oak Hub, where Oak Street and the planned Audley Crossing are located:

Over time, the Douglas-Oak Hub will have blossomed into the heart of Saanich. A sustained period of redevelopment will result in the revitalization of the area, with new parks, attractive streetscapes and a plethora of shops, services and employment opportunities providing a high quality of urban living. Douglas Street will be reinforced as a key employment corridor, while a re-imagined Oak Street will be framed by new ground-oriented multi-unit buildings and more pedestrian-oriented commercial including retail, restaurants, cafes and entertainment.

The area will be better connected with key destinations accessible within minutes by foot or bike, including, the Uptown Shopping Centre, Mayfair Mall, the re-developed Saanich Plaza, new park spaces, the Galloping Goose Regional Trail and new high frequency transit connections. The whole precinct will be active and engaging - full of life with diverse vertical mixed-uses and bustling businesses, conveniently located near transit and the Galloping Goose Regional Trail.



Environment and Sustainability Policies

4.1.2 Target 20% canopy coverage and 30% vegetative coverage in the UD Plan area.

4.1.2 Cluster tree and shrub plantings at major intersections (or other focal points) to create a visual respite in areas of extensive pavement and provide opportunities for significant understorey planting.

4.1.5 Require adequate soil volumes in boulevard tree plantings, including through a minimum 2 metre wide planting area and through the use of engineered soil cells (See also Section 7: Significant Streets and Policy 8.2.10).

4.1.6 As part of street design, identify line assignments for trees to facilitate early planting in advance of road dedication.

4.2.4 Encourage the provision of charging facilities for electric vehicles and electric bikes beyond required levels (See also Policy 6.5.8.)

4.4.5 Maximize permeability, minimize stormwater runoff and improve stormwater quality through low impact development practices such as bioswales, engineered raingardens, green roofs and permeable pavement.

4.5.4 Create and enhance green corridors through:

- Planting additional trees within the right-of-way;
- Adding pocket parks with trees and appropriate vegetation;
- Integrating stormwater management features; and
- Reducing impervious surfaces within the right-of-way and on adjacent properties.

Oak Street is identified as a green corridor.

Land Use

The predominant land use designations in the Douglas-Oak Hub area are “Core” (predominantly along Douglas Street, Tolmie Avenue, and the current Uptown Shopping Centre, Saanich Plaza, and Gateway Village), and “Urban Mixed-Use” for the remaining area (predominantly fronting Oak Street).

The “Core” designation requires a base height of 12 storeys, with up to 18 storeys permitted. Buildings may be mixed-use or commercial. Commercial uses are required at-grade, and residential / commercial uses are permitted on upper floors.

The “Urban Mixed-Use” designation requires a base height of 8 storeys, with up to 12 storeys permitted. Buildings may be mixed-use or residential. Active commercial uses



are required at grade along Oak Street, Audley Crossing, and Cloverdale Avenue. Commercial uses are permitted within the first 4 storeys, with additional storeys along Blanshard Street. A maximum 2 metre setback is permitted to Audley Crossing.

Douglas-Oak Hub – Policies

5.7.7 Support medium to high-density mixed-use developments along Oak Street that enhance neighbourhood livability and expand the range of housing options.

5.7.8 Ensure development on Oak Street maintains a human scale including through setting back upper storeys, restricting surface parking and discouraging blank walls and larger building faces fronting the street.

5.7.11 Support changes that better integrate the Uptown Shopping Centre into the fabric of the neighbourhood through public realm improvements, wayfinding and improved connections for all modes.

5.7.13 Add a new park space along Oak Street and for Audley Crossing to serve future residents and employees, orient future development onto the new park space and ensure it is well connected and easily accessible to the surrounding neighbourhood (See also Policy 8.1.3).

Transportation and Mobility – Objectives

A. Create a connected, sustainable and balanced transportation network that encourages more walking, cycling and transit use.

B. Reduce carbon emissions by increasing active transportation and transit opportunities, ensuring access to electric vehicle charging and carshare programs, and creating a complete, compact and vibrant urban community.

C. Put pedestrians first through developing an exceptional public realm and safe, convenient and attractive connections.

D. Support infrastructure and circulation needs of businesses and balance with pedestrian, cyclist and public realm priorities.

E. Develop complete streets through redesigning street rights-of-way to prioritize space for pedestrians, cyclists and landscaping and ensuring new development addresses the public-private interface.



H. Enhance connectivity for pedestrians and cyclists through breaking up superblocks, adding crossings and encouraging permeability in the development of large sites.

Transportation and Mobility – Policies

6.1.1 Acquire connections for walking, cycling and goods movement through rezoning, subdivision or property acquisition to achieve overall network connectivity.

6.1.2 Pursue a network of pedestrian route options including roads, trails and footpaths that provide safe and accessible choices every 100 metres to break up large blocks and enhance overall connectivity.

6.1.5 Enhance pedestrian and cycling connectivity in the future to Audley Street Transit Station through creating an east-west route from Rudd Park to Calumet Avenue through a combination of new traffic signals, redesign of large sites and the introduction of pathways.

6.1.9 Introduce a new laneway (Audley Crossing) between Douglas Street and Oak Street to support network connectivity, access, goods movement and reduce conflicts on primary streets.

6.2.1 Work towards establishing sidewalks on both sides of all streets through opportunities presented at the time of redevelopment and capital works programs.

6.2.2 Implement actions identified in the Active Transportation Plan including those that expand the sidewalk network and widen existing sidewalks.

6.2.3 Generally require a boulevard space to physically separate sidewalks from the roadway in all street improvement projects and redevelopment proposals. Exceptions may be considered if no design alternatives, such as narrowing the width of travel lanes, are possible.

6.2.4 Ensure the design of sidewalks and other pedestrian facilities address needs of individuals with mobility challenges and visual or auditory impairments.

6.2.5 Consider curb extensions as potential community spaces and explore their use for parkettes, public seating, street furniture, bike parking or public art.

6.2.9 Explore the introduction of a pedestrian scramble design at high activity intersections as a way to enhance pedestrian priority.

6.3.1 Implement the Active Transportation Plan's Long-Term Bicycle Network



6.3.2 Work towards physically separating all bike facilities on major roads from vehicle traffic, including through the use of curbs, landscaped areas and bollards.

6.3.9 Continue to enhance Cloverdale Avenue as a primary cycling corridor, including through the introduction of an all ages and abilities (AAA) cycling facility that is physically separated from vehicle traffic.

6.4.5 Support the future introduction of the Audley Street Transit Station, including through securing open space to support station design, adding pedestrian connections to the street network and installing a traffic signal at the intersection of Douglas Street and Audley Street.

6.5.1 Continue to design streets consistent with road designations identified on Map 6.6 and policies included in Section 7 to ensure the safe travel for all modes and efficient movement of commercial services and goods.

6.5.2 Include on-site loading bays in building design for commercial and industrial development (see Guideline 9.5.5 and Figure 9.7b).

6.5.3 Expect loading and access points to be located at the rear of the building and off of adjacent minor streets or laneways (See Section 9).

6.5.4 Support limited on-street loading on local roads that is identified through the redevelopment process.

6.5.5 As part of large lot redevelopment, pursue opportunities to improve movement and circulation, including through adding new streets or lanes, restricting access/egress to major roads and orienting building accesses to the public realm.

6.5.6 Encourage a more holistic transportation analysis during rezoning and subdivision application review processes that:

- exceeds the standard assessment of traffic volumes and delays;
- incorporates an assessment of implications for pedestrians, cyclists and individuals with mobility challenges; and
- includes a travel plan summary (for all multi-unit residential, institutional, and commercial developments) to demonstrate strategies to minimize GHG emissions and maximize sustainable transportation modes.

6.6.1 Require parking to be located underground, or in unique circumstances, under building.



6.6.2 Notwithstanding Policy 6.6.1, permit limited surface parking, for disabled and visitor parking and industrial uses if located at the rear of buildings and landscaped and/or screened from public view (see Guidelines 9.2.5).

6.6.3 Encourage parking areas to be broken up with pedestrian connections that provide safe and legible access to building entrances and between sites.

6.6.8 Continue to explore on-street parking in commercial and residential areas to accommodate and prioritize short-term needs including through loading, time-limited, metered and residential only parking zones.

6.6.9 Support the provision of designated on-street car-share spaces in the Uptown-Douglas area.

6.6.10 Balance on-street parking needs of local residents, businesses and consumers with appropriate resources and tools (e.g. time-limited, metered and residential-only parking zones).

Significant Streets – Objectives

A. Reduce the dominance of motor vehicles and associated impacts on safety and quality of place.

B. Transform major and collector roads into complete streets that provide high quality facilities for pedestrians, cyclists and transit users.

E. Phase out highway-like features of the major roads, including slip lanes and wide travel lanes.

G. Implement a high standard of cycling facilities suitable for all ages and abilities, prioritizing adequate space and protection for cyclists.

H. Provide adequate space in boulevards for landscaping, furniture, and other elements that improve the pedestrian experience and safety.

Significant Streets – Policies

Oak Street will be designed as a central high street, integrating bikes, a pedestrian promenade and amenities with active and engaging mixed-use buildings framing the street. Livability will be the primary consideration in the design of the street and the buildings fronting it.



- 7.8.1** Implement the conceptual design identified in Figure 7.9 on Oak Street.
- 7.8.2** Design Oak Street as a featured pedestrian street with street trees and street furniture (including benches, pedestrian lighting, movable seating, and resting places).
- 7.8.3** Support developments that improve streetscape design of Oak Street that serves to enhance its role, function and appearance as a pedestrian-oriented main street.
- 7.8.4** Define a three-storey street wall along Oak Street to frame the street and reflects its smaller scale character (See Figure 7.9).
- 7.8.5** Support changes on Oak Street that increase animation and pedestrian orientation, including the addition of parks, plazas, patios and active uses.
- 7.8.6** Support the installation of parklettes along Oak Street that use parking spaces to create temporary pocket parks.
- 7.8.7** In collaboration with the business community, support temporary closures of Oak Street for festivals or other community celebrations.
- 7.8.8** Strengthen the pedestrian connections to the existing Uptown Boulevard where Oak Street and Saanich Road intersect, including through paving, wayfinding and intersection design.
- 7.8.9** Restrict access points off of Oak Street, locating access on side streets or from Audley Crossing, where possible.
- 7.8.11** Explore opportunities to plant Garry Oak trees in park spaces or feature areas along Oak Street to celebrate the Street's name and the area's natural history.

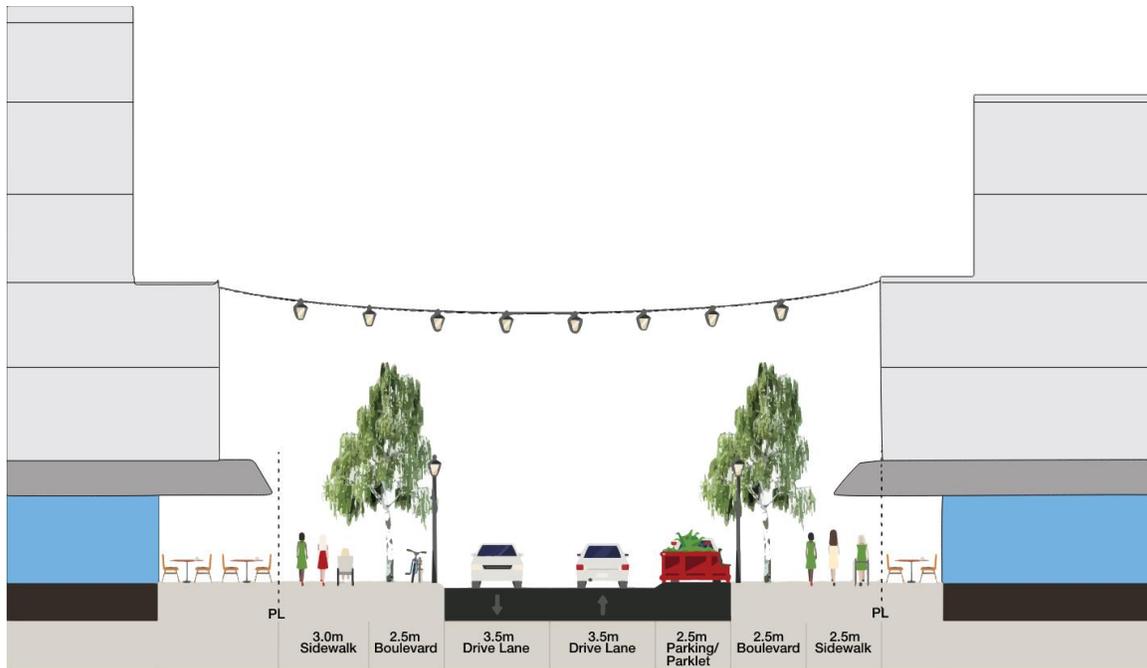


Figure 7.9: Conceptual cross section for Oak Street (20 metres)

Audley Crossing is a new laneway planned to be introduced through the development process. The lane will run between, and parallel to, Oak and Douglas Streets, commencing as an extension of Short Street and connecting all the way to Tolmie Avenue. Audley Crossing's primary intentions are to break up the large blocks and massing of surrounding developments, enable adequate on-site servicing, loading and access and provide additional opportunities for ground-oriented residential and commercial uses. The desired placement of the lane will align with and link the future community park acquisition and Audley Transit Station and provide opportunities for added connections to activated public space.

Audley Crossing will be designed as a pedestrian-oriented, activated shared street, bringing character while ensuring functionality of the space through the use of reduced speeds, distinctive and varied paving materials, landscaping, lighting and other features. The lane will contribute to making this an attractive and inviting public realm while retaining the shared purpose of service and access.

7.9.1 Create a new laneway, Audley Crossing, through the development process, generally based on the conceptual alignment identified on Figure 7.11.

7.9.2 Implement the conceptual design for Audley Crossing identified in Figure 7.10.



7.9.3 Design Audley Crossing as a shared lane with pedestrian priority, including features such as planters and living walls, street furniture and pedestrian lighting, on the buildings.

7.9.4 Define a two-storey street wall along Audley Crossing to frame the lane and reflect its pedestrian-scale character (See Figure 7.10).

7.9.5 Through the redevelopment process, work with developers to ensure optimal outcomes for Audley Crossing, including through easements, adjustments to the alignment and consideration of community contributions.

7.9.6 Encourage opportunities for integrating Audley Crossing as part of large redevelopment projects on Douglas Street and Oak Street, and support residential and commercial mixed-use developments (up to 3 storeys, stepped back at 2 storeys) that front onto the lane and serve to enhance its role, function and appearance as a shared thoroughfare.

7.9.7 Strongly encourage active commercial developments along Audley Crossing that frame the lane, provide commercial activity and pedestrian orientation and offer a spilling-out of uses into the space (e.g. cafes, patio seating).

7.9.8 Provide pedestrian, bicycle, local vehicle and loading/delivery access while creating an exceptional pedestrian-oriented lane that accommodates recreational and social activities.

7.9.9 Expect all loading access and bays to be on-site and integrated into building design (see guidelines 9.2.5 ii).

7.9.10 Consider public open space linkages (i.e. new park acquisition) and other improvements that create unique areas along Audley Crossing including pocket parks, enhanced seating areas and public art.

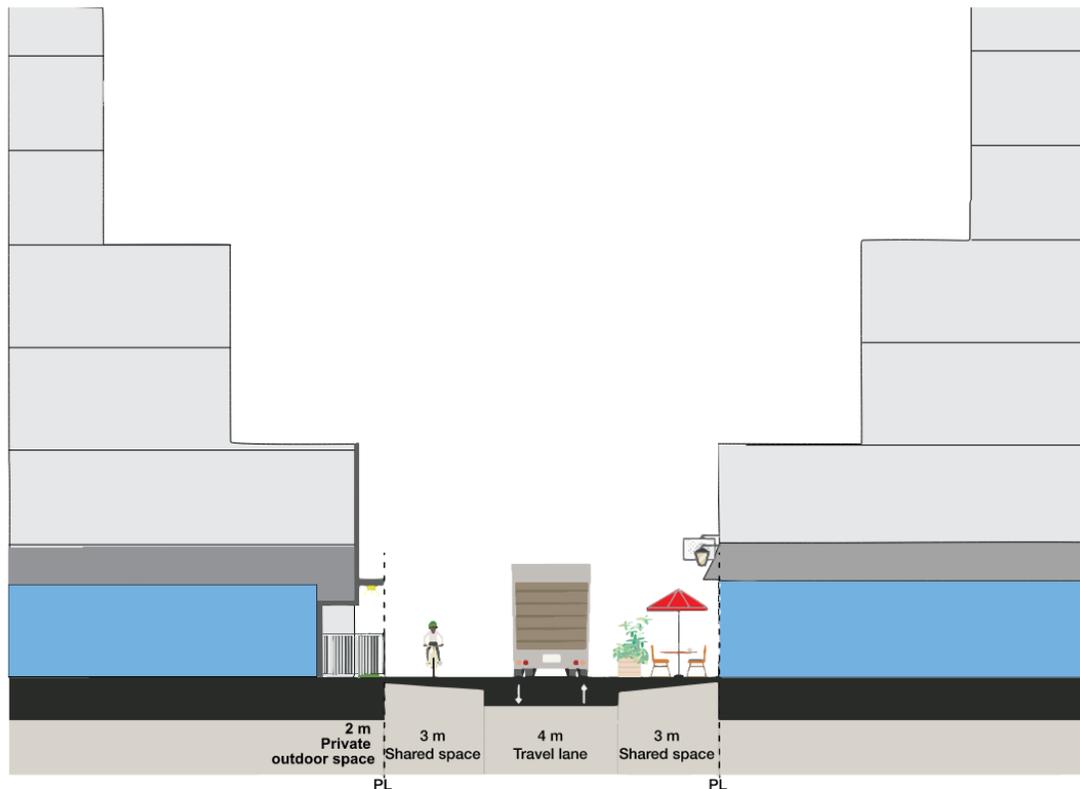


Figure 7.10: Conceptual cross section for Audley Crossing (10 metres)

Parks and Culture

8.1.3 Prioritize new community park space acquisitions to include a community park to support residential growth along Oak Street / Audley Crossing and a new major transit station at Audley Street;

8.1.6 Support the addition of pocket parks, plazas, and the general enhancement of streetscapes in all proposed development.

10.3.2 Support cultural events and programming that can animate the area.

10.3.4 Expect public art projects in key strategic locations, and continue to explore the coordination, funding and/or implementation of these pieces and projects.



ACTIVE TRANSPORTATION PLAN

Saanich's 2024 Active Transportation Plan (ATP) provides vision, goals, and targets for the improvement of the active transportation network and uptake in walking, rolling, cycling, and transit. The guiding principles behind the ATP focus on creating a network that is comfortable for all ages and abilities, complete across the entire community, and connected to key destinations.

The ATP does not provide specific recommendations for types of facilities or desirable features / widths, largely deferring to guidance available in the BC Active Transportation Design Guide.

Audley Crossing is not identified in the 2024 ATP.

Oak Street is identified as part of the long-term (2050) sidewalk network, with a sidewalk on at least one side (Oak Street already has sidewalks on both sides, however they are directly adjacent to the roadway). Oak Street is also identified as part of the long-term (2050) bicycle network, however it is not identified as part of the AAA spine network. The nearest adjacent north-south AAA-designated routes are the Galloping Goose Regional Trail (which requires crossing Douglas Street to access), and Quadra Street (which requires crossing Blanshard Street to Access, and is also currently has no dedicated cycling facilities whatsoever).

Guidance in the UDP for Oak Street and Audley Crossing requires a higher standard than the ATP as it pertains to sidewalks, however the cross section illustrated for Oak Street in the UDP does not include dedicated cycling facilities, despite being designated as a long-term bike route in the ATP.

OFFICIAL COMMUNITY PLAN

Saanich's 2024 Official Community Plan provides a framework guiding the future growth and change for the municipality as a whole. It is a comprehensive document that covers land use, transportation, infrastructure, and the natural environment, amongst other factors.

The OCP reinforces the link between land use and transportation, noting that transportation is the largest source of greenhouse gas emissions in Saanich, and that the need for extensive road infrastructure is driven by low density sprawl. Compact, walkable communities reduce the need for people to rely on the use of a personal vehicle to accomplish everyday tasks.

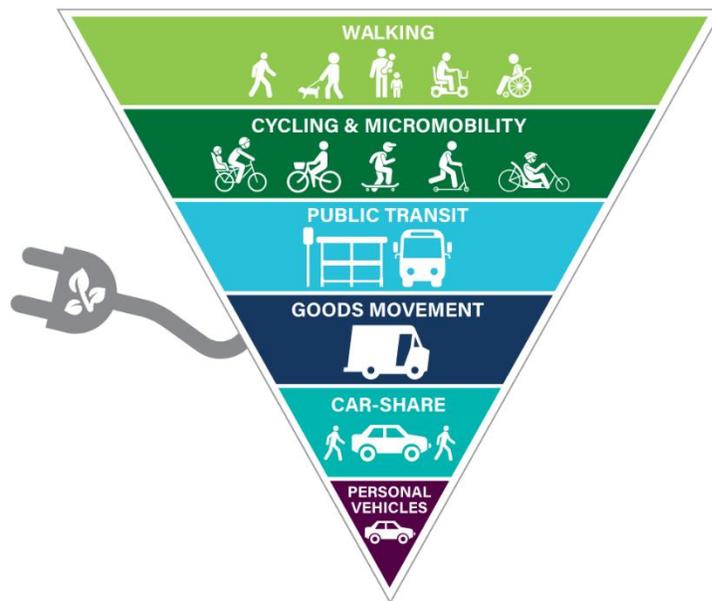


Many of the transportation objectives, policies, and actions in the OCP are mirrored by the UDP and the ATP, though there are a few key policies that further reinforce the design philosophy for road improvements:

9.1.3 Prioritize mobility modes within the transportation network based on the Mobility Priority Pyramid with walking as the highest priority followed by cycling and micro-mobility, public transit, goods movement, car-share, and personal vehicles.

9.1.7 Achieve Vision Zero and implement a safe systems approach to eliminate traffic fatalities and serious injuries.

9.1.9 Discourage drive through businesses to reduce unnecessary car idling and support more pedestrian friendly development.





ROAD SAFETY ACTION PLAN

The 2024 Saanich Road Safety Action Plan provides several key actions with the goal of eliminating motor vehicle collisions resulting in injury or death.

1. Install safe infrastructure at priority locations identified by a Network Screening
2. Build multi-modal streets that include transit priority and infrastructure for walking, rolling, and cycling
3. Pursue infrastructure solutions with demonstrated positive safety performance
6. Review speed limits to support reduced speeds
11. Improve access and safety at bus stops
12. Reduce the density of driveway accesses on Major and Collector roads
13. Improve sight lines at intersections and driveways
15. Work with partners to implement intersection safety cameras
17. Encourage increased transit ridership to reduce private vehicle use and VKT

Vision Zero and the Safe System Approach are core foundations of the RSAP, with the goal of making roads safe for everyone. The following principles are key to the Safe System Approach:

- Deaths and serious injuries on roads are unacceptable
- People make mistakes and they are inherently vulnerable
- Responsibility is shared among system designers and road users
- A systematic approach that includes overlapping measures is necessary
- Improvements to safety are proactive

Safe street design, including protected intersections, protected left turns, prohibition of right-turn on red, roundabouts, removal of right turn channels, and narrowed travel lanes are all supported by the RSAP as design treatments that should be pursued to improve safety.

The RSAP identifies Saanich Road / Oak Street as a priority intersection and Cloverdale Avenue as a priority corridor for further analysis.



URBAN FOREST STRATEGY

Urban forestry goals for the Uptown-Douglas area are provided in Section 4.1 of the UDP, however the Urban Forest Strategy provides additional context, goals, and strategies for increasing the tree canopy across the District.

The UFS has calculated a Tree Equity Score, which measures how equitably the tree canopy across Saanich is distributed based on urban heat and sociodemographic indicators. The Saanich Core is in the lowest third of the tree equity scoring areas, indicating that it has a higher population of small trees, high amounts of impervious surface, and limited soil volume.

Tree retention and planning should be prioritized in public areas with low canopy and/or low tree equity scores. Oak Street and the surrounding area are included within this scope. Tree composition should be a diverse mix of species, including native species.



APPENDIX B – INTERSECTION PERFORMANCE RESULTS – EXISTING CONDITIONS

Vistro File: V:\...\Oak St Streetscaping Model_2024-09-19.vistro

Scenario 1 AM Existing

Report File: C:\...\AM_Existing.pdf

2024-10-17

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | EB Right | 0.342 | 24.5 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | WB Left | 0.059 | 13.4 | B |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | EB Left | 0.023 | 13.5 | B |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.037 | 13.2 | B |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | SB Left | 0.408 | 10.2 | B |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | WB Left | 0.003 | 14.5 | B |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | NB Left | 0.181 | 12.9 | B |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | WB Left | 0.085 | 115.6 | F |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 24.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.342 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 105 | 79 | 48 | 45 | 13 | 14 | 110 | 556 | 171 | 160 | 642 | 153 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.10 | 2.20 | 0.00 | 0.00 | 0.90 | 5.65 | 3.00 | 0.60 | 2.80 | 0.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 14 | 0 | 0 | 4 | 0 | 0 | 68 | 0 | 0 | 138 |
| Total Hourly Volume [veh/h] | 105 | 79 | 34 | 45 | 13 | 10 | 110 | 556 | 103 | 160 | 642 | 15 |
| Peak Hour Factor | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 28 | 21 | 9 | 12 | 3 | 3 | 29 | 148 | 27 | 42 | 170 | 4 |
| Total Analysis Volume [veh/h] | 111 | 84 | 36 | 48 | 14 | 11 | 117 | 590 | 109 | 170 | 682 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 23 | | | 39 | | | 5 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 39 | | | 23 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 14 | | | 6 | | | 11 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 11 | | | 7 | | | 14 | | | 6 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 12 | 33 | 0 | 12 | 33 | 0 | 17 | 38 | 0 | 12 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 44 | 34 | 44 | 33 | 51 | 38 | 38 | 51 | 40 | 40 |
| g / C, Green / Cycle | 0.42 | 0.33 | 0.42 | 0.32 | 0.48 | 0.36 | 0.36 | 0.48 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.07 | 0.07 | 0.04 | 0.01 | 0.12 | 0.20 | 0.20 | 0.17 | 0.19 | 0.01 |
| s, saturation flow rate [veh/h] | 1490 | 1798 | 1358 | 1711 | 939 | 1815 | 1705 | 978 | 3538 | 1606 |
| c, Capacity [veh/h] | 715 | 590 | 610 | 539 | 441 | 658 | 618 | 455 | 1344 | 610 |
| d1, Uniform Delay [s] | 18.79 | 25.37 | 18.26 | 24.97 | 16.38 | 26.55 | 26.61 | 17.13 | 24.98 | 20.37 |
| k, delay calibration | 0.15 | 0.15 | 0.11 | 0.15 | 0.11 | 0.11 | 0.12 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.14 | 0.24 | 0.05 | 0.05 | 0.32 | 0.73 | 0.82 | 2.34 | 0.30 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.16 | 0.20 | 0.08 | 0.05 | 0.27 | 0.55 | 0.55 | 0.37 | 0.51 | 0.03 |
| d, Delay for Lane Group [s/veh] | 18.94 | 25.61 | 18.31 | 25.02 | 16.69 | 27.29 | 27.43 | 19.47 | 25.28 | 20.38 |
| Lane Group LOS | B | C | B | C | B | C | C | B | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.68 | 2.18 | 0.70 | 0.44 | 1.55 | 7.13 | 6.79 | 2.57 | 6.45 | 0.25 |
| 50th-Percentile Queue Length [m/ln] | 12.82 | 16.61 | 5.33 | 3.35 | 11.84 | 54.35 | 51.73 | 19.57 | 49.13 | 1.89 |
| 95th-Percentile Queue Length [veh/ln] | 3.03 | 3.92 | 1.26 | 0.79 | 2.80 | 11.51 | 11.06 | 4.62 | 10.61 | 0.45 |
| 95th-Percentile Queue Length [m/ln] | 23.08 | 29.91 | 9.59 | 6.03 | 21.31 | 87.72 | 84.29 | 35.22 | 80.87 | 3.39 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 18.94 | 25.61 | 25.61 | 18.31 | 25.02 | 25.02 | 16.69 | 27.34 | 27.43 | 19.47 | 25.28 | 20.38 |
| Movement LOS | B | C | C | B | C | C | B | C | C | B | C | C |
| d_A, Approach Delay [s/veh] | 22.40 | | | 20.61 | | | 25.83 | | | 24.05 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.46 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.342 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 12.45 | 13.46 | 4.13 | 2.15 | 12.54 | 38.47 | 36.46 | 26.24 | 105.27 | 2.47 |
| Stops [stops/h] | 57.85 | 74.97 | 24.05 | 15.12 | 53.42 | 245.22 | 233.40 | 88.29 | 443.38 | 8.51 |
| Fuel consumption [L/h] | 4.03 | 5.24 | 1.58 | 1.01 | 3.84 | 16.40 | 15.60 | 6.94 | 32.75 | 0.67 |
| CO [g/h] | 74.50 | 96.73 | 29.18 | 18.59 | 70.84 | 302.77 | 288.05 | 128.09 | 604.66 | 12.34 |
| NOx [g/h] | 14.50 | 18.82 | 5.68 | 3.62 | 13.78 | 58.91 | 56.04 | 24.92 | 117.64 | 2.40 |
| VOC [g/h] | 17.27 | 22.42 | 6.76 | 4.31 | 16.42 | 70.17 | 66.76 | 29.69 | 140.14 | 2.86 |

Other Modes

| | | | | |
|--|-------|--------|-------|--------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 87.79 | 164.55 | 25.72 | 116.63 |
| d_p, Pedestrian Delay [s] | 26.65 | 26.65 | 35.08 | 37.57 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.380 | 2.142 | 2.779 | 2.955 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 630 | 630 | 726 | 630 |
| d_b, Bicycle Delay [s] | 24.55 | 24.55 | 21.25 | 24.55 |
| I_b,int, Bicycle LOS Score for Intersection | 1.964 | 1.687 | 2.289 | 2.390 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.059 |

Intersection Setup

| Name | Oak St | | Oak St | | Short St | |
|------------------------------|------------|-------|------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 15.00 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Short St | |
|---|--------|--------|--------|--------|----------|--------|
| Base Volume Input [veh/h] | 209 | 14 | 10 | 310 | 25 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 0.00 | 0.00 | 1.60 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 209 | 14 | 10 | 310 | 25 | 14 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 56 | 4 | 3 | 82 | 7 | 4 |
| Total Analysis Volume [veh/h] | 222 | 15 | 11 | 330 | 27 | 15 |
| Pedestrian Volume [ped/h] | 2 | | 0 | | 16 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.06 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 7.77 | 0.00 | 13.40 | 10.10 |
| Movement LOS | A | A | A | A | B | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.02 | 0.02 | 0.25 | 0.25 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.14 | 0.14 | 1.92 | 1.92 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.25 | | 12.22 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 0.97 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.023 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 1 | 192 | 11 | 7 | 223 | 7 | 8 | 0 | 3 | 5 | 0 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 192 | 11 | 7 | 223 | 7 | 8 | 0 | 3 | 5 | 0 | 5 |
| Peak Hour Factor | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 58 | 3 | 2 | 68 | 2 | 2 | 0 | 1 | 2 | 0 | 2 |
| Total Analysis Volume [veh/h] | 1 | 233 | 13 | 8 | 271 | 8 | 10 | 0 | 4 | 6 | 0 | 6 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 17 | | | 13 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 7.87 | 0.00 | 0.00 | 7.78 | 0.00 | 0.00 | 13.53 | 13.81 | 10.09 | 13.36 | 13.71 | 9.75 |
| Movement LOS | A | A | A | A | A | A | B | B | B | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.09 | 0.09 | 0.09 | 0.07 | 0.07 | 0.07 |
| 95th-Percentile Queue Length [m/ln] | 0.01 | 0.01 | 0.01 | 0.10 | 0.10 | 0.10 | 0.67 | 0.67 | 0.67 | 0.50 | 0.50 | 0.50 |
| d_A, Approach Delay [s/veh] | 0.03 | | | 0.22 | | | 12.55 | | | 11.55 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 0.69 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.037 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 200 | 26 | 20 | 199 | 14 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 0.00 | 2.00 | 5.00 | 7.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 200 | 26 | 20 | 199 | 14 | 13 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 60 | 8 | 6 | 60 | 4 | 4 |
| Total Analysis Volume [veh/h] | 241 | 31 | 24 | 240 | 17 | 16 |
| Pedestrian Volume [ped/h] | 1 | | 0 | | 19 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.02 | 0.00 | 0.04 | 0.02 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 7.91 | 0.00 | 13.24 | 10.17 |
| Movement LOS | A | A | A | A | B | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.04 | 0.04 | 0.19 | 0.19 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.31 | 0.31 | 1.41 | 1.41 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.72 | | 11.75 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 1.02 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 10.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.408 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 31.00 | 30.48 | 30.48 | 65.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 22 | 130 | 27 | 99 | 102 | 67 | 19 | 227 | 24 | 92 | 415 | 130 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 3.70 | 2.00 | 1.00 | 4.50 | 0.00 | 4.40 | 8.30 | 3.30 | 4.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 5 | 0 | 0 | 26 |
| Total Hourly Volume [veh/h] | 22 | 130 | 19 | 99 | 102 | 47 | 19 | 227 | 19 | 92 | 415 | 104 |
| Peak Hour Factor | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 35 | 5 | 27 | 27 | 13 | 5 | 61 | 5 | 25 | 111 | 28 |
| Total Analysis Volume [veh/h] | 24 | 140 | 20 | 106 | 110 | 50 | 20 | 244 | 20 | 99 | 446 | 112 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 11 | | | 7 | | | 2 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 4 | | | 2 | | | 7 | | | 11 | | |
| v_co, Outbound Pedestrian Volume crossing | 6 | | | 13 | | | 8 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 8 | | | 12 | | | 6 | | | 13 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|------|------|
| C, Calculated Cycle Length [s] | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 13 | 13 | 13 | 13 | 20 | 20 | 20 | 20 | 20 |
| g / C, Green / Cycle | 0.29 | 0.29 | 0.29 | 0.29 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.09 | 0.09 | 0.09 | 0.02 | 0.07 | 0.07 | 0.09 | 0.32 |
| s, saturation flow rate [veh/h] | 1146 | 1855 | 1214 | 1777 | 857 | 1834 | 1781 | 1093 | 1757 |
| c, Capacity [veh/h] | 367 | 542 | 383 | 520 | 327 | 867 | 843 | 592 | 831 |
| d1, Uniform Delay [s] | 14.88 | 11.68 | 15.84 | 11.73 | 14.51 | 6.38 | 6.39 | 8.81 | 8.67 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.07 | 0.30 | 0.39 | 0.33 | 0.08 | 0.08 | 0.09 | 0.13 | 0.95 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|------|------|------|-------|
| X, volume / capacity | 0.07 | 0.29 | 0.28 | 0.31 | 0.06 | 0.15 | 0.16 | 0.17 | 0.67 |
| d, Delay for Lane Group [s/veh] | 14.96 | 11.98 | 16.23 | 12.06 | 14.58 | 6.46 | 6.48 | 8.95 | 9.62 |
| Lane Group LOS | B | B | B | B | B | A | A | A | A |
| Critical Lane Group | No | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.18 | 1.01 | 0.84 | 1.01 | 0.15 | 0.50 | 0.50 | 0.50 | 2.98 |
| 50th-Percentile Queue Length [m/ln] | 1.35 | 7.67 | 6.39 | 7.72 | 1.11 | 3.83 | 3.79 | 3.81 | 22.70 |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 1.81 | 1.51 | 1.82 | 0.26 | 0.91 | 0.90 | 0.90 | 5.36 |
| 95th-Percentile Queue Length [m/ln] | 2.42 | 13.81 | 11.50 | 13.90 | 2.00 | 6.90 | 6.83 | 6.86 | 40.87 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| d_M, Delay for Movement [s/veh] | 14.96 | 11.98 | 11.98 | 16.23 | 12.06 | 12.06 | 14.58 | 6.47 | 6.48 | 8.95 | 9.62 | 9.62 |
| Movement LOS | B | B | B | B | B | B | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 12.37 | | | 13.72 | | | 7.04 | | | 9.52 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 10.20 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.408 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 2.70 | 18.03 | 13.99 | 21.12 | 1.47 | 9.78 | 9.65 | 7.41 | 41.78 |
| Stops [stops/h] | 14.91 | 84.90 | 70.72 | 85.48 | 12.32 | 42.43 | 41.98 | 42.19 | 251.25 |
| Fuel consumption [L/h] | 0.85 | 5.00 | 4.16 | 5.32 | 0.62 | 2.50 | 2.47 | 2.28 | 13.44 |
| CO [g/h] | 15.70 | 92.30 | 76.81 | 98.24 | 11.54 | 46.09 | 45.54 | 42.15 | 248.13 |
| NOx [g/h] | 3.05 | 17.96 | 14.94 | 19.11 | 2.24 | 8.97 | 8.86 | 8.20 | 48.28 |
| VOC [g/h] | 3.64 | 21.39 | 17.80 | 22.77 | 2.67 | 10.68 | 10.55 | 9.77 | 57.51 |

Other Modes

| | | | | |
|--|--------|--------|--------|--------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 197.74 | 105.44 | 366.13 | 208.04 |
| d_p, Pedestrian Delay [s] | 8.98 | 8.98 | 8.34 | 8.34 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.176 | 2.132 | 2.317 | 2.520 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1031 | 1031 | 1171 | 1171 |
| d_b, Bicycle Delay [s] | 5.01 | 5.01 | 3.67 | 3.67 |
| I_b,int, Bicycle LOS Score for Intersection | 1.876 | 2.032 | 1.798 | 2.687 |
| Bicycle LOS | A | B | A | B |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.003 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 51.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 27 | 102 | 2 | 11 | 92 | 66 | 45 | 5 | 60 | 1 | 1 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 1.00 | 0.00 | 0.00 | 1.00 | 3.00 | 0.00 | 0.00 | 3.00 | 100.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 27 | 102 | 2 | 11 | 92 | 66 | 45 | 5 | 60 | 1 | 1 | 4 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 7 | 28 | 1 | 3 | 25 | 18 | 12 | 1 | 16 | 0 | 0 | 1 |
| Total Analysis Volume [veh/h] | 30 | 112 | 2 | 12 | 101 | 73 | 49 | 5 | 66 | 1 | 1 | 4 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 1 | | | 15 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.01 | 0.07 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.65 | 0.00 | 0.00 | 7.51 | 0.00 | 0.00 | 11.99 | 12.50 | 9.94 | 14.54 | 11.89 | 8.99 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.07 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.58 | 0.58 | 0.58 | 0.03 | 0.03 | 0.03 |
| 95th-Percentile Queue Length [m/ln] | 0.50 | 0.00 | 0.00 | 0.19 | 0.00 | 0.00 | 4.45 | 4.45 | 4.45 | 0.21 | 0.21 | 0.21 |
| d_A, Approach Delay [s/veh] | 1.59 | | | 0.48 | | | 10.88 | | | 10.40 | | |
| Approach LOS | A | | | A | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 3.70 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 12.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.181 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 102.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 3 | 4 | 7 | 54 | 6 | 71 | 60 | 107 | 12 | 9 | 159 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 | 3.00 | 5.00 | 2.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 14 | 0 | 0 | 2 | 0 | 0 | 13 |
| Total Hourly Volume [veh/h] | 3 | 4 | 6 | 54 | 6 | 57 | 60 | 107 | 10 | 9 | 159 | 51 |
| Peak Hour Factor | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 1 | 1 | 2 | 14 | 2 | 15 | 16 | 28 | 3 | 2 | 41 | 13 |
| Total Analysis Volume [veh/h] | 3 | 4 | 6 | 56 | 6 | 59 | 62 | 111 | 10 | 9 | 165 | 53 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 2 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 2 | | | 0 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 5 | | | 3 | | | 4 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 4 | | | 7 | | | 5 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Isolated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 13 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Pattern 1

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 30 | 0 | 0 | 30 | 0 | 0 | 60 | 0 | 0 | 60 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|------|
| C, Calculated Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 25 | 25 | 55 | 55 | 55 | 55 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.28 | 0.28 | 0.61 | 0.61 | 0.61 | 0.61 |
| (v / s)_i Volume / Saturation Flow Rate | 0.00 | 0.01 | 0.05 | 0.04 | 0.06 | 0.07 | 0.01 | 0.14 |
| s, saturation flow rate [veh/h] | 1219 | 1539 | 1236 | 1469 | 1016 | 1658 | 1155 | 1610 |
| c, Capacity [veh/h] | 351 | 428 | 390 | 408 | 616 | 1013 | 725 | 984 |
| d1, Uniform Delay [s] | 27.30 | 23.63 | 26.46 | 24.56 | 10.68 | 7.34 | 8.85 | 7.87 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.04 | 0.10 | 0.77 | 0.83 | 0.33 | 0.24 | 0.03 | 0.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|------|-------|
| X, volume / capacity | 0.01 | 0.02 | 0.14 | 0.16 | 0.10 | 0.12 | 0.01 | 0.22 |
| d, Delay for Lane Group [s/veh] | 27.34 | 23.73 | 27.23 | 25.39 | 11.00 | 7.58 | 8.88 | 8.39 |
| Lane Group LOS | C | C | C | C | B | A | A | A |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.05 | 0.16 | 1.01 | 1.13 | 0.64 | 0.96 | 0.08 | 1.87 |
| 50th-Percentile Queue Length [m/ln] | 0.41 | 1.25 | 7.72 | 8.58 | 4.91 | 7.32 | 0.61 | 14.22 |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.30 | 1.82 | 2.03 | 1.16 | 1.73 | 0.14 | 3.36 |
| 95th-Percentile Queue Length [m/ln] | 0.74 | 2.26 | 13.90 | 15.45 | 8.84 | 13.17 | 1.10 | 25.60 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| d_M, Delay for Movement [s/veh] | 27.34 | 23.73 | 23.73 | 27.23 | 25.39 | 25.39 | 11.00 | 7.58 | 7.58 | 8.88 | 8.39 | 8.39 |
| Movement LOS | C | C | C | C | C | C | B | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 24.56 | | | 26.24 | | | 8.74 | | | 8.41 | | |
| Approach LOS | C | | | C | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 12.87 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.181 | | | | | | | | | | | |

Emissions

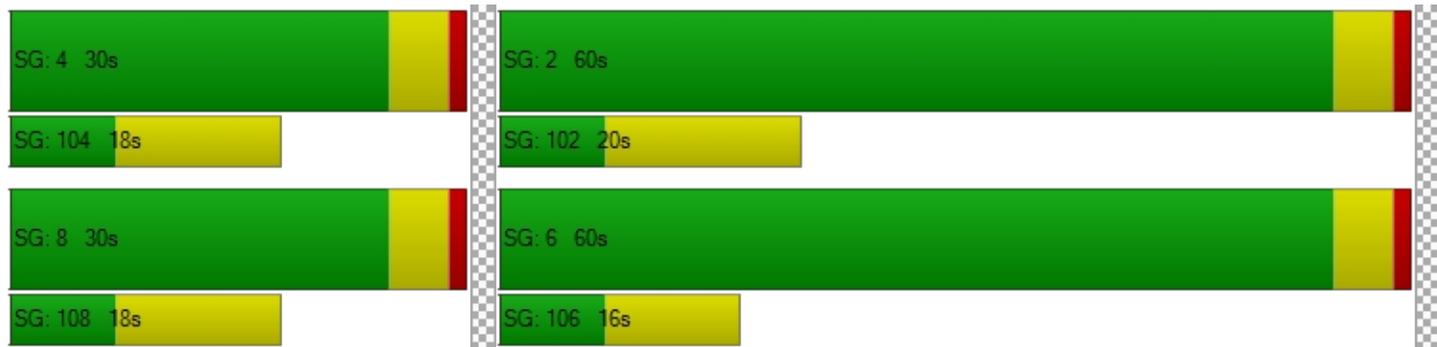
| | | | | | | | | |
|------------------------------------|------|------|-------|-------|-------|-------|------|-------|
| Vehicle Kilometers Traveled [km/h] | 0.10 | 0.32 | 8.66 | 10.06 | 4.30 | 8.39 | 0.65 | 15.81 |
| Stops [stops/h] | 2.16 | 6.59 | 40.52 | 45.05 | 25.78 | 38.41 | 3.21 | 74.65 |
| Fuel consumption [L/h] | 0.12 | 0.35 | 2.86 | 3.19 | 1.48 | 2.32 | 0.19 | 4.50 |
| CO [g/h] | 2.18 | 6.50 | 52.83 | 58.86 | 27.35 | 42.89 | 3.54 | 83.13 |
| NOx [g/h] | 0.42 | 1.26 | 10.28 | 11.45 | 5.32 | 8.35 | 0.69 | 16.17 |
| VOC [g/h] | 0.50 | 1.51 | 12.24 | 13.64 | 6.34 | 9.94 | 0.82 | 19.27 |

Other Modes

| | | | | |
|--|--------|-------|--------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 106.83 | 73.20 | 448.30 | 221.42 |
| d_p, Pedestrian Delay [s] | 34.67 | 34.67 | 34.67 | 34.67 |
| I_p,int, Pedestrian LOS Score for Intersectio | 1.967 | 2.135 | 2.085 | 2.172 |
| Crosswalk LOS | A | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 556 | 556 | 1222 | 1222 |
| d_b, Bicycle Delay [s] | 23.47 | 23.47 | 6.81 | 6.81 |
| I_b,int, Bicycle LOS Score for Intersection | 1.583 | 1.782 | 1.865 | 1.956 |
| Bicycle LOS | A | A | A | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 115.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.085 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 29 | 944 | 12 | 8 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 8.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 29 | 944 | 12 | 8 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 13 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 246 | 3 | 2 | 413 | 10 | 0 | 0 | 5 | 1 | 0 | 3 |
| Total Analysis Volume [veh/h] | 30 | 983 | 13 | 8 | 1650 | 42 | 0 | 0 | 21 | 3 | 0 | 14 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 18 | | | 17 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|-------|------|------|--------|--------|-------|----------|--------|-------|
| V/C, Movement V/C Ratio | 0.08 | 0.01 | 0.00 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 15.59 | 0.00 | 0.00 | 10.35 | 0.00 | 0.00 | 178.45 | 211.92 | 19.06 | 115.57 | 220.22 | 12.62 |
| Movement LOS | C | A | A | B | A | A | F | F | C | F | F | B |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.26 | 0.09 | 0.09 |
| 95th-Percentile Queue Length [m/ln] | 2.01 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 | 0.00 | 1.86 | 1.86 | 1.98 | 0.68 | 0.68 |
| d_A, Approach Delay [s/veh] | 0.46 | | | 0.05 | | | 19.06 | | | 30.79 | | |
| Approach LOS | A | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 0.53 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Vistro File: V:\...\Oak St Streetscaping Model_2024-09-19.vistro

Scenario 2 PM Existing

Report File: C:\...\PM_Existing.pdf

2024-10-17

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|----------|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | WB Thru | 0.521 | 27.9 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | WB Left | 0.048 | 18.2 | C |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | EB Left | 0.020 | 19.5 | C |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.067 | 17.5 | C |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | EB Left | 0.484 | 12.6 | B |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | EB Left | 0.272 | 25.3 | D |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | SB Left | 0.286 | 17.7 | B |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | EB Left | 0.126 | 263.0 | F |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 27.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.521 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 199 | 173 | 110 | 198 | 103 | 155 | 166 | 650 | 99 | 110 | 835 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 1.80 | 0.00 | 0.00 | 0.60 | 0.00 | 2.40 | 1.00 | 1.80 | 1.70 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 33 | 0 | 0 | 47 | 0 | 0 | 40 | 0 | 0 | 180 |
| Total Hourly Volume [veh/h] | 199 | 173 | 77 | 198 | 103 | 108 | 166 | 650 | 59 | 110 | 835 | 20 |
| Peak Hour Factor | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 | 0.9750 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 51 | 44 | 20 | 51 | 26 | 28 | 43 | 167 | 15 | 28 | 214 | 5 |
| Total Analysis Volume [veh/h] | 204 | 177 | 79 | 203 | 106 | 111 | 170 | 667 | 61 | 113 | 856 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 21 | | | 68 | | | 51 | | | 31 | | |
| v_di, Inbound Pedestrian Volume crossing m | 31 | | | 51 | | | 68 | | | 21 | | |
| v_co, Outbound Pedestrian Volume crossing | 28 | | | 60 | | | 28 | | | 43 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 28 | | | 43 | | | 28 | | | 60 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | Free Running |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 12 | 33 | 0 | 12 | 33 | 0 | 17 | 38 | 0 | 12 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 48 | 33 | 48 | 33 | 49 | 38 | 38 | 49 | 36 | 36 |
| g / C, Green / Cycle | 0.45 | 0.31 | 0.45 | 0.31 | 0.46 | 0.36 | 0.36 | 0.46 | 0.33 | 0.33 |
| (v / s)_i Volume / Saturation Flow Rate | 0.15 | 0.14 | 0.15 | 0.13 | 0.19 | 0.20 | 0.20 | 0.12 | 0.24 | 0.01 |
| s, saturation flow rate [veh/h] | 1350 | 1770 | 1318 | 1626 | 913 | 1864 | 1792 | 920 | 3569 | 1615 |
| c, Capacity [veh/h] | 579 | 549 | 557 | 503 | 382 | 664 | 639 | 404 | 1190 | 538 |
| d1, Uniform Delay [s] | 19.07 | 29.64 | 19.22 | 29.35 | 20.61 | 27.55 | 27.62 | 18.37 | 31.18 | 24.01 |
| k, delay calibration | 0.15 | 0.15 | 0.50 | 0.15 | 0.11 | 0.12 | 0.12 | 0.39 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 0.88 | 1.84 | 0.83 | 0.81 | 0.81 | 0.89 | 1.35 | 0.83 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| X, volume / capacity | 0.35 | 0.47 | 0.36 | 0.43 | 0.44 | 0.56 | 0.56 | 0.28 | 0.72 | 0.04 |
| d, Delay for Lane Group [s/veh] | 19.59 | 30.52 | 21.06 | 30.18 | 21.42 | 28.37 | 28.51 | 19.73 | 32.01 | 24.04 |
| Lane Group LOS | B | C | C | C | C | C | C | B | C | C |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 3.18 | 5.38 | 3.36 | 4.51 | 2.55 | 7.59 | 7.40 | 1.74 | 9.61 | 0.36 |
| 50th-Percentile Queue Length [m/ln] | 24.22 | 40.96 | 25.62 | 34.37 | 19.45 | 57.85 | 56.40 | 13.24 | 73.25 | 2.76 |
| 95th-Percentile Queue Length [veh/ln] | 5.72 | 9.18 | 6.05 | 7.99 | 4.59 | 12.11 | 11.86 | 3.13 | 14.70 | 0.65 |
| 95th-Percentile Queue Length [m/ln] | 43.60 | 69.94 | 46.12 | 60.91 | 35.01 | 92.28 | 90.40 | 23.84 | 112.00 | 4.97 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 19.59 | 30.52 | 30.52 | 21.06 | 30.18 | 30.18 | 21.42 | 28.43 | 28.51 | 19.73 | 32.01 | 24.04 |
| Movement LOS | B | C | C | C | C | C | C | C | C | B | C | C |
| d_A, Approach Delay [s/veh] | 25.67 | | | 25.77 | | | 27.11 | | | 30.44 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 27.86 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.521 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 22.88 | 28.71 | 17.49 | 18.69 | 25.15 | 54.64 | 53.06 | 19.89 | 150.70 | 3.70 |
| Stops [stops/h] | 107.40 | 181.65 | 113.62 | 152.39 | 86.24 | 256.51 | 250.10 | 58.72 | 649.61 | 12.25 |
| Fuel consumption [L/h] | 7.54 | 12.60 | 7.36 | 10.04 | 7.04 | 18.73 | 18.25 | 4.87 | 49.29 | 1.00 |
| CO [g/h] | 139.23 | 232.63 | 135.95 | 185.43 | 130.07 | 345.80 | 336.92 | 89.95 | 910.08 | 18.52 |
| NOx [g/h] | 27.09 | 45.26 | 26.45 | 36.08 | 25.31 | 67.28 | 65.55 | 17.50 | 177.07 | 3.60 |
| VOC [g/h] | 32.27 | 53.91 | 31.51 | 42.97 | 30.15 | 80.14 | 78.08 | 20.85 | 210.92 | 4.29 |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 40.28 | 19.59 | 11.78 | 21.50 |
| d_p, Pedestrian Delay [s] | 27.50 | 27.50 | 35.97 | 38.47 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.427 | 2.412 | 2.873 | 3.110 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 619 | 619 | 713 | 619 |
| d_b, Bicycle Delay [s] | 25.38 | 25.38 | 22.05 | 25.38 |
| I_b,int, Bicycle LOS Score for Intersection | 2.373 | 2.330 | 2.333 | 2.525 |
| Bicycle LOS | B | B | B | B |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 18.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.048 |

Intersection Setup

| Name | Oak St | | Oak St | | Short St | |
|------------------------------|------------|-------|------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 1 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 15.00 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | No | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Short St | |
|---|--------|--------|--------|--------|----------|--------|
| Base Volume Input [veh/h] | 488 | 28 | 25 | 274 | 13 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.40 | 3.60 | 0.00 | 0.40 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 488 | 28 | 25 | 274 | 13 | 15 |
| Peak Hour Factor | 0.9170 | 0.9170 | 0.9170 | 0.9170 | 0.9170 | 0.9170 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 133 | 8 | 7 | 75 | 4 | 4 |
| Total Analysis Volume [veh/h] | 532 | 31 | 27 | 299 | 14 | 16 |
| Pedestrian Volume [ped/h] | 1 | | 0 | | 23 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.03 | 0.00 | 0.05 | 0.03 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.72 | 0.00 | 18.18 | 12.68 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.05 | 0.05 | 0.25 | 0.25 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.35 | 0.35 | 1.94 | 1.94 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.72 | | 15.25 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.75 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.020 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 7 | 430 | 8 | 7 | 278 | 1 | 4 | 0 | 8 | 7 | 0 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 430 | 8 | 7 | 278 | 1 | 4 | 0 | 8 | 7 | 0 | 9 |
| Peak Hour Factor | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 | 0.8880 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 121 | 2 | 2 | 78 | 0 | 1 | 0 | 2 | 2 | 0 | 3 |
| Total Analysis Volume [veh/h] | 8 | 484 | 9 | 8 | 313 | 1 | 5 | 0 | 9 | 8 | 0 | 10 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 36 | | | 22 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.03 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 8.06 | 0.00 | 0.00 | 8.47 | 0.00 | 0.00 | 19.52 | 19.08 | 10.65 | 19.22 | 19.20 | 11.98 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.10 | 0.10 | 0.10 | 0.15 | 0.15 | 0.15 |
| 95th-Percentile Queue Length [m/ln] | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.78 | 0.78 | 0.78 | 1.16 | 1.16 | 1.16 |
| d_A, Approach Delay [s/veh] | 0.13 | | | 0.21 | | | 13.82 | | | 15.20 | | |
| Approach LOS | A | | | A | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 0.70 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 17.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.067 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 425 | 13 | 6 | 292 | 19 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 425 | 13 | 6 | 292 | 19 | 17 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 119 | 4 | 2 | 82 | 5 | 5 |
| Total Analysis Volume [veh/h] | 478 | 15 | 7 | 328 | 21 | 19 |
| Pedestrian Volume [ped/h] | 2 | | 0 | | 34 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.07 | 0.04 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.55 | 0.00 | 17.52 | 12.68 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.01 | 0.01 | 0.34 | 0.34 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.09 | 0.09 | 2.58 | 2.58 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.18 | | 15.22 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 0.77 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 12.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.484 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 31.00 | 30.48 | 30.48 | 65.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 35 | 287 | 81 | 107 | 129 | 80 | 47 | 308 | 27 | 105 | 379 | 133 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.70 | 3.60 | 3.80 | 0.80 | 0.00 | 0.00 | 2.60 | 0.00 | 1.00 | 3.10 | 0.80 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 5 | 0 | 0 | 27 |
| Total Hourly Volume [veh/h] | 35 | 287 | 57 | 107 | 129 | 56 | 47 | 308 | 22 | 105 | 379 | 106 |
| Peak Hour Factor | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 | 0.9520 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 75 | 15 | 28 | 34 | 15 | 12 | 81 | 6 | 28 | 100 | 28 |
| Total Analysis Volume [veh/h] | 37 | 301 | 60 | 112 | 136 | 59 | 49 | 324 | 23 | 110 | 398 | 111 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 15 | | 7 | | | 5 | | | 12 | | | |
| v_di, Inbound Pedestrian Volume crossing m | 12 | | 5 | | | 7 | | | 15 | | | |
| v_co, Outbound Pedestrian Volume crossing | 9 | | 7 | | | 16 | | | 12 | | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 16 | | 12 | | | 9 | | | 7 | | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | | 0 | | | 0 | | | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | | 0 | | | 0 | | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 22 | 0 | 0 | 22 | 0 | 0 | 25 | 0 | 0 | 25 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 19 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 20 |
| g / C, Green / Cycle | 0.39 | 0.39 | 0.39 | 0.39 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.20 | 0.11 | 0.11 | 0.05 | 0.09 | 0.10 | 0.11 | 0.29 |
| s, saturation flow rate [veh/h] | 1195 | 1828 | 996 | 1783 | 898 | 1861 | 1809 | 1025 | 1774 |
| c, Capacity [veh/h] | 474 | 710 | 344 | 693 | 265 | 765 | 744 | 463 | 729 |
| d1, Uniform Delay [s] | 13.48 | 11.62 | 17.98 | 10.47 | 19.77 | 9.55 | 9.56 | 13.25 | 12.13 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.07 | 0.56 | 0.55 | 0.22 | 0.33 | 0.15 | 0.16 | 0.26 | 1.32 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.08 | 0.51 | 0.33 | 0.28 | 0.19 | 0.23 | 0.23 | 0.24 | 0.70 |
| d, Delay for Lane Group [s/veh] | 13.55 | 12.18 | 18.53 | 10.69 | 20.11 | 9.70 | 9.72 | 13.51 | 13.45 |
| Lane Group LOS | B | B | B | B | C | A | A | B | B |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.28 | 2.62 | 1.08 | 1.26 | 0.50 | 1.05 | 1.03 | 0.85 | 4.02 |
| 50th-Percentile Queue Length [m/ln] | 2.14 | 19.93 | 8.26 | 9.61 | 3.78 | 7.98 | 7.87 | 6.49 | 30.64 |
| 95th-Percentile Queue Length [veh/ln] | 0.51 | 4.71 | 1.95 | 2.27 | 0.89 | 1.88 | 1.86 | 1.53 | 7.24 |
| 95th-Percentile Queue Length [m/ln] | 3.86 | 35.88 | 14.87 | 17.30 | 6.80 | 14.36 | 14.17 | 11.68 | 55.15 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 13.55 | 12.18 | 12.18 | 18.53 | 10.69 | 10.69 | 20.11 | 9.71 | 9.72 | 13.51 | 13.45 | 13.45 |
| Movement LOS | B | B | B | B | B | B | C | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 12.31 | | | 13.55 | | | 10.99 | | | 13.46 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 12.64 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.484 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|-------|--------|-------|-------|-------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 4.17 | 40.68 | 14.79 | 25.74 | 6.18 | 22.04 | 21.70 | 10.61 | 49.08 |
| Stops [stops/h] | 20.35 | 189.30 | 78.47 | 91.28 | 35.89 | 75.76 | 74.79 | 61.64 | 290.99 |
| Fuel consumption [L/h] | 1.22 | 11.29 | 4.67 | 6.01 | 2.11 | 5.02 | 4.95 | 3.46 | 16.11 |
| CO [g/h] | 22.44 | 208.41 | 86.26 | 110.93 | 38.92 | 92.78 | 91.49 | 63.91 | 297.50 |
| NOx [g/h] | 4.37 | 40.55 | 16.78 | 21.58 | 7.57 | 18.05 | 17.80 | 12.43 | 57.88 |
| VOC [g/h] | 5.20 | 48.30 | 19.99 | 25.71 | 9.02 | 21.50 | 21.20 | 14.81 | 68.95 |

Other Modes

| | | | | |
|--|-------|--------|--------|-------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 92.70 | 114.15 | 232.10 | 95.58 |
| d_p, Pedestrian Delay [s] | 12.13 | 12.13 | 11.44 | 11.44 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.314 | 2.268 | 2.370 | 2.568 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 885 | 885 | 1005 | 1005 |
| d_b, Bicycle Delay [s] | 7.74 | 7.74 | 6.15 | 6.15 |
| I_b,int, Bicycle LOS Score for Intersection | 2.256 | 2.106 | 1.890 | 2.626 |
| Bicycle LOS | B | B | A | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 25.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.272 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 51.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 18 | 365 | 17 | 38 | 213 | 42 | 58 | 4 | 37 | 6 | 3 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 18 | 365 | 17 | 38 | 213 | 42 | 58 | 4 | 37 | 6 | 3 | 29 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 105 | 5 | 11 | 61 | 12 | 17 | 1 | 11 | 2 | 1 | 8 |
| Total Analysis Volume [veh/h] | 21 | 420 | 20 | 44 | 245 | 48 | 67 | 5 | 43 | 7 | 3 | 33 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 8 | | | 12 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.27 | 0.02 | 0.06 | 0.03 | 0.01 | 0.05 |
| d_M, Delay for Movement [s/veh] | 7.90 | 0.00 | 0.00 | 8.39 | 0.00 | 0.00 | 25.29 | 23.79 | 15.40 | 20.88 | 19.19 | 11.70 |
| Movement LOS | A | A | A | A | A | A | D | C | C | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 1.51 | 1.51 | 1.51 | 0.31 | 0.31 | 0.31 |
| 95th-Percentile Queue Length [m/ln] | 0.39 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 | 11.51 | 11.51 | 11.51 | 2.37 | 2.37 | 2.37 |
| d_A, Approach Delay [s/veh] | 0.36 | | | 1.10 | | | 21.53 | | | 13.71 | | |
| Approach LOS | A | | | A | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 3.77 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 17.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.286 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 102.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 33 | 93 | 65 | 110 | 39 | 72 | 118 | 192 | 20 | 74 | 158 | 131 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 13 | 0 | 0 | 14 | 0 | 0 | 4 | 0 | 0 | 26 |
| Total Hourly Volume [veh/h] | 33 | 93 | 52 | 110 | 39 | 58 | 118 | 192 | 16 | 74 | 158 | 105 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 25 | 14 | 29 | 10 | 15 | 31 | 51 | 4 | 20 | 42 | 28 |
| Total Analysis Volume [veh/h] | 35 | 99 | 55 | 117 | 41 | 62 | 126 | 204 | 17 | 79 | 168 | 112 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 5 | | | 0 | | | 0 | | | 7 | | |
| v_di, Inbound Pedestrian Volume crossing m | 7 | | | 0 | | | 0 | | | 5 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 9 | | | 3 | | | 6 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 6 | | | 2 | | | 9 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Pattern 1 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 | 0 | 9 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 13 | 0 | 0 | 9 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Pattern 1

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 37 | 0 | 0 | 37 | 0 | 0 | 53 | 0 | 0 | 53 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 32 | 32 | 32 | 32 | 48 | 48 | 48 | 48 |
| g / C, Green / Cycle | 0.36 | 0.36 | 0.36 | 0.36 | 0.53 | 0.53 | 0.53 | 0.53 |
| (v / s)_i Volume / Saturation Flow Rate | 0.03 | 0.10 | 0.10 | 0.07 | 0.13 | 0.13 | 0.07 | 0.18 |
| s, saturation flow rate [veh/h] | 1181 | 1598 | 1115 | 1546 | 989 | 1673 | 1057 | 1550 |
| c, Capacity [veh/h] | 419 | 568 | 375 | 550 | 484 | 892 | 545 | 826 |
| d1, Uniform Delay [s] | 23.55 | 20.68 | 27.19 | 20.02 | 18.06 | 11.29 | 15.25 | 11.96 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.39 | 1.17 | 2.16 | 0.75 | 1.31 | 0.66 | 0.56 | 1.11 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.08 | 0.27 | 0.31 | 0.19 | 0.26 | 0.25 | 0.14 | 0.34 |
| d, Delay for Lane Group [s/veh] | 23.94 | 21.86 | 29.35 | 20.78 | 19.37 | 11.95 | 15.81 | 13.07 |
| Lane Group LOS | C | C | C | C | B | B | B | B |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.58 | 2.44 | 2.25 | 1.57 | 1.90 | 2.40 | 1.03 | 3.26 |
| 50th-Percentile Queue Length [m/ln] | 4.45 | 18.59 | 17.16 | 12.00 | 14.44 | 18.29 | 7.87 | 24.82 |
| 95th-Percentile Queue Length [veh/ln] | 1.05 | 4.39 | 4.05 | 2.83 | 3.41 | 4.32 | 1.86 | 5.86 |
| 95th-Percentile Queue Length [m/ln] | 8.01 | 33.46 | 30.88 | 21.60 | 26.00 | 32.93 | 14.17 | 44.67 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 23.94 | 21.86 | 21.86 | 29.35 | 20.78 | 20.78 | 19.37 | 11.95 | 11.95 | 15.81 | 13.07 | 13.07 |
| Movement LOS | C | C | C | C | C | C | B | B | B | B | B | B |
| d_A, Approach Delay [s/veh] | 22.24 | | | 25.34 | | | 14.65 | | | 13.67 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 17.73 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.286 | | | | | | | | | | | |

Emissions

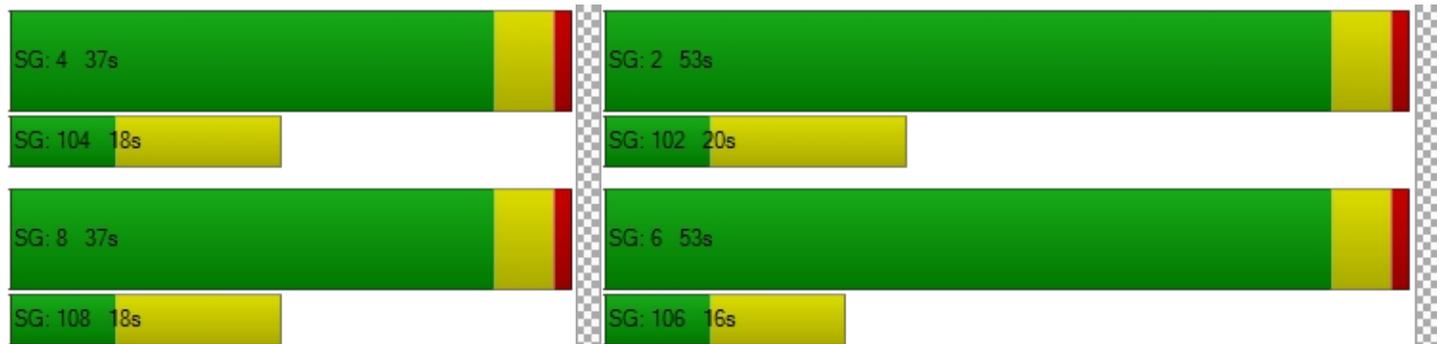
| | | | | | | | | |
|------------------------------------|-------|-------|--------|-------|-------|--------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 1.13 | 4.98 | 18.10 | 15.94 | 13.42 | 23.54 | 8.31 | 29.45 |
| Stops [stops/h] | 23.36 | 97.58 | 90.05 | 62.99 | 75.81 | 96.02 | 41.34 | 130.26 |
| Fuel consumption [L/h] | 1.24 | 5.12 | 6.28 | 4.51 | 4.77 | 6.32 | 2.63 | 8.40 |
| CO [g/h] | 22.97 | 94.47 | 115.99 | 83.26 | 87.99 | 116.76 | 48.58 | 155.03 |
| NOx [g/h] | 4.47 | 18.38 | 22.57 | 16.20 | 17.12 | 22.72 | 9.45 | 30.16 |
| VOC [g/h] | 5.32 | 21.89 | 26.88 | 19.30 | 20.39 | 27.06 | 11.26 | 35.93 |

Other Modes

| | | | | |
|--|--------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 160.80 | 30.91 | 0.00 | 55.40 |
| d_p, Pedestrian Delay [s] | 34.67 | 34.67 | 34.67 | 34.67 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.182 | 2.333 | 2.200 | 2.395 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 711 | 711 | 1067 | 1067 |
| d_b, Bicycle Delay [s] | 18.69 | 18.69 | 9.80 | 9.80 |
| I_b,int, Bicycle LOS Score for Intersection | 1.893 | 1.946 | 2.139 | 2.195 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 263.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.126 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 20 | 1271 | 6 | 4 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 4.00 | 0.00 | 25.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 1271 | 6 | 4 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 26 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 353 | 2 | 1 | 405 | 8 | 1 | 0 | 4 | 1 | 0 | 7 |
| Total Analysis Volume [veh/h] | 22 | 1412 | 7 | 4 | 1620 | 33 | 2 | 0 | 14 | 3 | 0 | 29 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 2 | | | 42 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|-------|------|------|--------|--------|-------|--------|--------|-------|
| V/C, Movement V/C Ratio | 0.06 | 0.01 | 0.00 | 0.01 | 0.02 | 0.00 | 0.13 | 0.00 | 0.04 | 0.17 | 0.00 | 0.08 |
| d_M, Delay for Movement [s/veh] | 14.67 | 0.00 | 0.00 | 15.58 | 0.00 | 0.00 | 262.96 | 363.12 | 16.55 | 244.34 | 378.02 | 16.39 |
| Movement LOS | B | A | A | C | A | A | F | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.36 | 0.13 | 0.13 | 0.48 | 0.27 | 0.27 |
| 95th-Percentile Queue Length [m/ln] | 1.35 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 | 2.74 | 1.02 | 1.02 | 3.67 | 2.08 | 2.08 |
| d_A, Approach Delay [s/veh] | 0.22 | | | 0.04 | | | 47.35 | | | 37.76 | | |
| Approach LOS | A | | | A | | | E | | | E | | |
| d_I, Intersection Delay [s/veh] | 0.75 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |



APPENDIX C – INTERSECTION PERFORMANCE RESULTS – SCENARIO A (CONTINUOUS OAK STREET)

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 3 AM Future - Full Oak

Report File: V:\...\1 AM FUTURE - FULL OAK.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Right | 0.491 | 25.3 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.015 | 113.5 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | WB Left | 0.205 | 21.4 | C |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.236 | 21.5 | C |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | EB Left | 0.623 | 17.8 | B |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | EB Left | 0.431 | 20.6 | C |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | EB Left | 0.216 | 7.4 | A |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | WB Left | 0.089 | 121.9 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | NB Thru | 0.279 | 8.5 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.255 | 10.1 | B |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.066 | 11.0 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.034 | 9.4 | A |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.075 | 10.5 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.012 | 9.6 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.104 | 9.0 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.021 | 10.4 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For

all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.491 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 105 | 79 | 48 | 45 | 13 | 14 | 110 | 556 | 171 | 160 | 642 | 153 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.10 | 2.20 | 0.00 | 0.00 | 0.90 | 5.65 | 3.00 | 0.60 | 2.80 | 0.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 153 | 74 | 195 | 0 | 29 | 0 | 0 | 0 | 34 | 28 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 73 | 0 | 0 | 4 | 0 | 0 | 82 | 0 | 0 | 138 |
| Total Hourly Volume [veh/h] | 258 | 153 | 170 | 45 | 42 | 10 | 110 | 556 | 123 | 188 | 642 | 15 |
| Peak Hour Factor | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 68 | 41 | 45 | 12 | 11 | 3 | 29 | 148 | 33 | 50 | 170 | 4 |
| Total Analysis Volume [veh/h] | 274 | 162 | 180 | 48 | 45 | 11 | 117 | 590 | 131 | 200 | 682 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 23 | | | 39 | | | 5 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 39 | | | 23 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 14 | | | 6 | | | 11 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 11 | | | 7 | | | 14 | | | 6 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 6 | 33 | 0 | 6 | 33 | 0 | 13 | 39 | 0 | 7 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 44 | 34 | 44 | 33 | 50 | 38 | 38 | 50 | 39 | 39 |
| g / C, Green / Cycle | 0.42 | 0.33 | 0.42 | 0.32 | 0.48 | 0.37 | 0.37 | 0.48 | 0.38 | 0.38 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.20 | 0.04 | 0.03 | 0.12 | 0.20 | 0.21 | 0.21 | 0.19 | 0.01 |
| s, saturation flow rate [veh/h] | 1459 | 1729 | 1163 | 1811 | 940 | 1815 | 1688 | 952 | 3538 | 1606 |
| c, Capacity [veh/h] | 691 | 573 | 424 | 575 | 440 | 663 | 617 | 440 | 1330 | 604 |
| d1, Uniform Delay [s] | 20.73 | 28.98 | 19.29 | 25.02 | 16.44 | 26.33 | 26.40 | 17.70 | 25.09 | 20.46 |
| k, delay calibration | 0.18 | 0.20 | 0.11 | 0.15 | 0.11 | 0.11 | 0.12 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.63 | 1.87 | 0.12 | 0.10 | 0.32 | 0.78 | 0.89 | 3.37 | 0.31 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.40 | 0.60 | 0.11 | 0.10 | 0.27 | 0.56 | 0.57 | 0.45 | 0.51 | 0.03 |
| d, Delay for Lane Group [s/veh] | 21.35 | 30.85 | 19.40 | 25.12 | 16.76 | 27.12 | 27.29 | 21.07 | 25.40 | 20.47 |
| Lane Group LOS | C | C | B | C | B | C | C | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.57 | 7.30 | 0.69 | 0.99 | 1.56 | 7.37 | 6.95 | 3.14 | 6.45 | 0.25 |
| 50th-Percentile Queue Length [m/ln] | 34.83 | 55.64 | 5.29 | 7.54 | 11.85 | 56.15 | 52.99 | 23.91 | 49.14 | 1.89 |
| 95th-Percentile Queue Length [veh/ln] | 8.08 | 11.73 | 1.25 | 1.78 | 2.80 | 11.82 | 11.28 | 5.65 | 10.61 | 0.45 |
| 95th-Percentile Queue Length [m/ln] | 61.55 | 89.41 | 9.52 | 13.58 | 21.33 | 90.08 | 85.94 | 43.03 | 80.87 | 3.39 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 21.35 | 30.85 | 30.85 | 19.40 | 25.12 | 25.12 | 16.76 | 27.18 | 27.29 | 21.07 | 25.40 | 20.47 |
| Movement LOS | C | C | C | B | C | C | B | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 26.63 | | | 22.48 | | | 25.74 | | | 24.35 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.32 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.491 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|--------|--------|-------|-------|-------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 30.73 | 38.36 | 4.13 | 4.82 | 14.20 | 45.13 | 42.37 | 30.22 | 103.06 | 2.42 |
| Stops [stops/h] | 158.22 | 252.74 | 24.01 | 34.26 | 53.84 | 255.06 | 240.70 | 108.59 | 446.40 | 8.57 |
| Fuel consumption [L/h] | 10.79 | 17.13 | 1.62 | 2.27 | 4.01 | 17.47 | 16.48 | 8.44 | 32.66 | 0.67 |
| CO [g/h] | 199.27 | 316.29 | 29.91 | 41.86 | 74.07 | 322.62 | 304.27 | 155.92 | 603.05 | 12.29 |
| NOx [g/h] | 38.77 | 61.54 | 5.82 | 8.15 | 14.41 | 62.77 | 59.20 | 30.34 | 117.33 | 2.39 |
| VOC [g/h] | 46.18 | 73.30 | 6.93 | 9.70 | 17.17 | 74.77 | 70.52 | 36.14 | 139.76 | 2.85 |

Other Modes

| | | | | |
|--|-------|--------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 86.25 | 165.81 | 24.84 | 98.67 |
| d_p, Pedestrian Delay [s] | 26.33 | 26.33 | 34.74 | 37.23 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.612 | 2.176 | 2.916 | 2.966 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 635 | 635 | 750 | 635 |
| d_b, Bicycle Delay [s] | 24.24 | 24.24 | 20.32 | 24.24 |
| I_b,int, Bicycle LOS Score for Intersection | 2.696 | 1.738 | 2.319 | 2.414 |
| Bicycle LOS | B | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 113.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.015 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 209 | 14 | 10 | 310 | 0 | 0 | 0 | 0 | 25 | 0 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 0.00 | 0.00 | 1.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 118 | 15 | 7 | 39 | 45 | 271 | 1 | 33 | 33 | 0 | 33 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 327 | 29 | 17 | 349 | 45 | 271 | 1 | 33 | 58 | 0 | 47 |
| Peak Hour Factor | 1.0000 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 87 | 8 | 5 | 93 | 11 | 68 | 0 | 8 | 15 | 0 | 13 |
| Total Analysis Volume [veh/h] | 0 | 348 | 31 | 18 | 371 | 45 | 271 | 1 | 33 | 62 | 0 | 50 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 16 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 1.02 | 0.00 | 0.05 | 0.23 | 0.00 | 0.08 |
| d_M, Delay for Movement [s/veh] | 8.15 | 0.00 | 0.00 | 8.13 | 0.00 | 0.00 | 113.51 | 112.14 | 105.54 | 22.86 | 21.58 | 14.79 |
| Movement LOS | A | A | A | A | A | A | F | F | F | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | 12.00 | 12.00 | 12.00 | 1.28 | 1.28 | 1.28 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.24 | 91.43 | 91.43 | 91.43 | 9.78 | 9.78 | 9.78 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.34 | | | 112.64 | | | 19.26 | | |
| Approach LOS | A | | | A | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.80 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.205 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 1 | 192 | 11 | 7 | 223 | 7 | 8 | 0 | 3 | 5 | 0 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 99 | 15 | 7 | 114 | 0 | 0 | 0 | 0 | 42 | 0 | 23 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 291 | 26 | 14 | 337 | 7 | 8 | 0 | 3 | 47 | 0 | 28 |
| Peak Hour Factor | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 88 | 8 | 4 | 102 | 2 | 2 | 0 | 1 | 14 | 0 | 8 |
| Total Analysis Volume [veh/h] | 1 | 353 | 32 | 17 | 409 | 8 | 10 | 0 | 4 | 57 | 0 | 34 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 17 | | | 13 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.04 | 0.00 | 0.01 | 0.20 | 0.00 | 0.05 |
| d_M, Delay for Movement [s/veh] | 8.22 | 0.00 | 0.00 | 8.13 | 0.00 | 0.00 | 19.52 | 18.41 | 11.38 | 21.39 | 21.11 | 13.90 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | 0.14 | 0.14 | 0.14 | 1.00 | 1.00 | 1.00 |
| 95th-Percentile Queue Length [m/ln] | 0.01 | 0.01 | 0.01 | 0.22 | 0.22 | 0.22 | 1.08 | 1.08 | 1.08 | 7.64 | 7.64 | 7.64 |
| d_A, Approach Delay [s/veh] | 0.02 | | | 0.32 | | | 17.19 | | | 18.59 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 2.25 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.236 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 200 | 26 | 20 | 199 | 14 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 0.00 | 2.00 | 5.00 | 7.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 91 | 15 | 8 | 148 | 43 | 23 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 291 | 41 | 28 | 347 | 57 | 36 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 88 | 12 | 8 | 105 | 17 | 11 |
| Total Analysis Volume [veh/h] | 351 | 49 | 34 | 418 | 69 | 43 |
| Pedestrian Volume [ped/h] | 1 | | 0 | | 19 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.03 | 0.00 | 0.24 | 0.07 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.25 | 0.00 | 21.45 | 14.72 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.06 | 1.25 | 1.25 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.44 | 0.44 | 9.53 | 9.53 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.62 | | 18.87 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 2.48 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 17.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.623 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 22 | 130 | 27 | 99 | 102 | 67 | 19 | 227 | 24 | 92 | 415 | 130 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 3.70 | 2.00 | 1.00 | 4.50 | 0.00 | 4.40 | 8.30 | 3.30 | 4.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 20 | 23 | 142 | 134 | 11 | 78 | 39 | 94 | 0 | 75 | 92 | 35 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 51 | 0 | 0 | 44 | 0 | 0 | 5 | 0 | 0 | 33 |
| Total Hourly Volume [veh/h] | 42 | 153 | 118 | 233 | 113 | 101 | 58 | 321 | 19 | 167 | 507 | 132 |
| Peak Hour Factor | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 41 | 32 | 63 | 30 | 27 | 16 | 86 | 5 | 45 | 136 | 35 |
| Total Analysis Volume [veh/h] | 45 | 164 | 127 | 250 | 121 | 108 | 62 | 345 | 20 | 179 | 545 | 142 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 11 | | | 7 | | | 2 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 4 | | | 2 | | | 7 | | | 11 | | |
| v_co, Outbound Pedestrian Volume crossing | 6 | | | 13 | | | 8 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 8 | | | 12 | | | 6 | | | 13 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 19 | 0 | 0 | 19 | 0 | 0 | 23 | 0 | 0 | 23 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 19 | 19 | 19 | 19 | 23 | 23 | 23 | 23 | 23 |
| g / C, Green / Cycle | 0.37 | 0.37 | 0.37 | 0.37 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| (v / s)_i Volume / Saturation Flow Rate | 0.04 | 0.17 | 0.23 | 0.13 | 0.08 | 0.10 | 0.10 | 0.18 | 0.39 |
| s, saturation flow rate [veh/h] | 1079 | 1754 | 1081 | 1729 | 767 | 1834 | 1795 | 998 | 1755 |
| c, Capacity [veh/h] | 376 | 641 | 341 | 632 | 163 | 811 | 794 | 466 | 776 |
| d1, Uniform Delay [s] | 16.50 | 12.55 | 22.04 | 12.07 | 25.66 | 8.99 | 8.99 | 14.30 | 13.29 |
| k, delay calibration | 0.11 | 0.11 | 0.14 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.33 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.14 | 0.50 | 4.03 | 0.35 | 1.45 | 0.14 | 0.14 | 0.52 | 9.91 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.12 | 0.45 | 0.73 | 0.36 | 0.38 | 0.23 | 0.23 | 0.38 | 0.89 |
| d, Delay for Lane Group [s/veh] | 16.64 | 13.06 | 26.07 | 12.42 | 27.11 | 9.13 | 9.14 | 14.82 | 23.20 |
| Lane Group LOS | B | B | C | B | C | A | A | B | C |
| Critical Lane Group | No | No | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.41 | 2.28 | 3.26 | 1.72 | 0.78 | 1.09 | 1.07 | 1.56 | 7.97 |
| 50th-Percentile Queue Length [m/ln] | 3.11 | 17.39 | 24.84 | 13.10 | 5.96 | 8.29 | 8.19 | 11.85 | 60.77 |
| 95th-Percentile Queue Length [veh/ln] | 0.73 | 4.11 | 5.87 | 3.10 | 1.41 | 1.96 | 1.93 | 2.80 | 12.61 |
| 95th-Percentile Queue Length [m/ln] | 5.60 | 31.29 | 44.72 | 23.59 | 10.73 | 14.91 | 14.74 | 21.33 | 96.06 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 16.64 | 13.06 | 13.06 | 26.07 | 12.42 | 12.42 | 27.11 | 9.13 | 9.14 | 14.82 | 23.20 | 23.20 |
| Movement LOS | B | B | B | C | B | B | C | A | A | B | C | C |
| d_A, Approach Delay [s/veh] | 13.54 | | | 19.55 | | | 11.74 | | | 21.47 | | |
| Approach LOS | B | | | B | | | B | | | C | | |
| d_I, Intersection Delay [s/veh] | 17.80 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.623 | | | | | | | | | | | |

Emissions

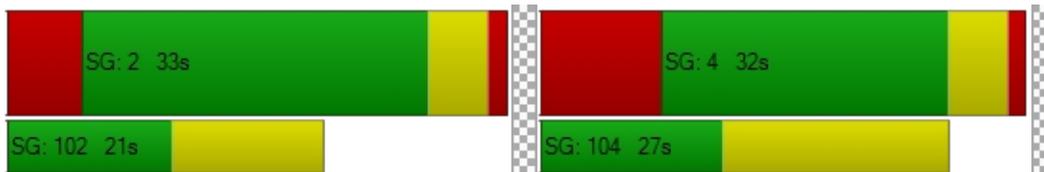
| | | | | | | | | | |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|--------|--------|
| Vehicle Kilometers Traveled [km/h] | 5.07 | 32.79 | 13.78 | 12.62 | 4.00 | 11.84 | 11.69 | 14.42 | 55.35 |
| Stops [stops/h] | 28.26 | 157.96 | 225.71 | 119.05 | 54.17 | 75.28 | 74.41 | 107.66 | 552.10 |
| Fuel consumption [L/h] | 1.66 | 9.41 | 11.08 | 5.90 | 2.82 | 4.01 | 3.96 | 5.69 | 29.18 |
| CO [g/h] | 30.64 | 173.70 | 204.54 | 109.01 | 51.98 | 74.10 | 73.21 | 105.11 | 538.90 |
| NOx [g/h] | 5.96 | 33.80 | 39.80 | 21.21 | 10.11 | 14.42 | 14.24 | 20.45 | 104.85 |
| VOC [g/h] | 7.10 | 40.26 | 47.40 | 25.26 | 12.05 | 17.17 | 16.97 | 24.36 | 124.90 |

Other Modes

| | | | | |
|---|--------|-------|--------|--------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m ² /ped] | 149.30 | 78.88 | 287.17 | 143.49 |
| d_p, Pedestrian Delay [s] | 13.16 | 13.16 | 12.46 | 12.46 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.459 | 2.352 | 2.447 | 2.900 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 731 | 731 | 885 | 885 |
| d_b, Bicycle Delay [s] | 10.47 | 10.47 | 8.09 | 8.09 |
| I_b,int, Bicycle LOS Score for Intersection | 2.198 | 2.423 | 1.916 | 3.043 |
| Bicycle LOS | B | B | A | C |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 20.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.431 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ←↑↑ | | | ←↑↑ | | | ↑↑ | | | ↑↑ | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 27 | 102 | 2 | 11 | 92 | 66 | 45 | 5 | 60 | 1 | 1 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 1.00 | 0.00 | 0.00 | 1.00 | 3.00 | 0.00 | 0.00 | 3.00 | 100.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 14 | 3 | 6 | 0 | 80 | 140 | 7 | 14 | 4 | 8 | 31 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 34 | 116 | 5 | 17 | 92 | 146 | 185 | 12 | 74 | 5 | 9 | 35 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 32 | 1 | 5 | 25 | 40 | 51 | 3 | 20 | 1 | 2 | 10 |
| Total Analysis Volume [veh/h] | 37 | 127 | 5 | 19 | 101 | 160 | 203 | 13 | 81 | 5 | 10 | 38 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 1 | | | 15 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.43 | 0.03 | 0.09 | 0.02 | 0.02 | 0.04 |
| d_M, Delay for Movement [s/veh] | 7.87 | 0.00 | 0.00 | 7.56 | 0.00 | 0.00 | 20.61 | 20.39 | 17.16 | 17.35 | 13.71 | 9.52 |
| Movement LOS | A | A | A | A | A | A | C | C | C | C | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 3.34 | 3.34 | 3.34 | 0.27 | 0.27 | 0.27 |
| 95th-Percentile Queue Length [m/ln] | 0.67 | 0.00 | 0.00 | 0.31 | 0.00 | 0.00 | 25.42 | 25.42 | 25.42 | 2.03 | 2.03 | 2.03 |
| d_A, Approach Delay [s/veh] | 1.72 | | | 0.51 | | | 19.66 | | | 11.05 | | |
| Approach LOS | A | | | A | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 8.59 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 7.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.216 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ⇐⇑⇓⇑⇐ | | | ⇐⇑⇓⇑⇐ | | | ⇐⇑⇓⇑⇐ | | | ⇐⇑⇓⇑⇐ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 3 | 4 | 7 | 54 | 6 | 71 | 60 | 107 | 12 | 9 | 159 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 | 3.00 | 5.00 | 2.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 12 | 17 | 0 | 18 | 0 | 0 | 0 | 41 | 0 | 0 | 23 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 14 | 0 | 0 | 2 | 0 | 0 | 14 |
| Total Hourly Volume [veh/h] | 15 | 21 | 6 | 72 | 6 | 57 | 60 | 148 | 10 | 9 | 182 | 57 |
| Peak Hour Factor | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 5 | 2 | 19 | 2 | 15 | 16 | 38 | 3 | 2 | 47 | 15 |
| Total Analysis Volume [veh/h] | 16 | 22 | 6 | 75 | 6 | 59 | 62 | 153 | 10 | 9 | 189 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 2 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 2 | | | 0 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 5 | | | 3 | | | 4 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 4 | | | 7 | | | 5 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|------|------|------|------|------|------|------|------|
| C, Calculated Cycle Length [s] | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 9 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.26 | 0.26 | 0.35 | 0.35 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.02 | 0.06 | 0.04 | 0.06 | 0.10 | 0.01 | 0.15 |
| s, saturation flow rate [veh/h] | 1219 | 1645 | 1216 | 1469 | 987 | 1663 | 1109 | 1609 |
| c, Capacity [veh/h] | 474 | 424 | 501 | 379 | 436 | 575 | 510 | 557 |
| d1, Uniform Delay [s] | 9.13 | 7.07 | 9.11 | 7.27 | 9.66 | 5.99 | 8.08 | 6.38 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.03 | 0.06 | 0.14 | 0.21 | 0.15 | 0.27 | 0.01 | 0.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|
| X, volume / capacity | 0.03 | 0.07 | 0.15 | 0.17 | 0.14 | 0.28 | 0.02 | 0.45 |
| d, Delay for Lane Group [s/veh] | 9.16 | 7.14 | 9.24 | 7.49 | 9.80 | 6.25 | 8.10 | 6.94 |
| Lane Group LOS | A | A | A | A | A | A | A | A |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.05 | 0.07 | 0.25 | 0.18 | 0.22 | 0.35 | 0.03 | 0.58 |
| 50th-Percentile Queue Length [m/ln] | 0.40 | 0.56 | 1.89 | 1.36 | 1.66 | 2.63 | 0.20 | 4.41 |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 0.13 | 0.45 | 0.32 | 0.39 | 0.62 | 0.05 | 1.04 |
| 95th-Percentile Queue Length [m/ln] | 0.72 | 1.00 | 3.40 | 2.45 | 2.99 | 4.74 | 0.36 | 7.93 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| d_M, Delay for Movement [s/veh] | 9.16 | 7.14 | 7.14 | 9.24 | 7.49 | 7.49 | 9.80 | 6.25 | 6.25 | 8.10 | 6.94 | 6.94 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 7.87 | | | 8.43 | | | 7.23 | | | 6.98 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.43 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.216 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|------|-------|-------|-------|-------|-------|------|--------|
| Vehicle Kilometers Traveled [km/h] | 0.52 | 0.91 | 11.60 | 10.06 | 3.51 | 9.23 | 0.95 | 26.08 |
| Stops [stops/h] | 7.57 | 10.50 | 35.60 | 25.65 | 31.32 | 49.62 | 3.77 | 83.01 |
| Fuel consumption [L/h] | 0.32 | 0.46 | 2.40 | 1.89 | 1.46 | 2.72 | 0.23 | 5.59 |
| CO [g/h] | 5.93 | 8.52 | 44.36 | 34.81 | 27.02 | 50.17 | 4.18 | 103.19 |
| NOx [g/h] | 1.15 | 1.66 | 8.63 | 6.77 | 5.26 | 9.76 | 0.81 | 20.08 |
| VOC [g/h] | 1.38 | 1.97 | 10.28 | 8.07 | 6.26 | 11.63 | 0.97 | 23.92 |

Other Modes

| | | | | |
|--|--------|--------|---------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 395.24 | 326.92 | 1753.44 | 865.92 |
| d_p, Pedestrian Delay [s] | 3.95 | 3.95 | 3.95 | 3.95 |
| I_p,int, Pedestrian LOS Score for Intersectio | 1.890 | 2.062 | 2.042 | 2.144 |
| Crosswalk LOS | A | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1356 | 1356 | 1436 | 1436 |
| d_b, Bicycle Delay [s] | 1.30 | 1.30 | 1.00 | 1.00 |
| I_b,int, Bicycle LOS Score for Intersection | 1.634 | 1.814 | 1.934 | 2.007 |
| Bicycle LOS | A | A | A | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 121.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.089 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|--------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 29 | 944 | 12 | 8 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 8.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 58 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 29 | 944 | 70 | 17 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 74 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 246 | 18 | 4 | 413 | 10 | 0 | 0 | 5 | 1 | 0 | 19 |
| Total Analysis Volume [veh/h] | 30 | 983 | 73 | 18 | 1650 | 42 | 0 | 0 | 21 | 3 | 0 | 77 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 18 | | | 17 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|-------|------|------|--------|--------|-------|----------|--------|-------|
| V/C, Movement V/C Ratio | 0.08 | 0.01 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.08 | 0.09 | 0.00 | 0.16 |
| d_M, Delay for Movement [s/veh] | 15.59 | 0.00 | 0.00 | 10.73 | 0.00 | 0.00 | 215.77 | 242.01 | 19.06 | 121.91 | 231.60 | 13.79 |
| Movement LOS | C | A | A | B | A | A | F | F | C | F | F | B |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.56 | 0.56 |
| 95th-Percentile Queue Length [m/ln] | 2.01 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 1.86 | 1.86 | 2.08 | 4.26 | 4.26 |
| d_A, Approach Delay [s/veh] | 0.43 | | | 0.11 | | | 19.06 | | | 17.85 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.279 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | ↶ | | ↷ | | ↵ | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 50 | 33 | 7 | 8 | 9 |
| Total Analysis Volume [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings**Lanes**

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 839 | 850 | 789 |
| Degree of Utilization, x | 0.28 | 0.19 | 0.08 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|------|
| 95th-Percentile Queue Length [veh] | 1.14 | 0.68 | 0.28 |
| 95th-Percentile Queue Length [m] | 8.71 | 5.18 | 2.11 |
| Approach Delay [s/veh] | 8.94 | 8.20 | 7.98 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 8.55 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.255 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 240 | 0 | 133 | 118 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 240 | 0 | 133 | 118 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 60 | 0 | 33 | 30 | 18 |
| Total Analysis Volume [veh/h] | 0 | 240 | 0 | 133 | 118 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 7.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.12 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.31 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.066 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 47 | 140 | 21 | 70 | 80 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 140 | 21 | 70 | 80 | 15 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 35 | 5 | 18 | 20 | 4 |
| Total Analysis Volume [veh/h] | 47 | 140 | 21 | 70 | 80 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.07 | 0.14 | 0.00 | 0.00 | 0.05 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.03 | 9.57 | 0.00 | 0.00 | 7.49 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.76 | 0.76 | 0.00 | 0.00 | 0.14 | 0.14 |
| 95th-Percentile Queue Length [m/ln] | 5.81 | 5.81 | 0.00 | 0.00 | 1.08 | 1.08 |
| d_A, Approach Delay [s/veh] | 9.93 | | 0.00 | | 6.31 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.59 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.034 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---------------------|-------|------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 31 | 94 | 20 | 10 | 5 | 30 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 31 | 94 | 20 | 10 | 5 | 30 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 24 | 5 | 3 | 1 | 8 |
| Total Analysis Volume [veh/h] | 31 | 94 | 20 | 10 | 5 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.09 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.39 | 8.89 | 7.31 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.42 | 0.42 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 3.18 | 3.18 | 0.26 | 0.26 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.02 | | 4.87 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.70 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.075 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 57 | 84 | 55 | 34 | 55 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 57 | 84 | 55 | 34 | 55 | 7 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 21 | 14 | 9 | 14 | 2 |
| Total Analysis Volume [veh/h] | 57 | 84 | 55 | 34 | 55 | 7 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.08 | 0.08 | 0.04 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.52 | 9.34 | 7.40 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.56 | 0.56 | 0.09 | 0.09 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 4.28 | 4.28 | 0.72 | 0.72 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.81 | | 4.57 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.13 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.012 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 10 | 75 | 10 | 20 | 94 | 5 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 10 | 75 | 10 | 20 | 94 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 19 | 3 | 5 | 24 | 1 |
| Total Analysis Volume [veh/h] | 10 | 75 | 10 | 20 | 94 | 5 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.08 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.61 | 9.13 | 7.42 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.30 | 0.30 | 0.02 | 0.02 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 2.25 | 2.25 | 0.13 | 0.13 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.18 | | 2.47 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.99 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.104 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|-----------------|-------|----------------|-------|----------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 106 | 27 | 60 | 33 | 325 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 106 | 27 | 60 | 33 | 325 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 27 | 7 | 15 | 8 | 81 |
| Total Analysis Volume [veh/h] | 0 | 106 | 27 | 60 | 33 | 325 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.10 | 0.00 | 0.00 | 0.02 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 8.95 | 0.00 | 0.00 | 7.44 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.35 | 0.00 | 0.00 | 0.07 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 2.65 | 0.00 | 0.00 | 0.51 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.95 | | 0.00 | | 0.69 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.17 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.021 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|-----------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 50 | 39 | 5 | 67 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 15 | 50 | 39 | 5 | 67 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 13 | 10 | 1 | 17 | 18 |
| Total Analysis Volume [veh/h] | 15 | 50 | 39 | 5 | 67 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.05 | 0.00 | 0.00 | 0.04 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.38 | 8.79 | 0.00 | 0.00 | 7.38 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.22 | 0.22 | 0.00 | 0.00 | 0.12 | 0.12 |
| 95th-Percentile Queue Length [m/ln] | 1.71 | 1.71 | 0.00 | 0.00 | 0.88 | 0.88 |
| d_A, Approach Delay [s/veh] | 9.15 | | 0.00 | | 3.56 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.39 | | | | | |
| Intersection LOS | B | | | | | |

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 4 PM Future - Full Oak

Report File: V:\...\2 PM FUTURE - FULL OAK.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Thru | 0.626 | 29.9 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.274 | 246.3 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | WB Left | 0.294 | 39.1 | E |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.314 | 35.0 | E |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | EB Left | 0.800 | 55.8 | E |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | EB Left | 1.831 | 567.3 | F |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | SB Left | 0.364 | 10.9 | B |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | EB Left | 0.189 | 411.5 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | NB Thru | 0.310 | 9.6 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.181 | 10.1 | B |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.089 | 14.9 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.125 | 10.5 | B |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.250 | 12.5 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.022 | 9.8 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.084 | 9.4 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.011 | 10.8 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For

all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.626 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 199 | 173 | 110 | 198 | 103 | 155 | 166 | 650 | 99 | 110 | 835 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 2.00 | 1.00 | 2.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 67 | 59 | 147 | 0 | 78 | 0 | 0 | 0 | 98 | 85 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 77 | 0 | 0 | 47 | 0 | 0 | 79 | 0 | 0 | 180 |
| Total Hourly Volume [veh/h] | 266 | 232 | 180 | 198 | 181 | 108 | 166 | 650 | 118 | 195 | 835 | 20 |
| Peak Hour Factor | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 60 | 46 | 51 | 47 | 28 | 43 | 168 | 30 | 50 | 215 | 5 |
| Total Analysis Volume [veh/h] | 274 | 239 | 186 | 204 | 187 | 111 | 171 | 670 | 122 | 201 | 861 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 21 | | | 68 | | | 51 | | | 31 | | |
| v_di, Inbound Pedestrian Volume crossing m | 31 | | | 51 | | | 68 | | | 21 | | |
| v_co, Outbound Pedestrian Volume crossing | 28 | | | 60 | | | 28 | | | 43 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 28 | | | 43 | | | 28 | | | 60 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 32 | 0 | 9 | 33 | 0 | 11 | 38 | 0 | 6 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 46 | 32 | 46 | 33 | 49 | 38 | 38 | 49 | 36 | 36 |
| g / C, Green / Cycle | 0.44 | 0.30 | 0.44 | 0.31 | 0.47 | 0.36 | 0.36 | 0.47 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.25 | 0.17 | 0.18 | 0.19 | 0.22 | 0.22 | 0.23 | 0.24 | 0.01 |
| s, saturation flow rate [veh/h] | 1268 | 1719 | 1195 | 1694 | 904 | 1870 | 1741 | 886 | 3560 | 1615 |
| c, Capacity [veh/h] | 501 | 524 | 408 | 532 | 387 | 677 | 630 | 393 | 1217 | 552 |
| d1, Uniform Delay [s] | 20.97 | 33.71 | 22.00 | 29.96 | 19.82 | 27.32 | 27.45 | 19.24 | 29.99 | 23.03 |
| k, delay calibration | 0.26 | 0.32 | 0.50 | 0.16 | 0.11 | 0.15 | 0.16 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.20 | 8.60 | 4.33 | 1.39 | 0.79 | 1.22 | 1.43 | 4.71 | 0.77 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|--------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity | 0.55 | 0.81 | 0.50 | 0.56 | 0.44 | 0.60 | 0.61 | 0.51 | 0.71 | 0.04 |
| d, Delay for Lane Group [s/veh] | 23.17 | 42.31 | 26.33 | 31.35 | 20.61 | 28.53 | 28.88 | 23.95 | 30.75 | 23.06 |
| Lane Group LOS | C | D | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.67 | 11.07 | 3.60 | 6.40 | 2.48 | 8.40 | 8.03 | 3.38 | 9.37 | 0.35 |
| 50th-Percentile Queue Length [m/ln] | 35.56 | 84.36 | 27.40 | 48.73 | 18.88 | 64.04 | 61.19 | 25.79 | 71.44 | 2.67 |
| 95th-Percentile Queue Length [veh/ln] | 8.21 | 16.53 | 6.47 | 10.54 | 4.46 | 13.16 | 12.68 | 6.09 | 14.40 | 0.63 |
| 95th-Percentile Queue Length [m/ln] | 62.55 | 125.94 | 49.32 | 80.34 | 33.99 | 100.27 | 96.60 | 46.42 | 109.70 | 4.81 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 23.17 | 42.31 | 42.31 | 26.33 | 31.35 | 31.35 | 20.61 | 28.67 | 28.88 | 23.95 | 30.75 | 23.06 |
| Movement LOS | C | D | D | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 34.80 | | | 29.31 | | | 27.26 | | | 29.34 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.626 | | | | | | | | | | | |

Emissions

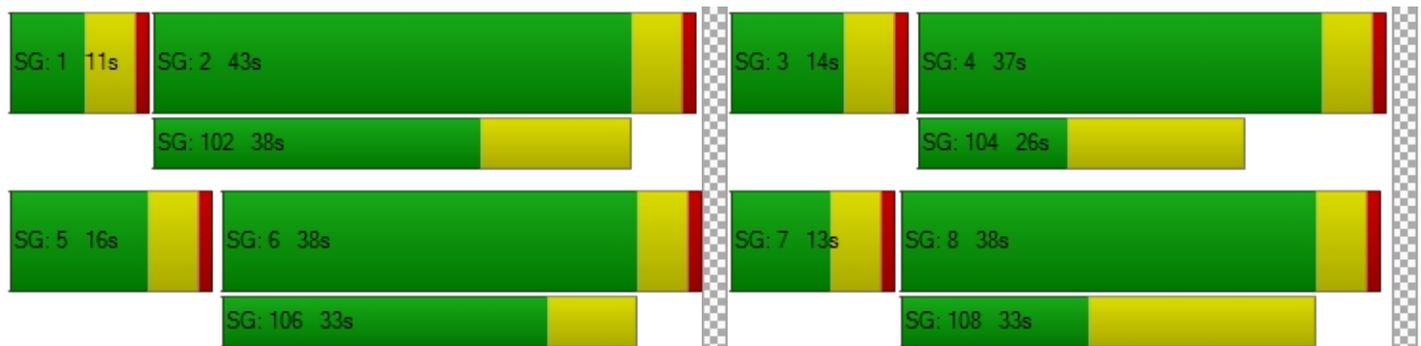
| | | | | | | | | | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 30.73 | 47.67 | 20.12 | 29.40 | 22.47 | 53.45 | 50.62 | 30.38 | 130.11 | 3.17 |
| Stops [stops/h] | 159.99 | 379.58 | 123.29 | 219.28 | 84.96 | 288.14 | 275.32 | 116.03 | 642.85 | 12.02 |
| Fuel consumption [L/h] | 11.21 | 26.40 | 8.66 | 14.63 | 6.67 | 20.14 | 19.23 | 9.08 | 46.44 | 0.93 |
| CO [g/h] | 207.03 | 487.57 | 160.00 | 270.13 | 123.11 | 371.95 | 355.09 | 167.59 | 857.54 | 17.21 |
| NOx [g/h] | 40.28 | 94.86 | 31.13 | 52.56 | 23.95 | 72.37 | 69.09 | 32.61 | 166.85 | 3.35 |
| VOC [g/h] | 47.98 | 113.00 | 37.08 | 62.61 | 28.53 | 86.20 | 82.29 | 38.84 | 198.74 | 3.99 |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 38.17 | 19.88 | 11.74 | 18.97 |
| d_p, Pedestrian Delay [s] | 26.79 | 26.79 | 35.22 | 37.72 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.671 | 2.461 | 2.998 | 3.120 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 610 | 629 | 724 | 629 |
| d_b, Bicycle Delay [s] | 25.38 | 24.69 | 21.38 | 24.69 |
| I_b,int, Bicycle LOS Score for Intersection | 2.840 | 2.465 | 2.419 | 2.602 |
| Bicycle LOS | C | B | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 246.3
 Level Of Service: F
 Volume to Capacity (v/c): 1.274

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 488 | 28 | 25 | 274 | 0 | 0 | 0 | 0 | 13 | 0 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 4.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 77 | 37 | 18 | 98 | 145 | 178 | 3 | 28 | 27 | 0 | 18 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 565 | 65 | 43 | 372 | 145 | 178 | 3 | 28 | 40 | 0 | 33 |
| Peak Hour Factor | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 145 | 17 | 11 | 96 | 36 | 46 | 1 | 7 | 10 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 582 | 67 | 44 | 383 | 145 | 183 | 3 | 29 | 41 | 0 | 34 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 4 | | | 23 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 1.27 | 0.02 | 0.05 | 0.29 | 0.00 | 0.07 |
| d_M, Delay for Movement [s/veh] | 8.49 | 0.00 | 0.00 | 9.02 | 0.00 | 0.00 | 246.33 | 243.32 | 227.28 | 40.76 | 38.13 | 22.55 |
| Movement LOS | A | A | A | A | A | A | F | F | F | E | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 13.03 | 13.03 | 13.03 | 1.59 | 1.59 | 1.59 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 0.60 | 0.60 | 0.60 | 99.27 | 99.27 | 99.27 | 12.08 | 12.08 | 12.08 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.69 | | | 243.72 | | | 32.51 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.56 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 39.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.294 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 7 | 430 | 8 | 7 | 278 | 1 | 4 | 0 | 8 | 7 | 0 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 113 | 37 | 21 | 135 | 0 | 0 | 0 | 0 | 31 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 543 | 45 | 28 | 413 | 1 | 4 | 0 | 8 | 38 | 0 | 23 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 153 | 13 | 8 | 116 | 0 | 1 | 0 | 2 | 11 | 0 | 6 |
| Total Analysis Volume [veh/h] | 8 | 610 | 51 | 31 | 464 | 1 | 4 | 0 | 9 | 43 | 0 | 26 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 36 | | | 22 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|------|------|------|-------|-------|-------|----------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.29 | 0.00 | 0.06 |
| d_M, Delay for Movement [s/veh] | 8.48 | 0.00 | 0.00 | 9.03 | 0.00 | 0.00 | 32.41 | 29.20 | 12.13 | 39.12 | 37.33 | 22.40 |
| Movement LOS | A | A | A | A | A | A | D | D | B | E | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.01 | 0.01 | 0.05 | 0.05 | 0.05 | 0.14 | 0.14 | 0.14 | 1.48 | 1.48 | 1.48 |
| 95th-Percentile Queue Length [m/ln] | 0.10 | 0.10 | 0.10 | 0.40 | 0.40 | 0.40 | 1.10 | 1.10 | 1.10 | 11.28 | 11.28 | 11.28 |
| d_A, Approach Delay [s/veh] | 0.10 | | | 0.56 | | | 18.37 | | | 32.82 | | |
| Approach LOS | A | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 2.29 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.314 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 425 | 13 | 6 | 292 | 19 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 136 | 37 | 21 | 145 | 31 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 561 | 50 | 27 | 437 | 50 | 31 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 158 | 14 | 8 | 123 | 14 | 9 |
| Total Analysis Volume [veh/h] | 630 | 56 | 30 | 491 | 56 | 35 |
| Pedestrian Volume [ped/h] | 2 | | 0 | | 34 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.03 | 0.00 | 0.31 | 0.08 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.21 | 0.00 | 35.03 | 23.16 |
| Movement LOS | A | A | A | A | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.05 | 0.05 | 1.78 | 1.78 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.39 | 0.39 | 13.54 | 13.54 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.53 | | 30.46 | |
| Approach LOS | A | | A | | D | |
| d_I, Intersection Delay [s/veh] | 2.35 | | | | | |
| Intersection LOS | E | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 55.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.800 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 35 | 287 | 81 | 107 | 129 | 80 | 47 | 308 | 27 | 105 | 379 | 133 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 3.00 | 4.00 | 1.00 | 0.00 | 0.00 | 8.00 | 0.00 | 1.00 | 12.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 35 | 168 | 102 | 35 | 40 | 88 | 67 | 0 | 155 | 237 | 78 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 75 | 0 | 0 | 36 | 0 | 0 | 5 | 0 | 0 | 42 |
| Total Hourly Volume [veh/h] | 69 | 322 | 174 | 209 | 164 | 84 | 135 | 375 | 22 | 260 | 616 | 169 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 85 | 46 | 55 | 43 | 22 | 36 | 99 | 6 | 68 | 162 | 44 |
| Total Analysis Volume [veh/h] | 73 | 339 | 183 | 220 | 173 | 88 | 142 | 395 | 23 | 274 | 648 | 178 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 15 | | | 7 | | | 5 | | | 12 | | |
| v_di, Inbound Pedestrian Volume crossing m | 12 | | | 5 | | | 7 | | | 15 | | |
| v_co, Outbound Pedestrian Volume crossing | 9 | | | 7 | | | 16 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 16 | | | 12 | | | 9 | | | 7 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 25 | 0 | 0 | 25 | 0 | 0 | 27 | 0 | 0 | 27 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 27 |
| g / C, Green / Cycle | 0.40 | 0.40 | 0.40 | 0.40 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.30 | 0.26 | 0.15 | 0.21 | 0.12 | 0.12 | 0.28 | 0.50 |
| s, saturation flow rate [veh/h] | 1127 | 1747 | 861 | 1769 | 674 | 1780 | 1739 | 965 | 1648 |
| c, Capacity [veh/h] | 406 | 704 | 197 | 713 | 116 | 775 | 757 | 419 | 718 |
| d1, Uniform Delay [s] | 18.29 | 15.74 | 29.81 | 12.95 | 31.00 | 11.21 | 11.22 | 20.35 | 17.50 |
| k, delay calibration | 0.11 | 0.23 | 0.16 | 0.11 | 0.11 | 0.11 | 0.11 | 0.18 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.21 | 3.34 | 73.26 | 0.31 | 115.18 | 0.19 | 0.19 | 2.79 | 83.51 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|--------|-------|--------|-------|-------|-------|--------|
| X, volume / capacity | 0.18 | 0.74 | 1.12 | 0.37 | 1.22 | 0.27 | 0.27 | 0.65 | 1.15 |
| d, Delay for Lane Group [s/veh] | 18.50 | 19.08 | 103.07 | 13.27 | 146.18 | 11.39 | 11.41 | 23.15 | 101.01 |
| Lane Group LOS | B | B | F | B | F | B | B | C | F |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.80 | 6.16 | 6.82 | 2.33 | 5.39 | 1.67 | 1.65 | 3.74 | 25.34 |
| 50th-Percentile Queue Length [m/ln] | 6.07 | 46.91 | 52.01 | 17.72 | 41.08 | 12.76 | 12.58 | 28.50 | 193.09 |
| 95th-Percentile Queue Length [veh/ln] | 1.43 | 10.23 | 11.83 | 4.19 | 9.70 | 3.01 | 2.97 | 6.73 | 36.99 |
| 95th-Percentile Queue Length [m/ln] | 10.93 | 77.92 | 90.13 | 31.90 | 73.94 | 22.96 | 22.64 | 51.31 | 281.85 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|--------|-------|-------|--------|-------|-------|-------|--------|--------|
| d_M, Delay for Movement [s/veh] | 18.50 | 19.08 | 19.08 | 103.07 | 13.27 | 13.27 | 146.18 | 11.40 | 11.41 | 23.15 | 101.01 | 101.01 |
| Movement LOS | B | B | B | F | B | B | F | B | B | C | F | F |
| d_A, Approach Delay [s/veh] | 19.01 | | | 54.34 | | | 45.58 | | | 81.62 | | |
| Approach LOS | B | | | D | | | D | | | F | | |
| d_I, Intersection Delay [s/veh] | 55.83 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |
| Intersection V/C | 0.800 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|--------|--------|--------|-------|-------|--------|---------|
| Vehicle Kilometers Traveled [km/h] | 8.23 | 58.83 | 12.13 | 14.39 | 9.15 | 13.58 | 13.37 | 22.08 | 66.55 |
| Stops [stops/h] | 46.28 | 357.48 | 396.28 | 135.06 | 313.00 | 97.21 | 95.83 | 217.19 | 1471.35 |
| Fuel consumption [L/h] | 2.80 | 20.85 | 26.93 | 6.89 | 23.42 | 5.20 | 5.12 | 11.57 | 101.48 |
| CO [g/h] | 51.79 | 384.92 | 497.25 | 127.14 | 432.48 | 95.97 | 94.56 | 213.58 | 1873.91 |
| NOx [g/h] | 10.08 | 74.89 | 96.75 | 24.74 | 84.15 | 18.67 | 18.40 | 41.55 | 364.60 |
| VOC [g/h] | 12.00 | 89.21 | 115.24 | 29.47 | 100.23 | 22.24 | 21.92 | 49.50 | 434.30 |

Other Modes

| | | | | |
|--|-------|-------|--------|-------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 60.67 | 71.41 | 177.05 | 61.98 |
| d_p, Pedestrian Delay [s] | 17.81 | 17.81 | 17.06 | 17.06 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.782 | 2.562 | 2.557 | 2.966 |
| Crosswalk LOS | C | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 806 | 806 | 871 | 871 |
| d_b, Bicycle Delay [s] | 11.04 | 11.04 | 9.88 | 9.88 |
| I_b,int, Bicycle LOS Score for Intersection | 2.665 | 2.413 | 2.026 | 3.444 |
| Bicycle LOS | B | B | B | C |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 567.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.831 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 18 | 365 | 17 | 38 | 213 | 42 | 58 | 4 | 37 | 6 | 3 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 19 | 42 | 6 | 14 | 9 | 167 | 178 | 20 | 45 | 8 | 5 | 17 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 407 | 23 | 52 | 222 | 209 | 236 | 24 | 82 | 14 | 8 | 46 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 117 | 7 | 15 | 64 | 60 | 68 | 7 | 24 | 4 | 2 | 13 |
| Total Analysis Volume [veh/h] | 43 | 468 | 26 | 60 | 255 | 240 | 271 | 28 | 94 | 16 | 9 | 53 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 8 | | | 12 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.04 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 1.83 | 0.15 | 0.14 | 0.13 | 0.05 | 0.09 |
| d_M, Delay for Movement [s/veh] | 8.53 | 0.00 | 0.00 | 8.61 | 0.00 | 0.00 | 567.28 | 561.77 | 548.38 | 39.84 | 31.72 | 16.22 |
| Movement LOS | A | A | A | A | A | A | F | F | F | E | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 30.74 | 30.74 | 30.74 | 1.12 | 1.12 | 1.12 |
| 95th-Percentile Queue Length [m/ln] | 0.96 | 0.00 | 0.00 | 1.37 | 0.00 | 0.00 | 234.21 | 234.21 | 234.21 | 8.50 | 8.50 | 8.50 |
| d_A, Approach Delay [s/veh] | 0.68 | | | 0.93 | | | 562.36 | | | 22.85 | | |
| Approach LOS | A | | | A | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 143.11 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 10.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.364 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ←↑ | | | ←↑ | | | ←↑ | | | ←↑ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 33 | 93 | 65 | 110 | 39 | 72 | 118 | 192 | 20 | 74 | 158 | 131 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 28 | 50 | 0 | 26 | 36 | 0 | 0 | 94 | 23 | 0 | 57 | 17 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 13 | 0 | 0 | 14 | 0 | 0 | 9 | 0 | 0 | 30 |
| Total Hourly Volume [veh/h] | 61 | 143 | 52 | 136 | 75 | 58 | 118 | 286 | 34 | 74 | 215 | 118 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 38 | 14 | 36 | 20 | 15 | 31 | 76 | 9 | 20 | 57 | 31 |
| Total Analysis Volume [veh/h] | 65 | 152 | 55 | 145 | 80 | 62 | 126 | 304 | 36 | 79 | 229 | 126 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 5 | | | 0 | | | 0 | | | 7 | | |
| v_di, Inbound Pedestrian Volume crossing m | 7 | | | 0 | | | 0 | | | 5 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 9 | | | 3 | | | 6 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 6 | | | 2 | | | 9 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|-------|------|-------|------|-------|------|-------|------|
| C, Calculated Cycle Length [s] | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 12 | 12 | 12 | 12 | 16 | 16 | 16 | 16 |
| g / C, Green / Cycle | 0.33 | 0.33 | 0.33 | 0.33 | 0.41 | 0.41 | 0.41 | 0.41 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.13 | 0.14 | 0.09 | 0.14 | 0.20 | 0.08 | 0.23 |
| s, saturation flow rate [veh/h] | 1140 | 1624 | 1063 | 1588 | 924 | 1664 | 949 | 1560 |
| c, Capacity [veh/h] | 423 | 530 | 373 | 518 | 362 | 683 | 387 | 640 |
| d1, Uniform Delay [s] | 12.73 | 9.88 | 15.06 | 9.46 | 14.56 | 8.30 | 12.99 | 8.55 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.17 | 0.47 | 0.66 | 0.28 | 0.57 | 0.56 | 0.26 | 0.75 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|-------|-------|-------|------|-------|-------|-------|-------|
| X, volume / capacity | 0.15 | 0.39 | 0.39 | 0.27 | 0.35 | 0.50 | 0.20 | 0.55 |
| d, Delay for Lane Group [s/veh] | 12.90 | 10.35 | 15.72 | 9.75 | 15.14 | 8.86 | 13.24 | 9.30 |
| Lane Group LOS | B | B | B | A | B | A | B | A |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.40 | 1.08 | 1.05 | 0.70 | 0.89 | 1.54 | 0.50 | 1.67 |
| 50th-Percentile Queue Length [m/ln] | 3.05 | 8.20 | 8.03 | 5.35 | 6.80 | 11.73 | 3.81 | 12.76 |
| 95th-Percentile Queue Length [veh/ln] | 0.72 | 1.94 | 1.90 | 1.26 | 1.61 | 2.77 | 0.90 | 3.01 |
| 95th-Percentile Queue Length [m/ln] | 5.49 | 14.76 | 14.45 | 9.64 | 12.23 | 21.11 | 6.86 | 22.97 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 12.90 | 10.35 | 10.35 | 15.72 | 9.75 | 9.75 | 15.14 | 8.86 | 8.86 | 13.24 | 9.30 | 9.30 |
| Movement LOS | B | B | B | B | A | A | B | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 10.96 | | | 12.76 | | | 10.56 | | | 10.02 | | |
| Approach LOS | B | | | B | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 10.91 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.364 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|-------|--------|--------|-------|-------|--------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 2.10 | 6.70 | 22.44 | 21.97 | 7.14 | 19.26 | 8.31 | 37.34 |
| Stops [stops/h] | 37.83 | 101.62 | 99.51 | 66.36 | 84.24 | 145.40 | 47.26 | 158.20 |
| Fuel consumption [L/h] | 1.64 | 4.42 | 6.01 | 4.58 | 3.92 | 7.23 | 2.60 | 9.47 |
| CO [g/h] | 30.30 | 81.69 | 110.97 | 84.61 | 72.43 | 133.45 | 47.99 | 174.83 |
| NOx [g/h] | 5.89 | 15.89 | 21.59 | 16.46 | 14.09 | 25.97 | 9.34 | 34.02 |
| VOC [g/h] | 7.02 | 18.93 | 25.72 | 19.61 | 16.79 | 30.93 | 11.12 | 40.52 |

Other Modes

| | | | | |
|--|--------|--------|-------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 425.94 | 118.24 | 0.00 | 165.36 |
| d_p, Pedestrian Delay [s] | 9.64 | 9.64 | 9.64 | 9.64 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.178 | 2.326 | 2.268 | 2.456 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 892 | 892 | 945 | 945 |
| d_b, Bicycle Delay [s] | 5.85 | 5.85 | 5.31 | 5.31 |
| I_b,int, Bicycle LOS Score for Intersection | 2.030 | 2.056 | 2.343 | 2.325 |
| Bicycle LOS | B | B | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 411.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.189 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 20 | 1271 | 6 | 4 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 4.00 | 0.00 | 25.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 212 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 1271 | 218 | 33 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 66 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 353 | 61 | 9 | 405 | 8 | 1 | 0 | 4 | 1 | 0 | 18 |
| Total Analysis Volume [veh/h] | 22 | 1412 | 242 | 37 | 1620 | 33 | 2 | 0 | 14 | 3 | 0 | 73 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 2 | | | 42 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|-------|------|------|--------|--------|-------|--------|--------|-------|
| V/C, Movement V/C Ratio | 0.06 | 0.01 | 0.00 | 0.14 | 0.02 | 0.00 | 0.19 | 0.00 | 0.04 | 0.22 | 0.00 | 0.21 |
| d_M, Delay for Movement [s/veh] | 14.67 | 0.00 | 0.00 | 20.29 | 0.00 | 0.00 | 411.53 | 653.95 | 16.55 | 325.95 | 478.42 | 18.21 |
| Movement LOS | B | A | A | C | A | A | F | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 | 0.48 | 0.13 | 0.13 | 0.58 | 0.79 | 0.79 |
| 95th-Percentile Queue Length [m/ln] | 1.35 | 0.00 | 0.00 | 3.54 | 0.00 | 0.00 | 3.67 | 1.02 | 1.02 | 4.42 | 6.00 | 6.00 |
| d_A, Approach Delay [s/veh] | 0.19 | | | 0.44 | | | 65.92 | | | 30.36 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 1.28 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.310 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | ↶ | | ↷ | | ↵ | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 51 | 37 | 4 | 27 | 34 |
| Total Analysis Volume [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings**Lanes**

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 756 | 756 | 777 |
| Degree of Utilization, x | 0.30 | 0.22 | 0.31 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|-------|
| 95th-Percentile Queue Length [veh] | 1.26 | 0.82 | 1.32 |
| 95th-Percentile Queue Length [m] | 9.64 | 6.27 | 10.08 |
| Approach Delay [s/veh] | 9.80 | 9.08 | 9.70 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 9.58 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.181 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 156 | 0 | 155 | 109 | 202 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 0 | 155 | 109 | 202 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 39 | 27 | 51 |
| Total Analysis Volume [veh/h] | 0 | 156 | 0 | 155 | 109 | 202 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 5.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.09 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.53 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.089 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 40 | 178 | 65 | 190 | 167 | 24 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 40 | 178 | 65 | 190 | 167 | 24 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 45 | 16 | 48 | 42 | 6 |
| Total Analysis Volume [veh/h] | 40 | 178 | 65 | 190 | 167 | 24 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.09 | 0.20 | 0.00 | 0.00 | 0.13 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.93 | 11.01 | 0.00 | 0.00 | 8.06 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.20 | 1.20 | 0.00 | 0.00 | 0.38 | 0.38 |
| 95th-Percentile Queue Length [m/ln] | 9.16 | 9.16 | 0.00 | 0.00 | 2.90 | 2.90 |
| d_A, Approach Delay [s/veh] | 11.73 | | 0.00 | | 7.05 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.88 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.125 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---------------------|-------|------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 100 | 80 | 48 | 17 | 13 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 80 | 48 | 17 | 13 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 20 | 12 | 4 | 3 | 18 |
| Total Analysis Volume [veh/h] | 100 | 80 | 48 | 17 | 13 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.12 | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.52 | 9.56 | 7.44 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.76 | 0.76 | 0.08 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 5.78 | 5.78 | 0.63 | 0.63 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.09 | | 5.49 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.59 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.250 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 174 | 82 | 63 | 81 | 45 | 19 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 174 | 82 | 63 | 81 | 45 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 21 | 16 | 20 | 11 | 5 |
| Total Analysis Volume [veh/h] | 174 | 82 | 63 | 81 | 45 | 19 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.25 | 0.08 | 0.04 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.45 | 10.84 | 7.41 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.45 | 1.45 | 0.11 | 0.11 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 11.06 | 11.06 | 0.83 | 0.83 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.94 | | 3.24 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.59 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.022 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 17 | 37 | 26 | 48 | 80 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 37 | 26 | 48 | 80 | 13 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 9 | 7 | 12 | 20 | 3 |
| Total Analysis Volume [veh/h] | 17 | 37 | 26 | 48 | 80 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.04 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.82 | 8.96 | 7.43 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.19 | 0.19 | 0.04 | 0.04 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.45 | 1.45 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.23 | | 2.61 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.13 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.084 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 75 | 80 | 182 | 94 | 171 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 75 | 80 | 182 | 94 | 171 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 19 | 20 | 46 | 24 | 43 |
| Total Analysis Volume [veh/h] | 0 | 75 | 80 | 182 | 94 | 171 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.08 | 0.00 | 0.00 | 0.07 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 9.39 | 0.00 | 0.00 | 7.88 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.27 | 0.00 | 0.00 | 0.17 | 0.17 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 2.09 | 0.00 | 0.00 | 1.26 | 1.26 |
| d_A, Approach Delay [s/veh] | 9.39 | | 0.00 | | 2.80 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.40 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.011 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 48 | 96 | 13 | 75 | 52 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 48 | 96 | 13 | 75 | 52 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 12 | 24 | 3 | 19 | 13 |
| Total Analysis Volume [veh/h] | 7 | 48 | 96 | 13 | 75 | 52 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.05 | 0.00 | 0.00 | 0.05 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.79 | 9.04 | 0.00 | 0.00 | 7.52 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.19 | 0.19 | 0.00 | 0.00 | 0.13 | 0.13 |
| 95th-Percentile Queue Length [m/ln] | 1.49 | 1.49 | 0.00 | 0.00 | 0.99 | 0.99 |
| d_A, Approach Delay [s/veh] | 9.26 | | 0.00 | | 4.44 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.69 | | | | | |
| Intersection LOS | B | | | | | |



APPENDIX D – INTERSECTION PERFORMANCE RESULTS – SCENARIO B (VALLEY-SHAMROCK CLOSURE)

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 7 AM Future - S of Valley Closure

Report File: V:\...\5 AM FUTURE - S OF VALLEY CLOSURE.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Right | 0.462 | 25.4 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.278 | 197.5 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | SB Left | 0.039 | 9.1 | A |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.001 | 0.0 | A |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | EB Left | 0.522 | 13.7 | B |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | EB Left | 0.389 | 19.1 | C |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | EB Left | 0.215 | 7.4 | A |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | WB Left | 0.089 | 121.9 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | NB Thru | 0.275 | 8.5 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.250 | 10.0 | B |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.066 | 10.9 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.034 | 9.5 | A |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.074 | 10.5 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.012 | 9.7 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.092 | 8.9 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.021 | 10.4 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.462 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 53 | 40 | 24 | 49 | 7 | 18 | 110 | 642 | 86 | 80 | 722 | 153 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.10 | 2.20 | 0.00 | 0.00 | 0.90 | 5.65 | 3.00 | 0.60 | 2.80 | 0.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 169 | 38 | 269 | 0 | 12 | 0 | 0 | 0 | 43 | 50 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 88 | 0 | 0 | 5 | 0 | 0 | 52 | 0 | 0 | 138 |
| Total Hourly Volume [veh/h] | 222 | 78 | 205 | 49 | 19 | 13 | 110 | 642 | 77 | 130 | 722 | 15 |
| Peak Hour Factor | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 59 | 21 | 54 | 13 | 5 | 3 | 29 | 170 | 20 | 35 | 192 | 4 |
| Total Analysis Volume [veh/h] | 236 | 83 | 218 | 52 | 20 | 14 | 117 | 682 | 82 | 138 | 766 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 23 | | | 39 | | | 5 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 39 | | | 23 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 14 | | | 6 | | | 11 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 11 | | | 7 | | | 14 | | | 6 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | Free Running |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 6 | 33 | 0 | 6 | 33 | 0 | 13 | 38 | 0 | 8 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 44 | 34 | 44 | 33 | 49 | 38 | 38 | 49 | 39 | 39 |
| g / C, Green / Cycle | 0.43 | 0.33 | 0.43 | 0.32 | 0.48 | 0.37 | 0.37 | 0.48 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.16 | 0.18 | 0.04 | 0.02 | 0.13 | 0.21 | 0.22 | 0.15 | 0.22 | 0.01 |
| s, saturation flow rate [veh/h] | 1481 | 1672 | 1199 | 1723 | 895 | 1815 | 1739 | 918 | 3538 | 1606 |
| c, Capacity [veh/h] | 716 | 555 | 455 | 550 | 408 | 667 | 639 | 420 | 1317 | 598 |
| d1, Uniform Delay [s] | 19.64 | 28.15 | 18.76 | 24.45 | 17.04 | 26.33 | 26.37 | 17.21 | 26.00 | 20.57 |
| k, delay calibration | 0.15 | 0.17 | 0.11 | 0.15 | 0.11 | 0.14 | 0.14 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.38 | 1.27 | 0.11 | 0.07 | 0.38 | 1.05 | 1.13 | 2.09 | 0.41 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.33 | 0.54 | 0.11 | 0.06 | 0.29 | 0.58 | 0.59 | 0.33 | 0.58 | 0.03 |
| d, Delay for Lane Group [s/veh] | 20.02 | 29.41 | 18.87 | 24.52 | 17.42 | 27.39 | 27.51 | 19.30 | 26.41 | 20.59 |
| Lane Group LOS | C | C | B | C | B | C | C | B | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 3.77 | 6.18 | 0.74 | 0.59 | 1.56 | 7.77 | 7.50 | 2.05 | 7.47 | 0.25 |
| 50th-Percentile Queue Length [m/ln] | 28.74 | 47.08 | 5.66 | 4.48 | 11.88 | 59.18 | 57.18 | 15.65 | 56.93 | 1.89 |
| 95th-Percentile Queue Length [veh/ln] | 6.79 | 10.26 | 1.34 | 1.06 | 2.81 | 12.34 | 12.00 | 3.70 | 11.95 | 0.45 |
| 95th-Percentile Queue Length [m/ln] | 51.72 | 78.15 | 10.20 | 8.07 | 21.39 | 94.00 | 91.41 | 28.17 | 91.09 | 3.39 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 20.02 | 29.41 | 29.41 | 18.87 | 24.52 | 24.52 | 17.42 | 27.44 | 27.51 | 19.30 | 26.41 | 20.59 |
| Movement LOS | C | C | C | B | C | C | B | C | C | B | C | C |
| d_A, Approach Delay [s/veh] | 25.29 | | | 21.11 | | | 26.11 | | | 25.24 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.42 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.462 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|--------|--------|-------|-------|-------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 26.47 | 33.76 | 4.48 | 2.93 | 14.20 | 47.23 | 45.49 | 20.85 | 115.76 | 2.42 |
| Stops [stops/h] | 131.29 | 215.13 | 25.88 | 20.49 | 54.30 | 270.37 | 261.24 | 71.51 | 520.21 | 8.62 |
| Fuel consumption [L/h] | 8.95 | 14.59 | 1.73 | 1.35 | 4.08 | 18.44 | 17.81 | 5.57 | 37.67 | 0.67 |
| CO [g/h] | 165.24 | 269.38 | 31.96 | 25.01 | 75.36 | 340.47 | 328.88 | 102.79 | 695.60 | 12.34 |
| NOx [g/h] | 32.15 | 52.41 | 6.22 | 4.87 | 14.66 | 66.24 | 63.99 | 20.00 | 135.34 | 2.40 |
| VOC [g/h] | 38.30 | 62.43 | 7.41 | 5.80 | 17.46 | 78.91 | 76.22 | 23.82 | 161.21 | 2.86 |

Other Modes

| | | | | |
|--|-------|--------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 91.56 | 166.92 | 25.18 | 94.26 |
| d_p, Pedestrian Delay [s] | 26.05 | 26.05 | 34.45 | 36.94 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.544 | 2.145 | 2.868 | 2.977 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 638 | 638 | 735 | 638 |
| d_b, Bicycle Delay [s] | 23.97 | 23.97 | 20.68 | 23.97 |
| I_b,int, Bicycle LOS Score for Intersection | 2.591 | 1.710 | 2.329 | 2.432 |
| Bicycle LOS | B | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 197.5
 Level Of Service: F
 Volume to Capacity (v/c): 1.278

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 209 | 14 | 10 | 310 | 0 | 0 | 0 | 0 | 25 | 0 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 0.00 | 0.00 | 1.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 108 | 0 | 23 | 37 | 45 | 302 | 1 | 2 | 0 | 0 | 66 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 317 | 14 | 33 | 347 | 45 | 302 | 1 | 2 | 25 | 0 | 80 |
| Peak Hour Factor | 1.0000 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 84 | 4 | 9 | 92 | 11 | 76 | 0 | 1 | 7 | 0 | 21 |
| Total Analysis Volume [veh/h] | 0 | 337 | 15 | 35 | 369 | 45 | 302 | 1 | 2 | 27 | 0 | 85 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 16 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 1.28 | 0.00 | 0.00 | 0.10 | 0.00 | 0.13 |
| d_M, Delay for Movement [s/veh] | 8.14 | 0.00 | 0.00 | 8.08 | 0.00 | 0.00 | 197.52 | 194.73 | 187.79 | 20.11 | 19.73 | 12.36 |
| Movement LOS | A | A | A | A | A | A | F | F | F | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.06 | 0.06 | 0.06 | 15.72 | 15.72 | 15.72 | 0.85 | 0.85 | 0.85 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 0.46 | 0.46 | 0.46 | 119.75 | 119.75 | 119.75 | 6.46 | 6.46 | 6.46 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.63 | | | 197.45 | | | 14.23 | | |
| Approach LOS | A | | | A | | | F | | | B | | |
| d_I, Intersection Delay [s/veh] | 50.98 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.039 |

Intersection Setup

| Name | Oak St | | Mistubishi Access | | Valley Ave | |
|------------------------------|------------|-------|-------------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Mistubishi Access | | Valley Ave | |
|---|--------|--------|-------------------|--------|------------|--------|
| Base Volume Input [veh/h] | 7 | 7 | 8 | 0 | 0 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 23 | 0 | 0 | 0 | 0 | 65 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 30 | 7 | 8 | 0 | 0 | 70 |
| Peak Hour Factor | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 2 | 2 | 0 | 0 | 21 |
| Total Analysis Volume [veh/h] | 36 | 8 | 10 | 0 | 0 | 85 |
| Pedestrian Volume [ped/h] | 0 | | 17 | | 13 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.04 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.13 | 8.81 | 7.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.15 | 0.15 | 0.02 | 0.02 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.14 | 1.14 | 0.15 | 0.15 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.07 | | 7.38 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.40 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.001 |

Intersection Setup

| Name | Oak St | Shamrock St |
|------------------------------|---|---|
| Approach | Northbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Right | Left |
| Lane Width [m] | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | 48.28 |
| Grade [%] | 0.00 | 0.00 |
| Crosswalk | Yes | Yes |

Volumes

| Name | Oak St | Shamrock St |
|---|--------|-------------|
| Base Volume Input [veh/h] | 26 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 66 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 50 | 80 |
| Peak Hour Factor | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 15 | 24 |
| Total Analysis Volume [veh/h] | 60 | 96 |
| Pedestrian Volume [ped/h] | 1 | 19 |

Intersection Settings

| | | |
|------------------------------------|------|------|
| Priority Scheme | Free | Free |
| Flared Lane | | |
| Storage Area [veh] | 0 | 0 |
| Two-Stage Gap Acceptance | | |
| Number of Storage Spaces in Median | 0 | 0 |

Movement, Approach, & Intersection Results

| | | |
|---------------------------------------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | | 0.00 |
| Intersection LOS | | A |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 13.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.522 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 55 | 65 | 60 | 50 | 51 | 34 | 10 | 237 | 24 | 92 | 480 | 65 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 3.70 | 2.00 | 1.00 | 4.50 | 0.00 | 4.40 | 8.30 | 3.30 | 4.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 11 | 2 | 145 | 62 | 0 | 63 | 19 | 94 | 0 | 86 | 97 | 21 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 62 | 0 | 0 | 29 | 0 | 0 | 5 | 0 | 0 | 17 |
| Total Hourly Volume [veh/h] | 66 | 67 | 143 | 112 | 51 | 68 | 29 | 331 | 19 | 178 | 577 | 69 |
| Peak Hour Factor | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 18 | 38 | 30 | 14 | 18 | 8 | 89 | 5 | 48 | 155 | 19 |
| Total Analysis Volume [veh/h] | 71 | 72 | 154 | 120 | 55 | 73 | 31 | 356 | 20 | 191 | 620 | 74 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 11 | | | 7 | | | 2 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 4 | | | 2 | | | 7 | | | 11 | | |
| v_co, Outbound Pedestrian Volume crossing | 6 | | | 13 | | | 8 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 8 | | | 12 | | | 6 | | | 13 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 19 | 0 | 0 | 19 | 0 | 0 | 23 | 0 | 0 | 23 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 16 | 16 | 16 | 16 | 23 | 23 | 23 | 23 | 23 |
| g / C, Green / Cycle | 0.32 | 0.32 | 0.32 | 0.32 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.13 | 0.10 | 0.08 | 0.04 | 0.10 | 0.10 | 0.19 | 0.39 |
| s, saturation flow rate [veh/h] | 1179 | 1679 | 1145 | 1698 | 760 | 1834 | 1797 | 988 | 1791 |
| c, Capacity [veh/h] | 421 | 541 | 356 | 547 | 215 | 867 | 849 | 512 | 846 |
| d1, Uniform Delay [s] | 15.28 | 12.93 | 18.22 | 12.10 | 21.11 | 7.55 | 7.56 | 12.06 | 11.05 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.28 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.19 | 0.52 | 0.56 | 0.22 | 0.31 | 0.13 | 0.13 | 0.45 | 5.18 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.17 | 0.42 | 0.34 | 0.23 | 0.14 | 0.22 | 0.22 | 0.37 | 0.82 |
| d, Delay for Lane Group [s/veh] | 15.47 | 13.44 | 18.78 | 12.32 | 21.41 | 7.67 | 7.69 | 12.51 | 16.23 |
| Lane Group LOS | B | B | B | B | C | A | A | B | B |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.59 | 1.71 | 1.15 | 0.90 | 0.32 | 0.93 | 0.92 | 1.40 | 6.03 |
| 50th-Percentile Queue Length [m/ln] | 4.47 | 13.05 | 8.75 | 6.85 | 2.46 | 7.05 | 6.97 | 10.70 | 45.92 |
| 95th-Percentile Queue Length [veh/ln] | 1.06 | 3.08 | 2.07 | 1.62 | 0.58 | 1.67 | 1.65 | 2.53 | 10.05 |
| 95th-Percentile Queue Length [m/ln] | 8.05 | 23.48 | 15.76 | 12.34 | 4.44 | 12.69 | 12.55 | 19.26 | 76.59 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 15.47 | 13.44 | 13.44 | 18.78 | 12.32 | 12.32 | 21.41 | 7.68 | 7.69 | 12.51 | 16.23 | 16.23 |
| Movement LOS | B | B | B | B | B | B | C | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 13.93 | | | 15.44 | | | 8.73 | | | 15.43 | | |
| Approach LOS | B | | | B | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 13.70 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.522 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|-------|-------|-------|-------|-------|--------|--------|
| Vehicle Kilometers Traveled [km/h] | 8.00 | 25.47 | 6.62 | 7.06 | 2.00 | 12.19 | 12.04 | 15.39 | 55.91 |
| Stops [stops/h] | 43.49 | 126.88 | 85.15 | 66.66 | 23.97 | 68.57 | 67.83 | 104.06 | 446.59 |
| Fuel consumption [L/h] | 2.53 | 7.46 | 4.16 | 3.29 | 1.21 | 3.73 | 3.69 | 5.51 | 23.43 |
| CO [g/h] | 46.73 | 137.76 | 76.77 | 60.79 | 22.27 | 68.94 | 68.16 | 101.69 | 432.73 |
| NOx [g/h] | 9.09 | 26.80 | 14.94 | 11.83 | 4.33 | 13.41 | 13.26 | 19.79 | 84.19 |
| VOC [g/h] | 10.83 | 31.93 | 17.79 | 14.09 | 5.16 | 15.98 | 15.80 | 23.57 | 100.29 |

Other Modes

| | | | | |
|--|--------|-------|--------|--------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 160.11 | 93.51 | 310.31 | 166.54 |
| d_p, Pedestrian Delay [s] | 11.60 | 11.60 | 10.92 | 10.92 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.460 | 2.134 | 2.486 | 2.668 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 782 | 782 | 947 | 947 |
| d_b, Bicycle Delay [s] | 9.00 | 9.00 | 6.73 | 6.73 |
| I_b,int, Bicycle LOS Score for Intersection | 2.152 | 2.017 | 1.900 | 3.048 |
| Bicycle LOS | B | B | A | C |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 19.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.389 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 27 | 102 | 2 | 11 | 92 | 66 | 45 | 5 | 60 | 1 | 1 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 4.00 | 1.00 | 0.00 | 0.00 | 1.00 | 3.00 | 0.00 | 0.00 | 3.00 | 100.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 2 | 3 | 6 | 0 | 80 | 125 | 7 | 14 | 4 | 8 | 31 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 34 | 104 | 5 | 17 | 92 | 146 | 170 | 12 | 74 | 5 | 9 | 35 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 29 | 1 | 5 | 25 | 40 | 47 | 3 | 20 | 1 | 2 | 10 |
| Total Analysis Volume [veh/h] | 37 | 114 | 5 | 19 | 101 | 160 | 187 | 13 | 81 | 5 | 10 | 38 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 1 | | | 15 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.39 | 0.03 | 0.09 | 0.02 | 0.02 | 0.04 |
| d_M, Delay for Movement [s/veh] | 7.87 | 0.00 | 0.00 | 7.53 | 0.00 | 0.00 | 19.09 | 18.91 | 15.80 | 17.06 | 13.55 | 9.43 |
| Movement LOS | A | A | A | A | A | A | C | C | C | C | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 2.88 | 2.88 | 2.88 | 0.26 | 0.26 | 0.26 |
| 95th-Percentile Queue Length [m/ln] | 0.67 | 0.00 | 0.00 | 0.31 | 0.00 | 0.00 | 21.92 | 21.92 | 21.92 | 1.99 | 1.99 | 1.99 |
| d_A, Approach Delay [s/veh] | 1.87 | | | 0.51 | | | 18.13 | | | 10.93 | | |
| Approach LOS | A | | | A | | | C | | | B | | |
| d_I, Intersection Delay [s/veh] | 7.93 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 7.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.215 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ←↑ | | | ←↑ | | | ←↑ | | | ←↑ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 3 | 4 | 7 | 54 | 6 | 71 | 60 | 107 | 12 | 9 | 159 | 64 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 | 3.00 | 5.00 | 2.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 12 | 5 | 0 | 18 | 0 | 0 | 0 | 41 | 0 | 0 | 23 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 1 | 0 | 0 | 14 | 0 | 0 | 2 | 0 | 0 | 14 |
| Total Hourly Volume [veh/h] | 15 | 9 | 6 | 72 | 6 | 57 | 60 | 148 | 10 | 9 | 182 | 57 |
| Peak Hour Factor | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 2 | 2 | 19 | 2 | 15 | 16 | 38 | 3 | 2 | 47 | 15 |
| Total Analysis Volume [veh/h] | 16 | 9 | 6 | 75 | 6 | 59 | 62 | 153 | 10 | 9 | 189 | 59 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 2 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 2 | | | 0 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 5 | | | 3 | | | 4 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 4 | | | 7 | | | 5 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|------|------|------|------|------|------|------|------|
| C, Calculated Cycle Length [s] | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 6 | 6 | 6 | 6 | 9 | 9 | 9 | 9 |
| g / C, Green / Cycle | 0.26 | 0.26 | 0.26 | 0.26 | 0.35 | 0.35 | 0.35 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.01 | 0.06 | 0.04 | 0.06 | 0.10 | 0.01 | 0.15 |
| s, saturation flow rate [veh/h] | 1219 | 1592 | 1230 | 1469 | 987 | 1663 | 1109 | 1609 |
| c, Capacity [veh/h] | 474 | 410 | 510 | 379 | 436 | 575 | 510 | 557 |
| d1, Uniform Delay [s] | 9.13 | 7.02 | 8.97 | 7.27 | 9.66 | 5.99 | 8.08 | 6.38 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.03 | 0.04 | 0.13 | 0.21 | 0.15 | 0.27 | 0.01 | 0.56 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|
| X, volume / capacity | 0.03 | 0.04 | 0.15 | 0.17 | 0.14 | 0.28 | 0.02 | 0.45 |
| d, Delay for Lane Group [s/veh] | 9.16 | 7.05 | 9.10 | 7.49 | 9.80 | 6.25 | 8.10 | 6.94 |
| Lane Group LOS | A | A | A | A | A | A | A | A |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.05 | 0.04 | 0.24 | 0.18 | 0.22 | 0.35 | 0.03 | 0.58 |
| 50th-Percentile Queue Length [m/ln] | 0.40 | 0.30 | 1.86 | 1.36 | 1.66 | 2.63 | 0.20 | 4.41 |
| 95th-Percentile Queue Length [veh/ln] | 0.09 | 0.07 | 0.44 | 0.32 | 0.39 | 0.62 | 0.05 | 1.04 |
| 95th-Percentile Queue Length [m/ln] | 0.72 | 0.53 | 3.35 | 2.45 | 2.99 | 4.74 | 0.36 | 7.93 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| d_M, Delay for Movement [s/veh] | 9.16 | 7.05 | 7.05 | 9.10 | 7.49 | 7.49 | 9.80 | 6.25 | 6.25 | 8.10 | 6.94 | 6.94 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 8.14 | | | 8.35 | | | 7.23 | | | 6.98 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.42 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.215 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|------|------|-------|-------|-------|-------|------|--------|
| Vehicle Kilometers Traveled [km/h] | 0.52 | 0.49 | 11.60 | 10.06 | 3.51 | 9.23 | 0.95 | 26.08 |
| Stops [stops/h] | 7.57 | 5.58 | 35.04 | 25.65 | 31.32 | 49.62 | 3.77 | 83.01 |
| Fuel consumption [L/h] | 0.32 | 0.25 | 2.38 | 1.89 | 1.46 | 2.72 | 0.23 | 5.59 |
| CO [g/h] | 5.93 | 4.53 | 43.99 | 34.81 | 27.02 | 50.17 | 4.18 | 103.19 |
| NOx [g/h] | 1.15 | 0.88 | 8.56 | 6.77 | 5.26 | 9.76 | 0.81 | 20.08 |
| VOC [g/h] | 1.38 | 1.05 | 10.20 | 8.07 | 6.26 | 11.63 | 0.97 | 23.92 |

Other Modes

| | | | | |
|--|--------|--------|---------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 395.24 | 326.92 | 1753.44 | 865.92 |
| d_p, Pedestrian Delay [s] | 3.95 | 3.95 | 3.95 | 3.95 |
| I_p,int, Pedestrian LOS Score for Intersectio | 1.886 | 2.058 | 2.042 | 2.144 |
| Crosswalk LOS | A | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1356 | 1356 | 1436 | 1436 |
| d_b, Bicycle Delay [s] | 1.30 | 1.30 | 1.00 | 1.00 |
| I_b,int, Bicycle LOS Score for Intersection | 1.612 | 1.814 | 1.934 | 2.007 |
| Bicycle LOS | A | A | A | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 121.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.089 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 29 | 944 | 12 | 8 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 8.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 66 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 29 | 944 | 78 | 17 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 74 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 246 | 20 | 4 | 413 | 10 | 0 | 0 | 5 | 1 | 0 | 19 |
| Total Analysis Volume [veh/h] | 30 | 983 | 81 | 18 | 1650 | 42 | 0 | 0 | 21 | 3 | 0 | 77 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 18 | | | 17 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|-------|------|------|--------|--------|-------|----------|--------|-------|
| V/C, Movement V/C Ratio | 0.08 | 0.01 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.08 | 0.09 | 0.00 | 0.16 |
| d_M, Delay for Movement [s/veh] | 15.59 | 0.00 | 0.00 | 10.77 | 0.00 | 0.00 | 215.81 | 244.91 | 19.06 | 121.93 | 231.65 | 13.79 |
| Movement LOS | C | A | A | B | A | A | F | F | C | F | F | B |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.56 | 0.56 |
| 95th-Percentile Queue Length [m/ln] | 2.01 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 | 0.00 | 1.86 | 1.86 | 2.08 | 4.26 | 4.26 |
| d_A, Approach Delay [s/veh] | 0.43 | | | 0.11 | | | 19.06 | | | 17.85 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.275 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 196 | 130 | 27 | 34 | 41 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 34 | 196 | 130 | 27 | 34 | 41 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 49 | 33 | 7 | 9 | 10 |
| Total Analysis Volume [veh/h] | 34 | 196 | 130 | 27 | 34 | 41 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

Lanes

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 836 | 847 | 792 |
| Degree of Utilization, x | 0.28 | 0.19 | 0.09 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|------|
| 95th-Percentile Queue Length [veh] | 1.12 | 0.68 | 0.31 |
| 95th-Percentile Queue Length [m] | 8.56 | 5.17 | 2.38 |
| Approach Delay [s/veh] | 8.94 | 8.22 | 8.02 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 8.55 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.250 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 239 | 0 | 113 | 108 | 63 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 239 | 0 | 113 | 108 | 63 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 60 | 0 | 28 | 27 | 16 |
| Total Analysis Volume [veh/h] | 0 | 239 | 0 | 113 | 108 | 63 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 7.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.01 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.58 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.066 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 47 | 125 | 21 | 70 | 80 | 15 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 125 | 21 | 70 | 80 | 15 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 31 | 5 | 18 | 20 | 4 |
| Total Analysis Volume [veh/h] | 47 | 125 | 21 | 70 | 80 | 15 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.07 | 0.12 | 0.00 | 0.00 | 0.05 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.95 | 9.49 | 0.00 | 0.00 | 7.49 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.70 | 0.70 | 0.00 | 0.00 | 0.14 | 0.14 |
| 95th-Percentile Queue Length [m/ln] | 5.30 | 5.30 | 0.00 | 0.00 | 1.08 | 1.08 |
| d_A, Approach Delay [s/veh] | 9.88 | | 0.00 | | 6.31 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.42 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.034 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 31 | 109 | 20 | 10 | 5 | 30 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 31 | 109 | 20 | 10 | 5 | 30 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 27 | 5 | 3 | 1 | 8 |
| Total Analysis Volume [veh/h] | 31 | 109 | 20 | 10 | 5 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.10 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.46 | 8.96 | 7.31 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.47 | 0.47 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 3.60 | 3.60 | 0.26 | 0.26 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.07 | | 4.87 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.91 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.074 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 57 | 91 | 50 | 34 | 55 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 57 | 91 | 50 | 34 | 55 | 7 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 14 | 23 | 13 | 9 | 14 | 2 |
| Total Analysis Volume [veh/h] | 57 | 91 | 50 | 34 | 55 | 7 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.07 | 0.09 | 0.03 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.46 | 9.36 | 7.39 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.59 | 0.59 | 0.09 | 0.09 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 4.47 | 4.47 | 0.65 | 0.65 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.78 | | 4.40 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.18 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.012 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|-----------------|-------|------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 10 | 80 | 10 | 20 | 109 | 5 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 10 | 80 | 10 | 20 | 109 | 5 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 3 | 20 | 3 | 5 | 27 | 1 |
| Total Analysis Volume [veh/h] | 10 | 80 | 10 | 20 | 109 | 5 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.08 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.73 | 9.24 | 7.45 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.32 | 0.32 | 0.02 | 0.02 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 2.45 | 2.45 | 0.13 | 0.13 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.29 | | 2.48 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.89 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 8.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.092 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|-----------------|-------|----------------|-------|----------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 94 | 19 | 60 | 34 | 313 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 94 | 19 | 60 | 34 | 313 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 24 | 5 | 15 | 9 | 78 |
| Total Analysis Volume [veh/h] | 0 | 94 | 19 | 60 | 34 | 313 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.09 | 0.00 | 0.00 | 0.02 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 8.87 | 0.00 | 0.00 | 7.43 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.30 | 0.00 | 0.00 | 0.07 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 2.31 | 0.00 | 0.00 | 0.52 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.87 | | 0.00 | | 0.73 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.09 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.021 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 45 | 39 | 5 | 67 | 79 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 15 | 45 | 39 | 5 | 67 | 79 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 11 | 10 | 1 | 17 | 20 |
| Total Analysis Volume [veh/h] | 15 | 45 | 39 | 5 | 67 | 79 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.04 | 0.00 | 0.00 | 0.04 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.41 | 8.77 | 0.00 | 0.00 | 7.38 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.21 | 0.21 | 0.00 | 0.00 | 0.12 | 0.12 |
| 95th-Percentile Queue Length [m/ln] | 1.59 | 1.59 | 0.00 | 0.00 | 0.88 | 0.88 |
| d_A, Approach Delay [s/veh] | 9.18 | | 0.00 | | 3.39 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.18 | | | | | |
| Intersection LOS | B | | | | | |

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 8 PM Future - S of Valley Closure

Report File: V:\...16 PM FUTURE - S OF VALLEY CLOSURE.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Right | 0.597 | 28.7 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.780 | 459.4 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | SB Left | 0.079 | 9.2 | A |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | NB Right | 0.001 | 0.0 | A |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | SB Left | 0.729 | 20.5 | C |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | EB Left | 1.530 | 426.1 | F |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | SB Left | 0.359 | 10.4 | B |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | EB Left | 0.190 | 413.7 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | EB Right | 0.342 | 9.7 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.176 | 9.9 | A |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.088 | 14.7 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.125 | 10.6 | B |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.247 | 12.4 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.022 | 10.0 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.073 | 9.3 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.011 | 10.8 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 28.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.597 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 100 | 87 | 55 | 224 | 52 | 181 | 166 | 700 | 50 | 55 | 890 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 2.00 | 1.00 | 2.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 77 | 26 | 215 | 0 | 37 | 0 | 0 | 0 | 128 | 128 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 81 | 0 | 0 | 54 | 0 | 0 | 71 | 0 | 0 | 180 |
| Total Hourly Volume [veh/h] | 177 | 113 | 189 | 224 | 89 | 127 | 166 | 700 | 107 | 183 | 890 | 20 |
| Peak Hour Factor | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 46 | 29 | 49 | 58 | 23 | 33 | 43 | 180 | 28 | 47 | 229 | 5 |
| Total Analysis Volume [veh/h] | 182 | 116 | 195 | 231 | 92 | 131 | 171 | 722 | 110 | 189 | 918 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 21 | | | 68 | | | 51 | | | 31 | | |
| v_di, Inbound Pedestrian Volume crossing m | 31 | | | 51 | | | 68 | | | 21 | | |
| v_co, Outbound Pedestrian Volume crossing | 28 | | | 60 | | | 28 | | | 43 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 28 | | | 43 | | | 28 | | | 60 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 6 | 27 | 0 | 12 | 33 | 0 | 13 | 38 | 0 | 8 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 44 | 28 | 44 | 33 | 51 | 38 | 38 | 51 | 38 | 38 |
| g / C, Green / Cycle | 0.42 | 0.27 | 0.42 | 0.31 | 0.49 | 0.36 | 0.36 | 0.49 | 0.36 | 0.36 |
| (v / s)_i Volume / Saturation Flow Rate | 0.14 | 0.19 | 0.18 | 0.14 | 0.20 | 0.23 | 0.23 | 0.21 | 0.26 | 0.01 |
| s, saturation flow rate [veh/h] | 1306 | 1643 | 1316 | 1594 | 864 | 1870 | 1759 | 901 | 3560 | 1615 |
| c, Capacity [veh/h] | 521 | 438 | 469 | 501 | 385 | 677 | 636 | 414 | 1291 | 586 |
| d1, Uniform Delay [s] | 20.45 | 34.84 | 22.25 | 28.70 | 19.13 | 27.68 | 27.80 | 18.22 | 28.73 | 21.61 |
| k, delay calibration | 0.15 | 0.27 | 0.50 | 0.15 | 0.11 | 0.17 | 0.18 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.57 | 5.16 | 3.66 | 0.88 | 0.85 | 1.55 | 1.78 | 3.59 | 0.74 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| X, volume / capacity | 0.35 | 0.71 | 0.49 | 0.45 | 0.44 | 0.63 | 0.64 | 0.46 | 0.71 | 0.04 |
| d, Delay for Lane Group [s/veh] | 21.03 | 40.00 | 25.91 | 29.59 | 19.98 | 29.22 | 29.57 | 21.82 | 29.47 | 21.63 |
| Lane Group LOS | C | D | C | C | B | C | C | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 2.93 | 7.73 | 4.20 | 4.56 | 2.38 | 8.96 | 8.62 | 2.98 | 9.83 | 0.34 |
| 50th-Percentile Queue Length [m/ln] | 22.31 | 58.88 | 32.01 | 34.75 | 18.13 | 68.27 | 65.71 | 22.67 | 74.91 | 2.57 |
| 95th-Percentile Queue Length [veh/ln] | 5.27 | 12.29 | 7.56 | 8.06 | 4.28 | 13.87 | 13.44 | 5.36 | 14.97 | 0.61 |
| 95th-Percentile Queue Length [m/ln] | 40.16 | 93.61 | 57.61 | 61.44 | 32.63 | 105.67 | 102.41 | 40.81 | 114.09 | 4.63 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 21.03 | 40.00 | 40.00 | 25.91 | 29.59 | 29.59 | 19.98 | 29.37 | 29.57 | 21.82 | 29.47 | 21.63 |
| Movement LOS | C | D | D | C | C | C | B | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 33.00 | | | 27.72 | | | 27.79 | | | 28.04 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 28.70 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.597 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 20.41 | 34.88 | 19.90 | 19.21 | 20.75 | 51.66 | 49.31 | 28.56 | 138.73 | 3.17 |
| Stops [stops/h] | 100.38 | 264.91 | 144.01 | 156.37 | 81.55 | 307.17 | 295.67 | 102.01 | 674.10 | 11.58 |
| Fuel consumption [L/h] | 7.02 | 18.50 | 9.55 | 10.21 | 6.35 | 21.01 | 20.21 | 8.08 | 48.37 | 0.90 |
| CO [g/h] | 129.70 | 341.62 | 176.34 | 188.58 | 117.19 | 387.95 | 373.27 | 149.11 | 893.19 | 16.61 |
| NOx [g/h] | 25.23 | 66.47 | 34.31 | 36.69 | 22.80 | 75.48 | 72.63 | 29.01 | 173.78 | 3.23 |
| VOC [g/h] | 30.06 | 79.17 | 40.87 | 43.71 | 27.16 | 89.91 | 86.51 | 34.56 | 207.00 | 3.85 |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 38.65 | 19.80 | 11.84 | 18.73 |
| d_p, Pedestrian Delay [s] | 26.79 | 26.79 | 35.22 | 37.72 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.590 | 2.423 | 2.947 | 3.127 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 514 | 629 | 724 | 629 |
| d_b, Bicycle Delay [s] | 28.97 | 24.69 | 21.38 | 24.69 |
| I_b,int, Bicycle LOS Score for Intersection | 2.507 | 2.398 | 2.446 | 2.639 |
| Bicycle LOS | B | B | B | B |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 459.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.780 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 488 | 28 | 25 | 274 | 0 | 0 | 0 | 0 | 13 | 0 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 4.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 75 | 0 | 55 | 93 | 145 | 198 | 3 | 5 | 0 | 0 | 45 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 563 | 28 | 80 | 367 | 145 | 198 | 3 | 5 | 13 | 0 | 60 |
| Peak Hour Factor | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 145 | 7 | 21 | 94 | 36 | 51 | 1 | 1 | 3 | 0 | 15 |
| Total Analysis Volume [veh/h] | 0 | 580 | 29 | 82 | 378 | 145 | 204 | 3 | 5 | 13 | 0 | 62 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 4 | | | 23 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.09 | 0.00 | 0.00 | 1.78 | 0.02 | 0.01 | 0.10 | 0.00 | 0.13 |
| d_M, Delay for Movement [s/veh] | 8.47 | 0.00 | 0.00 | 8.94 | 0.00 | 0.00 | 459.43 | 452.51 | 434.00 | 36.33 | 34.77 | 15.73 |
| Movement LOS | A | A | A | A | A | A | F | F | F | E | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.15 | 0.15 | 0.15 | 16.63 | 16.63 | 16.63 | 0.87 | 0.87 | 0.87 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 1.15 | 1.15 | 1.15 | 126.72 | 126.72 | 126.72 | 6.64 | 6.64 | 6.64 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 1.21 | | | 458.74 | | | 19.30 | | |
| Approach LOS | A | | | A | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 66.24 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.079 |

Intersection Setup

| Name | Oak St | | Mistubishi Access | | Valley Ave | |
|------------------------------|------------|-------|-------------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Mistubishi Access | | Valley Ave | |
|---|--------|--------|-------------------|--------|------------|--------|
| Base Volume Input [veh/h] | 7 | 1 | 4 | 0 | 0 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 58 | 0 | 0 | 0 | 0 | 45 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 65 | 1 | 4 | 0 | 0 | 54 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 18 | 0 | 1 | 0 | 0 | 15 |
| Total Analysis Volume [veh/h] | 73 | 1 | 4 | 0 | 0 | 61 |
| Pedestrian Volume [ped/h] | 0 | | 36 | | 22 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.21 | 9.05 | 7.32 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.26 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.97 | 1.97 | 0.06 | 0.06 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.21 | | 7.32 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.11 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 0.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.001 |

Intersection Setup

| Name | Oak St | Shamrock St |
|------------------------------|---|---|
| Approach | Northbound | Westbound |
| Lane Configuration |  |  |
| Turning Movement | Right | Left |
| Lane Width [m] | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | 48.28 |
| Grade [%] | 0.00 | 0.00 |
| Crosswalk | Yes | Yes |

Volumes

| Name | Oak St | Shamrock St |
|---|--------|-------------|
| Base Volume Input [veh/h] | 13 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 |
| Site-Generated Trips [veh/h] | 58 | 45 |
| Diverted Trips [veh/h] | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 |
| Total Hourly Volume [veh/h] | 71 | 64 |
| Peak Hour Factor | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 20 | 18 |
| Total Analysis Volume [veh/h] | 80 | 72 |
| Pedestrian Volume [ped/h] | 2 | 34 |

Intersection Settings

| | | |
|------------------------------------|------|------|
| Priority Scheme | Free | Free |
| Flared Lane | | |
| Storage Area [veh] | 0 | 0 |
| Two-Stage Gap Acceptance | | |
| Number of Storage Spaces in Median | 0 | 0 |

Movement, Approach, & Intersection Results

| | | |
|---------------------------------------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 |
| Movement LOS | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | 0.00 |
| Approach LOS | A | A |
| d_I, Intersection Delay [s/veh] | | 0.00 |
| Intersection LOS | | A |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 20.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.729 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 107 | 144 | 153 | 54 | 65 | 40 | 24 | 332 | 27 | 105 | 446 | 67 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 3.00 | 4.00 | 1.00 | 0.00 | 0.00 | 8.00 | 0.00 | 1.00 | 12.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 5 | 5 | 170 | 40 | 3 | 23 | 54 | 67 | 0 | 180 | 247 | 48 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 97 | 0 | 0 | 19 | 0 | 0 | 5 | 0 | 0 | 23 |
| Total Hourly Volume [veh/h] | 112 | 149 | 226 | 94 | 68 | 44 | 78 | 399 | 22 | 285 | 693 | 92 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 29 | 39 | 59 | 25 | 18 | 12 | 21 | 105 | 6 | 75 | 182 | 24 |
| Total Analysis Volume [veh/h] | 118 | 157 | 238 | 99 | 72 | 46 | 82 | 420 | 23 | 300 | 729 | 97 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 15 | | | 7 | | | 5 | | | 12 | | |
| v_di, Inbound Pedestrian Volume crossing m | 12 | | | 5 | | | 7 | | | 15 | | |
| v_co, Outbound Pedestrian Volume crossing | 9 | | | 7 | | | 16 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 16 | | | 12 | | | 9 | | | 7 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 5 | 2 | 0 | 1 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 19 | 0 | 0 | 19 | 0 | 5 | 38 | 0 | 5 | 38 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 | 2.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 5 | 20 | 0 | 5 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 19 | 19 | 19 | 19 | 38 | 38 | 38 | 38 | 38 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.28 | 0.28 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.24 | 0.10 | 0.07 | 0.12 | 0.13 | 0.13 | 0.32 | 0.49 |
| s, saturation flow rate [veh/h] | 1274 | 1659 | 964 | 1747 | 674 | 1780 | 1743 | 947 | 1681 |
| c, Capacity [veh/h] | 361 | 470 | 137 | 496 | 160 | 1010 | 989 | 545 | 953 |
| d1, Uniform Delay [s] | 23.70 | 22.57 | 33.20 | 18.44 | 31.83 | 7.18 | 7.18 | 14.18 | 12.34 |
| k, delay calibration | 0.11 | 0.28 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.35 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.52 | 10.01 | 7.06 | 0.25 | 2.53 | 0.11 | 0.11 | 0.98 | 7.52 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity | 0.33 | 0.84 | 0.72 | 0.24 | 0.51 | 0.22 | 0.22 | 0.55 | 0.87 |
| d, Delay for Lane Group [s/veh] | 24.22 | 32.57 | 40.26 | 18.68 | 34.35 | 7.28 | 7.29 | 15.16 | 19.85 |
| Lane Group LOS | C | C | D | B | C | A | A | B | B |
| Critical Lane Group | No | Yes | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 1.62 | 6.73 | 1.83 | 1.36 | 1.40 | 1.35 | 1.33 | 3.28 | 10.39 |
| 50th-Percentile Queue Length [m/ln] | 12.32 | 51.25 | 13.91 | 10.33 | 10.68 | 10.28 | 10.15 | 24.97 | 79.16 |
| 95th-Percentile Queue Length [veh/ln] | 2.91 | 10.98 | 3.29 | 2.44 | 2.52 | 2.43 | 2.40 | 5.90 | 15.67 |
| 95th-Percentile Queue Length [m/ln] | 22.17 | 83.65 | 25.03 | 18.60 | 19.23 | 18.51 | 18.27 | 44.95 | 119.44 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 24.22 | 32.57 | 32.57 | 40.26 | 18.68 | 18.68 | 34.35 | 7.29 | 7.29 | 15.16 | 19.85 | 19.85 |
| Movement LOS | C | C | C | D | B | B | C | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 30.65 | | | 28.53 | | | 11.52 | | | 18.61 | | |
| Approach LOS | C | | | C | | | B | | | B | | |
| d_I, Intersection Delay [s/veh] | 20.54 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.729 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|--------|-------|-------|-------|-------|--------|--------|
| Vehicle Kilometers Traveled [km/h] | 13.30 | 44.51 | 5.46 | 6.50 | 5.29 | 14.38 | 14.18 | 24.17 | 66.55 |
| Stops [stops/h] | 86.85 | 361.35 | 98.07 | 72.86 | 75.32 | 72.52 | 71.59 | 176.11 | 558.18 |
| Fuel consumption [L/h] | 5.31 | 21.78 | 5.65 | 3.85 | 4.26 | 4.16 | 4.11 | 9.53 | 30.75 |
| CO [g/h] | 97.97 | 402.17 | 104.33 | 71.13 | 78.61 | 76.84 | 75.81 | 175.95 | 567.85 |
| NOx [g/h] | 19.06 | 78.25 | 20.30 | 13.84 | 15.29 | 14.95 | 14.75 | 34.23 | 110.48 |
| VOC [g/h] | 22.71 | 93.21 | 24.18 | 16.49 | 18.22 | 17.81 | 17.57 | 40.78 | 131.60 |

Other Modes

| | | | | |
|--|-------|-------|--------|-------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 52.68 | 78.36 | 162.19 | 59.33 |
| d_p, Pedestrian Delay [s] | 20.18 | 20.18 | 19.41 | 19.41 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.811 | 2.255 | 2.634 | 2.769 |
| Crosswalk LOS | C | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 567 | 567 | 1134 | 1134 |
| d_b, Bicycle Delay [s] | 17.19 | 17.19 | 6.28 | 6.28 |
| I_b,int, Bicycle LOS Score for Intersection | 2.566 | 1.949 | 1.997 | 3.455 |
| Bicycle LOS | B | A | A | C |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 426.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.530 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------|-------|-------|---------------------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 26.00 | 30.48 | 30.48 | 51.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Roderick St | | | Island Home Centre Access | | |
|---|--------|--------|--------|--------|--------|--------|-------------|--------|--------|---------------------------|--------|--------|
| Base Volume Input [veh/h] | 18 | 365 | 17 | 38 | 213 | 42 | 58 | 4 | 37 | 6 | 3 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 19 | 5 | 6 | 14 | 3 | 166 | 158 | 20 | 45 | 8 | 5 | 17 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 37 | 370 | 23 | 52 | 216 | 208 | 216 | 24 | 82 | 14 | 8 | 46 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 106 | 7 | 15 | 62 | 60 | 62 | 7 | 24 | 4 | 2 | 13 |
| Total Analysis Volume [veh/h] | 43 | 425 | 26 | 60 | 248 | 239 | 248 | 28 | 94 | 16 | 9 | 53 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 8 | | | 12 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|--------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.04 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 1.53 | 0.14 | 0.14 | 0.12 | 0.05 | 0.09 |
| d_M, Delay for Movement [s/veh] | 8.50 | 0.00 | 0.00 | 8.47 | 0.00 | 0.00 | 426.13 | 421.44 | 409.28 | 36.35 | 29.39 | 15.07 |
| Movement LOS | A | A | A | A | A | A | F | F | F | E | D | C |
| 95th-Percentile Queue Length [veh/ln] | 0.13 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 25.99 | 25.99 | 25.99 | 1.01 | 1.01 | 1.01 |
| 95th-Percentile Queue Length [m/ln] | 0.96 | 0.00 | 0.00 | 1.32 | 0.00 | 0.00 | 198.05 | 198.05 | 198.05 | 7.71 | 7.71 | 7.71 |
| d_A, Approach Delay [s/veh] | 0.74 | | | 0.93 | | | 421.49 | | | 21.09 | | |
| Approach LOS | A | | | A | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 106.43 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.359 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ⇐⇑⇓⇐ | | | ⇐⇑⇓⇐ | | | ⇐⇑⇓⇐ | | | ⇐⇑⇓⇐ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 33 | 93 | 65 | 110 | 39 | 72 | 118 | 192 | 20 | 74 | 158 | 131 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 28 | 13 | 0 | 26 | 30 | 0 | 0 | 94 | 23 | 0 | 57 | 17 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 13 | 0 | 0 | 14 | 0 | 0 | 9 | 0 | 0 | 30 |
| Total Hourly Volume [veh/h] | 61 | 106 | 52 | 136 | 69 | 58 | 118 | 286 | 34 | 74 | 215 | 118 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 16 | 28 | 14 | 36 | 18 | 15 | 31 | 76 | 9 | 20 | 57 | 31 |
| Total Analysis Volume [veh/h] | 65 | 113 | 55 | 145 | 73 | 62 | 126 | 304 | 36 | 79 | 229 | 126 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 5 | | | 0 | | | 0 | | | 7 | | |
| v_di, Inbound Pedestrian Volume crossing m | 7 | | | 0 | | | 0 | | | 5 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 9 | | | 3 | | | 6 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 6 | | | 2 | | | 9 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|-------|------|-------|------|-------|------|-------|------|
| C, Calculated Cycle Length [s] | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 11 | 11 | 11 | 11 | 15 | 15 | 15 | 15 |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.31 | 0.31 | 0.42 | 0.42 | 0.42 | 0.42 |
| (v / s)_i Volume / Saturation Flow Rate | 0.06 | 0.10 | 0.13 | 0.09 | 0.14 | 0.20 | 0.08 | 0.23 |
| s, saturation flow rate [veh/h] | 1147 | 1605 | 1100 | 1582 | 923 | 1664 | 949 | 1560 |
| c, Capacity [veh/h] | 412 | 495 | 385 | 488 | 375 | 689 | 400 | 646 |
| d1, Uniform Delay [s] | 12.69 | 9.63 | 14.35 | 9.43 | 13.71 | 7.77 | 12.23 | 8.01 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.18 | 0.40 | 0.61 | 0.30 | 0.52 | 0.55 | 0.24 | 0.73 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|-------|-------|-------|------|-------|-------|-------|-------|
| X, volume / capacity | 0.16 | 0.34 | 0.38 | 0.28 | 0.34 | 0.49 | 0.20 | 0.55 |
| d, Delay for Lane Group [s/veh] | 12.87 | 10.04 | 14.96 | 9.73 | 14.24 | 8.32 | 12.47 | 8.74 |
| Lane Group LOS | B | B | B | A | B | A | B | A |
| Critical Lane Group | No | No | Yes | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.39 | 0.82 | 0.98 | 0.64 | 0.82 | 1.39 | 0.46 | 1.51 |
| 50th-Percentile Queue Length [m/ln] | 2.94 | 6.24 | 7.46 | 4.89 | 6.26 | 10.57 | 3.51 | 11.51 |
| 95th-Percentile Queue Length [veh/ln] | 0.69 | 1.47 | 1.76 | 1.16 | 1.48 | 2.50 | 0.83 | 2.72 |
| 95th-Percentile Queue Length [m/ln] | 5.29 | 11.24 | 13.42 | 8.81 | 11.26 | 19.03 | 6.31 | 20.72 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|------|------|-------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 12.87 | 10.04 | 10.04 | 14.96 | 9.73 | 9.73 | 14.24 | 8.32 | 8.32 | 12.47 | 8.74 | 8.74 |
| Movement LOS | B | B | B | B | A | A | B | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 10.83 | | | 12.44 | | | 9.92 | | | 9.42 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 10.42 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.359 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|-------|-------|--------|-------|-------|--------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 2.10 | 5.43 | 22.44 | 20.89 | 7.14 | 19.26 | 8.31 | 37.34 |
| Stops [stops/h] | 38.34 | 81.41 | 97.25 | 63.81 | 81.59 | 137.88 | 45.74 | 150.13 |
| Fuel consumption [L/h] | 1.65 | 3.53 | 5.88 | 4.37 | 3.78 | 6.93 | 2.52 | 9.15 |
| CO [g/h] | 30.46 | 65.14 | 108.53 | 80.69 | 69.79 | 127.94 | 46.53 | 168.88 |
| NOx [g/h] | 5.93 | 12.67 | 21.12 | 15.70 | 13.58 | 24.89 | 9.05 | 32.86 |
| VOC [g/h] | 7.06 | 15.10 | 25.15 | 18.70 | 16.18 | 29.65 | 10.78 | 39.14 |

Other Modes

| | | | | |
|--|--------|--------|-------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 450.58 | 126.31 | 0.00 | 175.71 |
| d_p, Pedestrian Delay [s] | 8.78 | 8.78 | 8.78 | 8.78 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.159 | 2.308 | 2.265 | 2.452 |
| Crosswalk LOS | B | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 939 | 939 | 994 | 994 |
| d_b, Bicycle Delay [s] | 5.10 | 5.10 | 4.58 | 4.58 |
| I_b,int, Bicycle LOS Score for Intersection | 1.966 | 2.045 | 2.343 | 2.325 |
| Bicycle LOS | A | B | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 413.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.190 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 20 | 1271 | 6 | 4 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 4.00 | 0.00 | 25.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 238 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 1271 | 244 | 33 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 66 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 353 | 68 | 9 | 405 | 8 | 1 | 0 | 4 | 1 | 0 | 18 |
| Total Analysis Volume [veh/h] | 22 | 1412 | 271 | 37 | 1620 | 33 | 2 | 0 | 14 | 3 | 0 | 73 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 2 | | | 42 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|-------|------|------|--------|--------|-------|--------|--------|-------|
| V/C, Movement V/C Ratio | 0.06 | 0.01 | 0.00 | 0.14 | 0.02 | 0.00 | 0.19 | 0.00 | 0.04 | 0.22 | 0.00 | 0.21 |
| d_M, Delay for Movement [s/veh] | 14.67 | 0.00 | 0.00 | 20.81 | 0.00 | 0.00 | 413.70 | 686.73 | 16.55 | 327.72 | 480.61 | 18.21 |
| Movement LOS | B | A | A | C | A | A | F | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.00 | 0.00 | 0.48 | 0.00 | 0.00 | 0.48 | 0.13 | 0.13 | 0.58 | 0.79 | 0.79 |
| 95th-Percentile Queue Length [m/ln] | 1.35 | 0.00 | 0.00 | 3.66 | 0.00 | 0.00 | 3.68 | 1.02 | 1.02 | 4.44 | 6.00 | 6.00 |
| d_A, Approach Delay [s/veh] | 0.19 | | | 0.46 | | | 66.20 | | | 30.43 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 1.28 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 9.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.342 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 191 | 148 | 16 | 116 | 151 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 191 | 148 | 16 | 116 | 151 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 48 | 37 | 4 | 29 | 38 |
| Total Analysis Volume [veh/h] | 24 | 191 | 148 | 16 | 116 | 151 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings**Lanes**

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 745 | 747 | 781 |
| Degree of Utilization, x | 0.29 | 0.22 | 0.34 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|-------|
| 95th-Percentile Queue Length [veh] | 1.20 | 0.83 | 1.52 |
| 95th-Percentile Queue Length [m] | 9.11 | 6.36 | 11.59 |
| Approach Delay [s/veh] | 9.78 | 9.17 | 9.98 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 9.71 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.176 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 156 | 0 | 121 | 102 | 173 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 0 | 121 | 102 | 173 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 30 | 26 | 43 |
| Total Analysis Volume [veh/h] | 0 | 156 | 0 | 121 | 102 | 173 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 9.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | A | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 4.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.93 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.81 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.088 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 40 | 158 | 65 | 190 | 166 | 24 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 40 | 158 | 65 | 190 | 166 | 24 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 40 | 16 | 48 | 42 | 6 |
| Total Analysis Volume [veh/h] | 40 | 158 | 65 | 190 | 166 | 24 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.09 | 0.18 | 0.00 | 0.00 | 0.13 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.71 | 10.82 | 0.00 | 0.00 | 8.06 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.08 | 1.08 | 0.00 | 0.00 | 0.38 | 0.38 |
| 95th-Percentile Queue Length [m/ln] | 8.19 | 8.19 | 0.00 | 0.00 | 2.88 | 2.88 |
| d_A, Approach Delay [s/veh] | 11.61 | | 0.00 | | 7.04 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.65 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.125 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 100 | 100 | 48 | 17 | 13 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 100 | 48 | 17 | 13 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 25 | 12 | 4 | 3 | 18 |
| Total Analysis Volume [veh/h] | 100 | 100 | 48 | 17 | 13 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.12 | 0.10 | 0.03 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.63 | 9.68 | 7.44 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.85 | 0.85 | 0.08 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 6.49 | 6.49 | 0.63 | 0.63 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.15 | | 5.49 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.82 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.247 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 174 | 87 | 60 | 81 | 45 | 19 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 174 | 87 | 60 | 81 | 45 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 44 | 22 | 15 | 20 | 11 | 5 |
| Total Analysis Volume [veh/h] | 174 | 87 | 60 | 81 | 45 | 19 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.25 | 0.09 | 0.04 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.40 | 10.84 | 7.41 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.47 | 1.47 | 0.10 | 0.10 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 11.18 | 11.18 | 0.79 | 0.79 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.88 | | 3.15 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.61 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.022 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|-----------------|-------|------------|-------|------------|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 17 | 40 | 26 | 48 | 100 | 13 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 40 | 26 | 48 | 100 | 13 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 10 | 7 | 12 | 25 | 3 |
| Total Analysis Volume [veh/h] | 17 | 40 | 26 | 48 | 100 | 13 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.04 | 0.02 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.97 | 9.08 | 7.47 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.21 | 0.21 | 0.04 | 0.04 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.57 | 1.57 | 0.33 | 0.33 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.34 | | 2.62 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.98 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.073 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|-----------------|-------|----------------|-------|----------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 67 | 54 | 182 | 94 | 164 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 67 | 54 | 182 | 94 | 164 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 17 | 14 | 46 | 24 | 41 |
| Total Analysis Volume [veh/h] | 0 | 67 | 54 | 182 | 94 | 164 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.07 | 0.00 | 0.00 | 0.07 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 9.26 | 0.00 | 0.00 | 7.82 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.24 | 0.00 | 0.00 | 0.17 | 0.17 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 1.81 | 0.00 | 0.00 | 1.26 | 1.26 |
| d_A, Approach Delay [s/veh] | 9.26 | | 0.00 | | 2.85 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.42 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.011 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|-----------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 45 | 96 | 13 | 75 | 57 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 45 | 96 | 13 | 75 | 57 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 11 | 24 | 3 | 19 | 14 |
| Total Analysis Volume [veh/h] | 7 | 45 | 96 | 13 | 75 | 57 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.05 | 0.00 | 0.00 | 0.05 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.81 | 9.03 | 0.00 | 0.00 | 7.52 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.18 | 0.00 | 0.00 | 0.13 | 0.13 |
| 95th-Percentile Queue Length [m/ln] | 1.41 | 1.41 | 0.00 | 0.00 | 0.99 | 0.99 |
| d_A, Approach Delay [s/veh] | 9.27 | | 0.00 | | 4.27 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.57 | | | | | |
| Intersection LOS | B | | | | | |



APPENDIX E – INTERSECTION PERFORMANCE RESULTS – SCENARIO C (RODERICK-STAPLES CLOSURE)

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 5 AM Future - S of Roderick Closure

Report File: V:\...\3 AM FUTURE - S OF RODERICK CLOSURE.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Right | 0.490 | 25.4 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.016 | 113.8 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | WB Left | 0.205 | 21.4 | C |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.236 | 21.5 | C |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | SB Left | 0.687 | 18.9 | B |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | SB Left | 0.046 | 12.8 | B |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | NB Left | 0.166 | 5.0 | A |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | WB Left | 0.089 | 121.9 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | NB Thru | 0.279 | 8.5 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.256 | 10.2 | B |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.063 | 10.8 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.034 | 9.4 | A |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.059 | 10.4 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.020 | 9.6 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.111 | 9.0 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.021 | 10.4 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 25.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.490 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 105 | 79 | 48 | 45 | 13 | 14 | 110 | 556 | 171 | 160 | 642 | 153 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.10 | 2.20 | 0.00 | 0.00 | 0.90 | 5.65 | 3.00 | 0.60 | 2.80 | 0.70 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 153 | 74 | 195 | 0 | 29 | 0 | 0 | 0 | 34 | 28 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 73 | 0 | 0 | 4 | 0 | 0 | 82 | 0 | 0 | 138 |
| Total Hourly Volume [veh/h] | 258 | 153 | 170 | 45 | 42 | 10 | 110 | 556 | 123 | 188 | 642 | 15 |
| Peak Hour Factor | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 | 0.9420 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 68 | 41 | 45 | 12 | 11 | 3 | 29 | 148 | 33 | 50 | 170 | 4 |
| Total Analysis Volume [veh/h] | 274 | 162 | 180 | 48 | 45 | 11 | 117 | 590 | 131 | 200 | 682 | 16 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 6 | | | 23 | | | 39 | | | 5 | | |
| v_di, Inbound Pedestrian Volume crossing m | 5 | | | 39 | | | 23 | | | 6 | | |
| v_co, Outbound Pedestrian Volume crossing | 14 | | | 6 | | | 11 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 11 | | | 7 | | | 14 | | | 6 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 7 | 34 | 0 | 6 | 33 | 0 | 12 | 39 | 0 | 6 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 | 104 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 45 | 35 | 45 | 33 | 49 | 38 | 38 | 49 | 38 | 38 |
| g / C, Green / Cycle | 0.43 | 0.34 | 0.43 | 0.32 | 0.47 | 0.37 | 0.37 | 0.47 | 0.37 | 0.37 |
| (v / s)_i Volume / Saturation Flow Rate | 0.19 | 0.20 | 0.04 | 0.03 | 0.12 | 0.20 | 0.21 | 0.21 | 0.19 | 0.01 |
| s, saturation flow rate [veh/h] | 1467 | 1729 | 1161 | 1811 | 945 | 1815 | 1688 | 935 | 3538 | 1606 |
| c, Capacity [veh/h] | 709 | 589 | 437 | 575 | 431 | 664 | 617 | 423 | 1294 | 587 |
| d1, Uniform Delay [s] | 19.85 | 28.18 | 18.66 | 25.02 | 17.08 | 26.33 | 26.40 | 18.27 | 25.93 | 21.14 |
| k, delay calibration | 0.17 | 0.19 | 0.11 | 0.15 | 0.11 | 0.11 | 0.12 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.55 | 1.62 | 0.11 | 0.10 | 0.34 | 0.78 | 0.89 | 3.76 | 0.33 | 0.02 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| X, volume / capacity | 0.39 | 0.58 | 0.11 | 0.10 | 0.27 | 0.56 | 0.57 | 0.47 | 0.53 | 0.03 |
| d, Delay for Lane Group [s/veh] | 20.40 | 29.80 | 18.77 | 25.13 | 17.41 | 27.11 | 27.29 | 22.03 | 26.26 | 21.16 |
| Lane Group LOS | C | C | B | C | B | C | C | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 4.47 | 7.15 | 0.68 | 0.99 | 1.59 | 7.37 | 6.95 | 3.23 | 6.57 | 0.25 |
| 50th-Percentile Queue Length [m/ln] | 34.06 | 54.50 | 5.18 | 7.54 | 12.13 | 56.15 | 52.99 | 24.61 | 50.09 | 1.92 |
| 95th-Percentile Queue Length [veh/ln] | 7.94 | 11.54 | 1.22 | 1.78 | 2.86 | 11.82 | 11.28 | 5.81 | 10.78 | 0.45 |
| 95th-Percentile Queue Length [m/ln] | 60.48 | 87.92 | 9.32 | 13.58 | 21.83 | 90.08 | 85.94 | 44.30 | 82.14 | 3.46 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 20.40 | 29.80 | 29.80 | 18.77 | 25.13 | 25.13 | 17.41 | 27.18 | 27.29 | 22.03 | 26.26 | 21.16 |
| Movement LOS | C | C | C | B | C | C | B | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 25.62 | | | 22.19 | | | 25.83 | | | 25.23 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 25.40 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.490 | | | | | | | | | | | |

Emissions

| | | | | | | | | | | |
|------------------------------------|--------|--------|-------|-------|-------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 30.73 | 38.36 | 4.13 | 4.82 | 14.20 | 45.13 | 42.37 | 30.22 | 103.06 | 2.42 |
| Stops [stops/h] | 154.70 | 247.53 | 23.53 | 34.26 | 55.08 | 255.04 | 240.68 | 111.79 | 455.05 | 8.73 |
| Fuel consumption [L/h] | 10.52 | 16.74 | 1.59 | 2.27 | 4.10 | 17.47 | 16.48 | 8.66 | 33.29 | 0.68 |
| CO [g/h] | 194.20 | 309.13 | 29.30 | 41.87 | 75.64 | 322.59 | 304.24 | 159.89 | 614.80 | 12.51 |
| NOx [g/h] | 37.78 | 60.15 | 5.70 | 8.15 | 14.72 | 62.76 | 59.19 | 31.11 | 119.62 | 2.43 |
| VOC [g/h] | 45.01 | 71.64 | 6.79 | 9.70 | 17.53 | 74.76 | 70.51 | 37.06 | 142.49 | 2.90 |

Other Modes

| | | | | |
|--|-------|--------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 86.24 | 166.00 | 24.84 | 98.60 |
| d_p, Pedestrian Delay [s] | 26.33 | 26.33 | 34.74 | 37.24 |
| l_p,int, Pedestrian LOS Score for Intersectio | 2.612 | 2.174 | 2.916 | 2.967 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 654 | 635 | 750 | 635 |
| d_b, Bicycle Delay [s] | 23.56 | 24.24 | 20.32 | 24.24 |
| l_b,int, Bicycle LOS Score for Intersection | 2.696 | 1.738 | 2.319 | 2.414 |
| Bicycle LOS | B | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 113.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.016 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 209 | 14 | 10 | 310 | 0 | 0 | 0 | 0 | 25 | 0 | 14 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 0.00 | 0.00 | 1.60 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 118 | 16 | 7 | 39 | 45 | 271 | 1 | 33 | 33 | 0 | 33 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 327 | 30 | 17 | 349 | 45 | 271 | 1 | 33 | 58 | 0 | 47 |
| Peak Hour Factor | 1.0000 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 0.9400 | 1.0000 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 87 | 8 | 5 | 93 | 11 | 68 | 0 | 8 | 15 | 0 | 13 |
| Total Analysis Volume [veh/h] | 0 | 348 | 32 | 18 | 371 | 45 | 271 | 1 | 33 | 62 | 0 | 50 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 0 | | | 16 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 1.02 | 0.00 | 0.05 | 0.23 | 0.00 | 0.08 |
| d_M, Delay for Movement [s/veh] | 8.15 | 0.00 | 0.00 | 8.14 | 0.00 | 0.00 | 113.81 | 112.45 | 105.83 | 22.88 | 21.59 | 14.80 |
| Movement LOS | A | A | A | A | A | A | F | F | F | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | 12.01 | 12.01 | 12.01 | 1.29 | 1.29 | 1.29 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.24 | 91.55 | 91.55 | 91.55 | 9.79 | 9.79 | 9.79 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.34 | | | 112.94 | | | 19.27 | | |
| Approach LOS | A | | | A | | | F | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.86 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.205 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 1 | 192 | 11 | 7 | 223 | 7 | 8 | 0 | 3 | 5 | 0 | 5 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 1.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 100 | 15 | 7 | 114 | 0 | 0 | 0 | 0 | 42 | 0 | 23 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 292 | 26 | 14 | 337 | 7 | 8 | 0 | 3 | 47 | 0 | 28 |
| Peak Hour Factor | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 | 0.8240 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 89 | 8 | 4 | 102 | 2 | 2 | 0 | 1 | 14 | 0 | 8 |
| Total Analysis Volume [veh/h] | 1 | 354 | 32 | 17 | 409 | 8 | 10 | 0 | 4 | 57 | 0 | 34 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 17 | | | 13 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.04 | 0.00 | 0.01 | 0.21 | 0.00 | 0.05 |
| d_M, Delay for Movement [s/veh] | 8.22 | 0.00 | 0.00 | 8.13 | 0.00 | 0.00 | 19.55 | 18.43 | 11.38 | 21.42 | 21.14 | 13.92 |
| Movement LOS | A | A | A | A | A | A | C | C | B | C | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | 0.14 | 0.14 | 0.14 | 1.00 | 1.00 | 1.00 |
| 95th-Percentile Queue Length [m/ln] | 0.01 | 0.01 | 0.01 | 0.22 | 0.22 | 0.22 | 1.08 | 1.08 | 1.08 | 7.66 | 7.66 | 7.66 |
| d_A, Approach Delay [s/veh] | 0.02 | | | 0.32 | | | 17.21 | | | 18.62 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 2.25 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 21.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.236 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | ↷ | | ↶ | | ↵ | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 200 | 26 | 20 | 199 | 14 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 1.00 | 0.00 | 2.00 | 5.00 | 7.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 92 | 16 | 8 | 148 | 43 | 23 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 292 | 42 | 28 | 347 | 57 | 36 |
| Peak Hour Factor | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 | 0.8300 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 88 | 13 | 8 | 105 | 17 | 11 |
| Total Analysis Volume [veh/h] | 352 | 51 | 34 | 418 | 69 | 43 |
| Pedestrian Volume [ped/h] | 1 | | 0 | | 19 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.03 | 0.00 | 0.24 | 0.07 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.26 | 0.00 | 21.52 | 14.76 |
| Movement LOS | A | A | A | A | C | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.06 | 0.06 | 1.26 | 1.26 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.44 | 0.44 | 9.57 | 9.57 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.62 | | 18.92 | |
| Approach LOS | A | | A | | C | |
| d_I, Intersection Delay [s/veh] | 2.48 | | | | | |
| Intersection LOS | C | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 18.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.687 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 6 | 33 | 7 | 138 | 26 | 106 | 19 | 245 | 6 | 23 | 484 | 130 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 9.00 | 0.00 | 3.70 | 2.00 | 1.00 | 4.50 | 0.00 | 4.40 | 8.30 | 3.30 | 4.60 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 18 | 146 | 134 | 11 | 78 | 39 | 101 | 0 | 78 | 107 | 42 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 46 | 0 | 0 | 55 | 0 | 0 | 1 | 0 | 0 | 34 |
| Total Hourly Volume [veh/h] | 21 | 51 | 107 | 272 | 37 | 129 | 58 | 346 | 5 | 101 | 591 | 138 |
| Peak Hour Factor | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 | 0.9310 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 14 | 29 | 73 | 10 | 35 | 16 | 93 | 1 | 27 | 159 | 37 |
| Total Analysis Volume [veh/h] | 23 | 55 | 115 | 292 | 40 | 139 | 62 | 372 | 5 | 108 | 635 | 148 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 11 | | | 7 | | | 2 | | | 4 | | |
| v_di, Inbound Pedestrian Volume crossing m | 4 | | | 2 | | | 7 | | | 11 | | |
| v_co, Outbound Pedestrian Volume crossing | 6 | | | 13 | | | 8 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 8 | | | 12 | | | 6 | | | 13 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 19 | 0 | 0 | 19 | 0 | 0 | 33 | 0 | 0 | 33 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|-------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 19 | 19 | 19 | 19 | 33 | 33 | 33 | 33 | 33 |
| g / C, Green / Cycle | 0.31 | 0.31 | 0.31 | 0.31 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.10 | 0.24 | 0.11 | 0.09 | 0.10 | 0.10 | 0.11 | 0.44 |
| s, saturation flow rate [veh/h] | 1127 | 1680 | 1204 | 1638 | 702 | 1834 | 1825 | 990 | 1763 |
| c, Capacity [veh/h] | 321 | 515 | 345 | 502 | 174 | 976 | 971 | 546 | 938 |
| d1, Uniform Delay [s] | 21.19 | 16.59 | 26.38 | 16.74 | 28.58 | 7.56 | 7.56 | 11.13 | 12.20 |
| k, delay calibration | 0.11 | 0.11 | 0.25 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.32 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.09 | 0.37 | 12.30 | 0.43 | 1.22 | 0.10 | 0.10 | 0.18 | 5.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| X, volume / capacity | 0.07 | 0.33 | 0.85 | 0.36 | 0.36 | 0.19 | 0.19 | 0.20 | 0.83 |
| d, Delay for Lane Group [s/veh] | 21.28 | 16.96 | 38.68 | 17.17 | 29.80 | 7.66 | 7.66 | 11.31 | 17.88 |
| Lane Group LOS | C | B | D | B | C | A | A | B | B |
| Critical Lane Group | No | No | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.27 | 1.77 | 5.37 | 1.88 | 0.94 | 1.11 | 1.11 | 0.86 | 8.77 |
| 50th-Percentile Queue Length [m/ln] | 2.07 | 13.46 | 40.88 | 14.33 | 7.14 | 8.49 | 8.47 | 6.54 | 66.79 |
| 95th-Percentile Queue Length [veh/ln] | 0.49 | 3.18 | 9.16 | 3.38 | 1.69 | 2.01 | 2.00 | 1.54 | 13.62 |
| 95th-Percentile Queue Length [m/ln] | 3.72 | 24.23 | 69.83 | 25.79 | 12.85 | 15.28 | 15.24 | 11.77 | 103.79 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 21.28 | 16.96 | 16.96 | 38.68 | 17.17 | 17.17 | 29.80 | 7.66 | 7.66 | 11.31 | 17.88 | 17.88 |
| Movement LOS | C | B | B | D | B | B | C | A | A | B | B | B |
| d_A, Approach Delay [s/veh] | 17.48 | | | 30.50 | | | 10.78 | | 17.08 | | | |
| Approach LOS | B | | | C | | | B | | B | | | |
| d_I, Intersection Delay [s/veh] | 18.90 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |
| Intersection V/C | 0.687 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|--------|--------|-------|-------|-------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 2.59 | 19.16 | 16.10 | 9.87 | 4.00 | 12.17 | 12.13 | 8.70 | 63.08 |
| Stops [stops/h] | 15.76 | 102.59 | 311.53 | 109.19 | 54.42 | 64.70 | 64.51 | 49.81 | 508.95 |
| Fuel consumption [L/h] | 0.96 | 6.22 | 16.77 | 5.61 | 2.95 | 3.65 | 3.63 | 2.83 | 27.54 |
| CO [g/h] | 17.69 | 114.90 | 309.73 | 103.53 | 54.45 | 67.32 | 67.11 | 52.17 | 508.53 |
| NOx [g/h] | 3.44 | 22.36 | 60.26 | 20.14 | 10.59 | 13.10 | 13.06 | 10.15 | 98.94 |
| VOC [g/h] | 4.10 | 26.63 | 71.78 | 23.99 | 12.62 | 15.60 | 15.55 | 12.09 | 117.86 |

Other Modes

| | | | | |
|--|--------|-------|--------|--------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 132.09 | 63.01 | 235.93 | 111.26 |
| d_p, Pedestrian Delay [s] | 17.81 | 17.81 | 17.06 | 17.06 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.260 | 2.348 | 2.451 | 2.992 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 613 | 613 | 1065 | 1065 |
| d_b, Bicycle Delay [s] | 14.91 | 14.91 | 6.78 | 6.78 |
| I_b,int, Bicycle LOS Score for Intersection | 1.954 | 2.428 | 1.923 | 3.086 |
| Bicycle LOS | A | B | A | C |

Sequence

| | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 12.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.046 |

Intersection Setup

| Name | Oak St | | Roderick St | | Island Home Centre Access | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | Yes | | Yes | |

Volumes

| Name | Oak St | | Roderick St | | Island Home Centre Access | |
|---|--------|--------|-------------|--------|---------------------------|--------|
| Base Volume Input [veh/h] | 11 | 66 | 45 | 5 | 1 | 4 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 9 | 80 | 140 | 7 | 4 | 39 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 146 | 185 | 12 | 5 | 43 |
| Peak Hour Factor | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 | 0.9100 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 40 | 51 | 3 | 1 | 12 |
| Total Analysis Volume [veh/h] | 22 | 160 | 203 | 13 | 5 | 47 |
| Pedestrian Volume [ped/h] | 0 | | 1 | | 15 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.05 | 0.15 | 0.13 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 12.84 | 9.08 | 7.60 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.14 | 0.54 | 0.42 | 0.42 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.09 | 4.13 | 3.19 | 3.19 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.54 | | 7.14 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.29 | | | | | |
| Intersection LOS | B | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 5.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.166 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ←↑ | | | ←↑ | | | ←↑ | | | ←↑ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 5 | 1 | 9 | 14 | 2 | 18 | 15 | 152 | 12 | 9 | 207 | 16 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 | 3.00 | 5.00 | 2.00 | 0.00 | 0.00 | 2.00 | 2.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 23 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 3 |
| Total Hourly Volume [veh/h] | 19 | 1 | 7 | 14 | 2 | 14 | 15 | 200 | 10 | 9 | 230 | 13 |
| Peak Hour Factor | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 | 0.9650 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 5 | 0 | 2 | 4 | 1 | 4 | 4 | 52 | 3 | 2 | 60 | 3 |
| Total Analysis Volume [veh/h] | 20 | 1 | 7 | 15 | 2 | 15 | 16 | 207 | 10 | 9 | 238 | 13 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 2 | | | 0 | | | 2 | | | 2 | | |
| v_di, Inbound Pedestrian Volume crossing m | 2 | | | 2 | | | 0 | | | 2 | | |
| v_co, Outbound Pedestrian Volume crossing | 5 | | | 3 | | | 4 | | | 7 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 4 | | | 7 | | | 5 | | | 3 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|------|------|------|------|------|------|------|------|
| C, Calculated Cycle Length [s] | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 2 | 2 | 2 | 2 | 8 | 8 | 8 | 8 |
| g / C, Green / Cycle | 0.09 | 0.09 | 0.09 | 0.09 | 0.40 | 0.40 | 0.40 | 0.40 |
| (v / s)_i Volume / Saturation Flow Rate | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.13 | 0.01 | 0.15 |
| s, saturation flow rate [veh/h] | 1272 | 1452 | 1236 | 1465 | 985 | 1668 | 1058 | 1666 |
| c, Capacity [veh/h] | 371 | 131 | 372 | 132 | 564 | 672 | 597 | 671 |
| d1, Uniform Delay [s] | 9.85 | 8.20 | 9.84 | 8.25 | 6.38 | 4.05 | 6.06 | 4.14 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.06 | 0.19 | 0.04 | 0.43 | 0.02 | 0.28 | 0.01 | 0.35 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|
| X, volume / capacity | 0.05 | 0.06 | 0.04 | 0.13 | 0.03 | 0.32 | 0.02 | 0.37 |
| d, Delay for Lane Group [s/veh] | 9.91 | 8.40 | 9.88 | 8.69 | 6.40 | 4.32 | 6.07 | 4.49 |
| Lane Group LOS | A | A | A | A | A | A | A | A |
| Critical Lane Group | Yes | No | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.06 | 0.02 | 0.04 | 0.05 | 0.03 | 0.15 | 0.01 | 0.18 |
| 50th-Percentile Queue Length [m/ln] | 0.44 | 0.18 | 0.33 | 0.39 | 0.21 | 1.11 | 0.11 | 1.34 |
| 95th-Percentile Queue Length [veh/ln] | 0.10 | 0.04 | 0.08 | 0.09 | 0.05 | 0.26 | 0.03 | 0.32 |
| 95th-Percentile Queue Length [m/ln] | 0.79 | 0.33 | 0.59 | 0.71 | 0.37 | 2.00 | 0.19 | 2.41 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|
| d_M, Delay for Movement [s/veh] | 9.91 | 8.40 | 8.40 | 9.88 | 8.69 | 8.69 | 6.40 | 4.32 | 4.32 | 6.07 | 4.49 | 4.49 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| d_A, Approach Delay [s/veh] | 9.48 | | | 9.25 | | | 4.47 | | | 4.55 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 5.03 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.166 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|-------|------|------|------|------|-------|------|-------|
| Vehicle Kilometers Traveled [km/h] | 0.65 | 0.26 | 0.91 | 1.03 | 0.91 | 12.29 | 0.95 | 26.40 |
| Stops [stops/h] | 10.64 | 4.36 | 7.93 | 9.48 | 4.98 | 26.71 | 2.60 | 32.28 |
| Fuel consumption [L/h] | 0.44 | 0.17 | 0.37 | 0.41 | 0.27 | 2.47 | 0.19 | 4.10 |
| CO [g/h] | 8.08 | 3.10 | 6.80 | 7.61 | 5.00 | 45.64 | 3.47 | 75.70 |
| NOx [g/h] | 1.57 | 0.60 | 1.32 | 1.48 | 0.97 | 8.88 | 0.68 | 14.73 |
| VOC [g/h] | 1.87 | 0.72 | 1.58 | 1.76 | 1.16 | 10.58 | 0.81 | 17.54 |

Other Modes

| | | | | |
|--|--------|--------|---------|---------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 506.74 | 445.61 | 2301.80 | 1148.25 |
| d_p, Pedestrian Delay [s] | 1.89 | 1.89 | 1.89 | 1.89 |
| I_p,int, Pedestrian LOS Score for Intersectio | 1.856 | 1.874 | 2.021 | 2.009 |
| Crosswalk LOS | A | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1734 | 1734 | 1836 | 1836 |
| d_b, Bicycle Delay [s] | 0.17 | 0.17 | 0.07 | 0.07 |
| I_b,int, Bicycle LOS Score for Intersection | 1.609 | 1.619 | 1.947 | 1.994 |
| Bicycle LOS | A | A | A | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 121.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.089 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 29 | 944 | 12 | 8 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 13 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 7.00 | 0.00 | 0.00 | 5.00 | 5.00 | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 8.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 58 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 29 | 944 | 70 | 17 | 1584 | 40 | 0 | 0 | 20 | 3 | 0 | 74 |
| Peak Hour Factor | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 | 0.9600 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 246 | 18 | 4 | 413 | 10 | 0 | 0 | 5 | 1 | 0 | 19 |
| Total Analysis Volume [veh/h] | 30 | 983 | 73 | 18 | 1650 | 42 | 0 | 0 | 21 | 3 | 0 | 77 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 18 | | | 17 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|-------|------|------|--------|--------|-------|----------|--------|-------|
| V/C, Movement V/C Ratio | 0.08 | 0.01 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.08 | 0.09 | 0.00 | 0.16 |
| d_M, Delay for Movement [s/veh] | 15.59 | 0.00 | 0.00 | 10.73 | 0.00 | 0.00 | 215.77 | 242.01 | 19.06 | 121.91 | 231.60 | 13.79 |
| Movement LOS | C | A | A | B | A | A | F | F | C | F | F | B |
| 95th-Percentile Queue Length [veh/ln] | 0.26 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.27 | 0.56 | 0.56 |
| 95th-Percentile Queue Length [m/ln] | 2.01 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 1.86 | 1.86 | 2.08 | 4.26 | 4.26 |
| d_A, Approach Delay [s/veh] | 0.43 | | | 0.11 | | | 19.06 | | | 17.85 | | |
| Approach LOS | A | | | A | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 0.86 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 8.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.279 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | ↶ | | ↷ | | ↷ | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 9 | 50 | 33 | 7 | 8 | 9 |
| Total Analysis Volume [veh/h] | 34 | 200 | 131 | 27 | 31 | 36 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings**Lanes**

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 839 | 850 | 789 |
| Degree of Utilization, x | 0.28 | 0.19 | 0.08 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|------|
| 95th-Percentile Queue Length [veh] | 1.14 | 0.68 | 0.28 |
| 95th-Percentile Queue Length [m] | 8.71 | 5.18 | 2.11 |
| Approach Delay [s/veh] | 8.94 | 8.20 | 7.98 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 8.55 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.256 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 240 | 0 | 140 | 127 | 73 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 240 | 0 | 140 | 127 | 73 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 60 | 0 | 35 | 32 | 18 |
| Total Analysis Volume [veh/h] | 0 | 240 | 0 | 140 | 127 | 73 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 1.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 7.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.17 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.21 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.8 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.063 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 47 | 140 | 7 | 70 | 80 | 4 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 47 | 140 | 7 | 70 | 80 | 4 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 12 | 35 | 2 | 18 | 20 | 1 |
| Total Analysis Volume [veh/h] | 47 | 140 | 7 | 70 | 80 | 4 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.06 | 0.14 | 0.00 | 0.00 | 0.05 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.81 | 9.45 | 0.00 | 0.00 | 7.49 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.74 | 0.74 | 0.00 | 0.00 | 0.16 | 0.16 |
| 95th-Percentile Queue Length [m/ln] | 5.65 | 5.65 | 0.00 | 0.00 | 1.21 | 1.21 |
| d_A, Approach Delay [s/veh] | 9.80 | | 0.00 | | 7.13 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.98 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.034 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 31 | 94 | 20 | 17 | 7 | 30 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 31 | 94 | 20 | 17 | 7 | 30 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 24 | 5 | 4 | 2 | 8 |
| Total Analysis Volume [veh/h] | 31 | 94 | 20 | 17 | 7 | 30 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.09 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.45 | 8.91 | 7.31 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.42 | 0.42 | 0.03 | 0.03 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 3.20 | 3.20 | 0.26 | 0.26 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.04 | | 3.95 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.41 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.059 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 45 | 91 | 57 | 32 | 51 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 45 | 91 | 57 | 32 | 51 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 11 | 23 | 14 | 8 | 13 | 0 |
| Total Analysis Volume [veh/h] | 45 | 91 | 57 | 32 | 51 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.06 | 0.09 | 0.04 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.41 | 9.22 | 7.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.52 | 0.52 | 0.10 | 0.10 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 3.97 | 3.97 | 0.75 | 0.75 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.62 | | 4.73 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.26 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.020 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 17 | 71 | 8 | 20 | 94 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 17 | 71 | 8 | 20 | 94 | 7 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 18 | 2 | 5 | 24 | 2 |
| Total Analysis Volume [veh/h] | 17 | 71 | 8 | 20 | 94 | 7 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.07 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.61 | 9.15 | 7.42 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.31 | 0.31 | 0.01 | 0.01 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 2.36 | 2.36 | 0.10 | 0.10 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.24 | | 2.12 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.02 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.111 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|-----------------|-------|----------------|-------|----------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 1 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 113 | 27 | 62 | 38 | 329 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 113 | 27 | 62 | 38 | 329 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 28 | 7 | 16 | 10 | 82 |
| Total Analysis Volume [veh/h] | 0 | 113 | 27 | 62 | 38 | 329 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.11 | 0.00 | 0.00 | 0.03 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 8.99 | 0.00 | 0.00 | 7.45 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.37 | 0.00 | 0.00 | 0.08 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 2.85 | 0.00 | 0.00 | 0.59 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.99 | | 0.00 | | 0.77 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.28 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.4 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.021 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|-----------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 50 | 39 | 5 | 70 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 15 | 50 | 39 | 5 | 70 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 13 | 10 | 1 | 18 | 18 |
| Total Analysis Volume [veh/h] | 15 | 50 | 39 | 5 | 70 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.05 | 0.00 | 0.00 | 0.04 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.43 | 8.79 | 0.00 | 0.00 | 7.38 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.23 | 0.23 | 0.00 | 0.00 | 0.12 | 0.12 |
| 95th-Percentile Queue Length [m/ln] | 1.72 | 1.72 | 0.00 | 0.00 | 0.92 | 0.92 |
| d_A, Approach Delay [s/veh] | 9.17 | | 0.00 | | 3.64 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 4.43 | | | | | |
| Intersection LOS | B | | | | | |

Vistro File: V:\...\Oak St Streetscaping Model_2024-11-12.vistro

Scenario 6 PM Future - S of Roderick Closure

Report File: V:\...4 PM FUTURE - S OF RODERICK CLOSURE.pdf

2024-11-14

Intersection Analysis Summary

| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
|----|---------------------------------------|--------------|-----------------|------------|-------|---------------|-----|
| 1 | Oak St @ Saanich Rd | Signalized | HCM 7th Edition | NB Thru | 0.626 | 29.9 | C |
| 2 | Oak St @ Short St | Two-way stop | HCM 7th Edition | EB Left | 1.274 | 246.3 | F |
| 3 | Oak St @ Valley Ave/Mitsubishi Access | Two-way stop | HCM 7th Edition | WB Left | 0.294 | 39.1 | E |
| 4 | Oak St @ Shamrock St | Two-way stop | HCM 7th Edition | WB Left | 0.314 | 35.0 | E |
| 5 | Oak St @ Cloverdale Ave | Signalized | HCM 7th Edition | EB Left | 0.836 | 48.0 | D |
| 6 | Oak St @ Roderick St | Two-way stop | HCM 7th Edition | SB Left | 0.182 | 16.9 | C |
| 7 | Oak St @ Tolmie Ave | Signalized | HCM 7th Edition | WB Left | 0.356 | 9.2 | A |
| 8 | Douglas St @ Ardersier Rd/Audley St | Two-way stop | HCM 7th Edition | EB Left | 0.189 | 411.5 | F |
| 36 | Audley Crossing @ Audley St | All-way stop | HCM 7th Edition | NB Thru | 0.310 | 9.6 | A |
| 37 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | SB Right | 0.183 | 10.2 | B |
| 40 | Superstore Access @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.081 | 13.9 | B |
| 41 | Superstore Access @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.128 | 10.7 | B |
| 42 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | SB Left | 0.191 | 11.9 | B |
| 43 | Audley Crossing @ Tolmie Ave | Two-way stop | HCM 7th Edition | SB Left | 0.040 | 9.9 | A |
| 45 | Audley Crossing @ Cloverdale Ave | Two-way stop | HCM 7th Edition | NB Right | 0.095 | 9.5 | A |
| 46 | Audley Crossing @ Roderick Ave | Two-way stop | HCM 7th Edition | NB Left | 0.011 | 11.0 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Oak St @ Saanich Rd

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 29.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.626 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 34.00 | 30.48 | 30.48 | 95.00 | 30.48 | 33.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 30.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Saanich Rd | | | Saanich Rd | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 199 | 173 | 110 | 198 | 103 | 155 | 166 | 650 | 99 | 110 | 835 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 2.00 | 1.00 | 2.00 | 2.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 67 | 59 | 147 | 0 | 78 | 0 | 0 | 0 | 98 | 85 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 77 | 0 | 0 | 47 | 0 | 0 | 79 | 0 | 0 | 180 |
| Total Hourly Volume [veh/h] | 266 | 232 | 180 | 198 | 181 | 108 | 166 | 650 | 118 | 195 | 835 | 20 |
| Peak Hour Factor | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 | 0.9700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 69 | 60 | 46 | 51 | 47 | 28 | 43 | 168 | 30 | 50 | 215 | 5 |
| Total Analysis Volume [veh/h] | 274 | 239 | 186 | 204 | 187 | 111 | 171 | 670 | 122 | 201 | 861 | 21 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 21 | | | 68 | | | 51 | | | 31 | | |
| v_di, Inbound Pedestrian Volume crossing m | 31 | | | 51 | | | 68 | | | 21 | | |
| v_co, Outbound Pedestrian Volume crossing | 28 | | | 60 | | | 28 | | | 43 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 28 | | | 43 | | | 28 | | | 60 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | ProtPer | Permiss | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 7 | 4 | 0 | 3 | 8 | 0 | 5 | 2 | 0 | 1 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 8 | 32 | 0 | 9 | 33 | 0 | 11 | 38 | 0 | 6 | 33 | 0 |
| Amber [s] | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 | 4.0 | 4.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 15 | 0 | 0 | 26 | 0 | 0 | 26 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 7 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 |
| Detector Length [m] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|
| Split [s] | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 | 9 | 14 | 0 |
| Lead / Lag | Lead | - | - |
| Minimum Green [s] | 6 | 8 | 0 | 6 | 8 | 0 | 6 | 10 | 0 | 6 | 10 | 0 |
| Vehicle Extension [s] | 3.0 | 4.0 | 0.0 | 3.0 | 4.0 | 0.0 | 2.5 | 3.0 | 0.0 | 2.5 | 3.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | Yes | | No | Yes | |
| Maximum Recall | No | No | |
| Pedestrian Recall | No | Yes | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Calculated Cycle Length [s] | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 0.00 | 3.00 | 0.00 | 3.00 | 0.00 | 3.00 | 3.00 | 0.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 46 | 32 | 46 | 33 | 49 | 38 | 38 | 49 | 36 | 36 |
| g / C, Green / Cycle | 0.44 | 0.30 | 0.44 | 0.31 | 0.47 | 0.36 | 0.36 | 0.47 | 0.34 | 0.34 |
| (v / s)_i Volume / Saturation Flow Rate | 0.22 | 0.25 | 0.17 | 0.18 | 0.19 | 0.22 | 0.22 | 0.23 | 0.24 | 0.01 |
| s, saturation flow rate [veh/h] | 1268 | 1719 | 1195 | 1694 | 904 | 1870 | 1741 | 886 | 3560 | 1615 |
| c, Capacity [veh/h] | 501 | 524 | 408 | 532 | 387 | 677 | 630 | 393 | 1217 | 552 |
| d1, Uniform Delay [s] | 20.97 | 33.71 | 22.00 | 29.96 | 19.82 | 27.32 | 27.45 | 19.24 | 29.99 | 23.03 |
| k, delay calibration | 0.26 | 0.32 | 0.50 | 0.16 | 0.11 | 0.15 | 0.16 | 0.50 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 2.20 | 8.60 | 4.33 | 1.39 | 0.79 | 1.22 | 1.43 | 4.71 | 0.77 | 0.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|--------|-------|-------|-------|--------|-------|-------|--------|-------|
| X, volume / capacity | 0.55 | 0.81 | 0.50 | 0.56 | 0.44 | 0.60 | 0.61 | 0.51 | 0.71 | 0.04 |
| d, Delay for Lane Group [s/veh] | 23.17 | 42.31 | 26.33 | 31.35 | 20.61 | 28.53 | 28.88 | 23.95 | 30.75 | 23.06 |
| Lane Group LOS | C | D | C | C | C | C | C | C | C | C |
| Critical Lane Group | No | Yes | Yes | No | Yes | No | No | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.67 | 11.07 | 3.60 | 6.40 | 2.48 | 8.40 | 8.03 | 3.38 | 9.37 | 0.35 |
| 50th-Percentile Queue Length [m/ln] | 35.56 | 84.36 | 27.40 | 48.73 | 18.88 | 64.04 | 61.19 | 25.79 | 71.44 | 2.67 |
| 95th-Percentile Queue Length [veh/ln] | 8.21 | 16.53 | 6.47 | 10.54 | 4.46 | 13.16 | 12.68 | 6.09 | 14.40 | 0.63 |
| 95th-Percentile Queue Length [m/ln] | 62.55 | 125.94 | 49.32 | 80.34 | 33.99 | 100.27 | 96.60 | 46.42 | 109.70 | 4.81 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 23.17 | 42.31 | 42.31 | 26.33 | 31.35 | 31.35 | 20.61 | 28.67 | 28.88 | 23.95 | 30.75 | 23.06 |
| Movement LOS | C | D | D | C | C | C | C | C | C | C | C | C |
| d_A, Approach Delay [s/veh] | 34.80 | | | 29.31 | | | 27.26 | | | 29.34 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 29.90 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.626 | | | | | | | | | | | |

Emissions

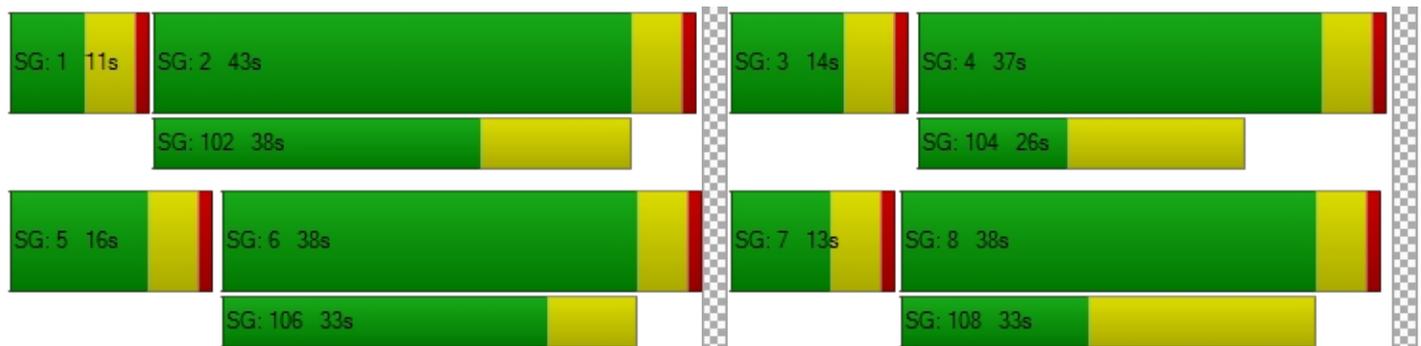
| | | | | | | | | | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Vehicle Kilometers Traveled [km/h] | 30.73 | 47.67 | 17.57 | 25.67 | 20.75 | 49.37 | 46.75 | 30.38 | 130.11 | 3.17 |
| Stops [stops/h] | 159.99 | 379.58 | 123.29 | 219.28 | 84.96 | 288.14 | 275.32 | 116.03 | 642.85 | 12.02 |
| Fuel consumption [L/h] | 11.21 | 26.40 | 8.42 | 14.27 | 6.50 | 19.75 | 18.85 | 9.08 | 46.44 | 0.93 |
| CO [g/h] | 207.03 | 487.57 | 155.44 | 263.47 | 120.04 | 364.64 | 348.16 | 167.59 | 857.54 | 17.21 |
| NOx [g/h] | 40.28 | 94.86 | 30.24 | 51.26 | 23.36 | 70.95 | 67.74 | 32.61 | 166.85 | 3.35 |
| VOC [g/h] | 47.98 | 113.00 | 36.02 | 61.06 | 27.82 | 84.51 | 80.69 | 38.84 | 198.74 | 3.99 |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 30.0 | 30.0 | 19.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 38.17 | 19.88 | 11.74 | 18.97 |
| d_p, Pedestrian Delay [s] | 26.79 | 26.79 | 35.22 | 37.72 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.671 | 2.461 | 2.998 | 3.120 |
| Crosswalk LOS | B | B | C | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 610 | 629 | 724 | 629 |
| d_b, Bicycle Delay [s] | 25.38 | 24.69 | 21.38 | 24.69 |
| I_b,int, Bicycle LOS Score for Intersection | 2.840 | 2.465 | 2.419 | 2.602 |
| Bicycle LOS | C | B | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 2: Oak St @ Short St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 246.3 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 1.274 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-----------------|-------|-------|-----------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Audley Crossing | | | Short St | | |
|---|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 488 | 28 | 25 | 274 | 0 | 0 | 0 | 0 | 13 | 0 | 15 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 1.00 | 4.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 77 | 37 | 18 | 98 | 145 | 178 | 3 | 28 | 27 | 0 | 18 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 565 | 65 | 43 | 372 | 145 | 178 | 3 | 28 | 40 | 0 | 33 |
| Peak Hour Factor | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 | 0.9710 | 0.9710 | 0.9710 | 1.0000 | 0.9710 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 145 | 17 | 11 | 96 | 36 | 46 | 1 | 7 | 10 | 0 | 8 |
| Total Analysis Volume [veh/h] | 0 | 582 | 67 | 44 | 383 | 145 | 183 | 3 | 29 | 41 | 0 | 34 |
| Pedestrian Volume [ped/h] | 1 | | | 0 | | | 4 | | | 23 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|--------|--------|--------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 | 0.00 | 1.27 | 0.02 | 0.05 | 0.29 | 0.00 | 0.07 |
| d_M, Delay for Movement [s/veh] | 8.49 | 0.00 | 0.00 | 9.02 | 0.00 | 0.00 | 246.33 | 243.32 | 227.28 | 40.76 | 38.13 | 22.55 |
| Movement LOS | A | A | A | A | A | A | F | F | F | E | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 13.03 | 13.03 | 13.03 | 1.59 | 1.59 | 1.59 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.00 | 0.60 | 0.60 | 0.60 | 99.27 | 99.27 | 99.27 | 12.08 | 12.08 | 12.08 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.69 | | | 243.72 | | | 32.51 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 36.56 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 3: Oak St @ Valley Ave/Mitsubishi Access

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 39.1 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.294 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|-------------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Mistubishi Access | | | Valley Ave | | |
|---|--------|--------|--------|--------|--------|--------|-------------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 7 | 430 | 8 | 7 | 278 | 1 | 4 | 0 | 8 | 7 | 0 | 9 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 113 | 37 | 21 | 135 | 0 | 0 | 0 | 0 | 31 | 0 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 543 | 45 | 28 | 413 | 1 | 4 | 0 | 8 | 38 | 0 | 23 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 153 | 13 | 8 | 116 | 0 | 1 | 0 | 2 | 11 | 0 | 6 |
| Total Analysis Volume [veh/h] | 8 | 610 | 51 | 31 | 464 | 1 | 4 | 0 | 9 | 43 | 0 | 26 |
| Pedestrian Volume [ped/h] | 2 | | | 0 | | | 36 | | | 22 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|----------|------|------|------|------|------|-------|-------|-------|----------|-------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.01 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.29 | 0.00 | 0.06 |
| d_M, Delay for Movement [s/veh] | 8.48 | 0.00 | 0.00 | 9.03 | 0.00 | 0.00 | 32.41 | 29.20 | 12.13 | 39.12 | 37.33 | 22.40 |
| Movement LOS | A | A | A | A | A | A | D | D | B | E | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.01 | 0.01 | 0.01 | 0.05 | 0.05 | 0.05 | 0.14 | 0.14 | 0.14 | 1.48 | 1.48 | 1.48 |
| 95th-Percentile Queue Length [m/ln] | 0.10 | 0.10 | 0.10 | 0.40 | 0.40 | 0.40 | 1.10 | 1.10 | 1.10 | 11.28 | 11.28 | 11.28 |
| d_A, Approach Delay [s/veh] | 0.10 | | | 0.56 | | | 18.37 | | | 32.82 | | |
| Approach LOS | A | | | A | | | C | | | D | | |
| d_I, Intersection Delay [s/veh] | 2.29 | | | | | | | | | | | |
| Intersection LOS | E | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Oak St @ Shamrock St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 35.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | E |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.314 |

Intersection Setup

| Name | Oak St | | Oak St | | Shamrock St | |
|------------------------------|------------|-------|------------|-------|-------------|-------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Oak St | | Oak St | | Shamrock St | |
|---|--------|--------|--------|--------|-------------|--------|
| Base Volume Input [veh/h] | 425 | 13 | 6 | 292 | 19 | 17 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 136 | 37 | 21 | 145 | 31 | 14 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 561 | 50 | 27 | 437 | 50 | 31 |
| Peak Hour Factor | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 | 0.8900 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 158 | 14 | 8 | 123 | 14 | 9 |
| Total Analysis Volume [veh/h] | 630 | 56 | 30 | 491 | 56 | 35 |
| Pedestrian Volume [ped/h] | 2 | | 0 | | 34 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|----------|------|------|------|----------|-------|
| V/C, Movement V/C Ratio | 0.01 | 0.00 | 0.03 | 0.00 | 0.31 | 0.08 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 9.21 | 0.00 | 35.03 | 23.16 |
| Movement LOS | A | A | A | A | E | C |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.05 | 0.05 | 1.78 | 1.78 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 0.00 | 0.39 | 0.39 | 13.54 | 13.54 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.53 | | 30.46 | |
| Approach LOS | A | | A | | D | |
| d_I, Intersection Delay [s/veh] | 2.35 | | | | | |
| Intersection LOS | E | | | | | |

Intersection Level Of Service Report
Intersection 5: Oak St @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 48.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | D |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.836 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|----------------|-------|-------|----------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | | | | | | | | | | | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 30.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Cloverdale Ave | | | Cloverdale Ave | | |
|---|--------|--------|--------|--------|--------|--------|----------------|--------|--------|----------------|--------|--------|
| Base Volume Input [veh/h] | 9 | 72 | 21 | 156 | 33 | 129 | 47 | 329 | 7 | 27 | 458 | 133 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 2.00 | 3.00 | 4.00 | 1.00 | 0.00 | 0.00 | 8.00 | 0.00 | 1.00 | 12.00 | 1.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 8 | 22 | 176 | 111 | 26 | 40 | 88 | 77 | 0 | 161 | 277 | 91 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 59 | 0 | 0 | 51 | 0 | 0 | 1 | 0 | 0 | 45 |
| Total Hourly Volume [veh/h] | 17 | 94 | 138 | 267 | 59 | 118 | 135 | 406 | 6 | 188 | 735 | 179 |
| Peak Hour Factor | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 | 0.9500 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 25 | 36 | 70 | 16 | 31 | 36 | 107 | 2 | 49 | 193 | 47 |
| Total Analysis Volume [veh/h] | 18 | 99 | 145 | 281 | 62 | 124 | 142 | 427 | 6 | 198 | 774 | 188 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 15 | | | 7 | | | 5 | | | 12 | | |
| v_di, Inbound Pedestrian Volume crossing m | 12 | | | 5 | | | 7 | | | 15 | | |
| v_co, Outbound Pedestrian Volume crossing | 9 | | | 7 | | | 16 | | | 12 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 16 | | | 12 | | | 9 | | | 7 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | No |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 2 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 19 | 0 | 0 | 19 | 0 | 0 | 38 | 0 | 0 | 38 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 11 | 0 |
| Pedestrian Clearance [s] | 0 | 15 | 0 | 0 | 15 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 |
| Detector Length [m] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 36 | 0 | 0 | 36 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 20 | 0 | 0 | 20 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | Yes | | | Yes | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | C | L | C |
|---|-------|-------|-------|-------|--------|------|------|-------|-------|
| C, Calculated Cycle Length [s] | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 19 | 19 | 19 | 19 | 38 | 38 | 38 | 38 | 38 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.28 | 0.28 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 |
| (v / s)_i Volume / Saturation Flow Rate | 0.01 | 0.15 | 0.26 | 0.11 | 0.24 | 0.12 | 0.12 | 0.21 | 0.58 |
| s, saturation flow rate [veh/h] | 1201 | 1662 | 1101 | 1661 | 593 | 1780 | 1770 | 955 | 1656 |
| c, Capacity [veh/h] | 298 | 471 | 245 | 471 | 115 | 1010 | 1004 | 551 | 939 |
| d1, Uniform Delay [s] | 24.09 | 20.15 | 31.14 | 19.36 | 33.47 | 7.15 | 7.15 | 12.12 | 14.50 |
| k, delay calibration | 0.11 | 0.11 | 0.33 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.46 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.08 | 0.88 | 92.19 | 0.54 | 119.57 | 0.11 | 0.11 | 0.40 | 34.44 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | |
|---------------------------------------|-------|-------|--------|-------|--------|-------|-------|-------|--------|
| X, volume / capacity | 0.06 | 0.52 | 1.15 | 0.39 | 1.23 | 0.21 | 0.22 | 0.36 | 1.02 |
| d, Delay for Lane Group [s/veh] | 24.18 | 21.04 | 123.33 | 19.90 | 153.04 | 7.25 | 7.26 | 12.51 | 48.94 |
| Lane Group LOS | C | C | F | B | F | A | A | B | F |
| Critical Lane Group | No | No | Yes | No | No | No | No | No | Yes |
| 50th-Percentile Queue Length [veh/ln] | 0.24 | 3.10 | 10.14 | 2.26 | 5.65 | 1.31 | 1.30 | 1.83 | 20.21 |
| 50th-Percentile Queue Length [m/ln] | 1.83 | 23.65 | 77.26 | 17.21 | 43.02 | 9.96 | 9.92 | 13.94 | 153.99 |
| 95th-Percentile Queue Length [veh/ln] | 0.43 | 5.59 | 16.50 | 4.07 | 10.16 | 2.35 | 2.34 | 3.29 | 28.11 |
| 95th-Percentile Queue Length [m/ln] | 3.30 | 42.57 | 125.75 | 30.98 | 77.43 | 17.93 | 17.86 | 25.09 | 214.23 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|--------|-------|-------|--------|------|------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 24.18 | 21.04 | 21.04 | 123.33 | 19.90 | 19.90 | 153.04 | 7.25 | 7.26 | 12.51 | 48.94 | 48.94 |
| Movement LOS | C | C | C | F | B | B | F | A | A | B | D | D |
| d_A, Approach Delay [s/veh] | 21.25 | | | 82.13 | | | 43.26 | | | 42.72 | | |
| Approach LOS | C | | | F | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 48.03 | | | | | | | | | | | |
| Intersection LOS | D | | | | | | | | | | | |
| Intersection V/C | 0.836 | | | | | | | | | | | |

Emissions

| | | | | | | | | | |
|------------------------------------|-------|--------|--------|--------|--------|-------|-------|--------|---------|
| Vehicle Kilometers Traveled [km/h] | 2.03 | 27.50 | 15.49 | 10.25 | 9.15 | 13.98 | 13.93 | 15.95 | 77.51 |
| Stops [stops/h] | 12.92 | 166.78 | 544.79 | 121.37 | 303.34 | 70.24 | 69.97 | 98.29 | 1085.85 |
| Fuel consumption [L/h] | 0.80 | 10.10 | 39.59 | 6.38 | 23.97 | 4.04 | 4.02 | 5.51 | 66.48 |
| CO [g/h] | 14.81 | 186.59 | 730.99 | 117.86 | 442.61 | 74.51 | 74.23 | 101.73 | 1227.53 |
| NOx [g/h] | 2.88 | 36.30 | 142.22 | 22.93 | 86.12 | 14.50 | 14.44 | 19.79 | 238.83 |
| VOC [g/h] | 3.43 | 43.24 | 169.41 | 27.31 | 102.58 | 17.27 | 17.20 | 23.58 | 284.49 |

Other Modes

| | | | | |
|--|-------|-------|--------|-------|
| g_Walk,mi, Effective Walk Time [s] | 15.0 | 15.0 | 16.0 | 16.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 61.21 | 62.51 | 164.58 | 54.41 |
| d_p, Pedestrian Delay [s] | 20.18 | 20.18 | 19.41 | 19.41 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.475 | 2.515 | 2.510 | 3.087 |
| Crosswalk LOS | B | B | B | C |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 567 | 567 | 1134 | 1134 |
| d_b, Bicycle Delay [s] | 17.19 | 17.19 | 6.28 | 6.28 |
| I_b,int, Bicycle LOS Score for Intersection | 2.089 | 2.414 | 2.035 | 3.548 |
| Bicycle LOS | B | B | B | D |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



**Intersection Level Of Service Report
Intersection 6: Oak St @ Roderick St**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 16.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.182 |

Intersection Setup

| Name | Oak St | | Roderick St | | Island Home Centre Access | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | No | | Yes | | Yes | |

Volumes

| Name | Oak St | | Roderick St | | Island Home Centre Access | |
|---|--------|--------|-------------|--------|---------------------------|--------|
| Base Volume Input [veh/h] | 38 | 42 | 58 | 4 | 3 | 29 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 20 | 167 | 178 | 20 | 2 | 28 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 58 | 209 | 236 | 24 | 5 | 57 |
| Peak Hour Factor | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 | 0.8700 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 17 | 60 | 68 | 7 | 1 | 16 |
| Total Analysis Volume [veh/h] | 67 | 240 | 271 | 28 | 6 | 66 |
| Pedestrian Volume [ped/h] | 0 | | 8 | | 12 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.18 | 0.24 | 0.18 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 16.91 | 9.61 | 7.75 | 0.00 | 0.00 | 0.00 |
| Movement LOS | C | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.65 | 0.91 | 0.58 | 0.58 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 4.99 | 6.97 | 4.40 | 4.40 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.21 | | 7.03 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 8.17 | | | | | |
| Intersection LOS | C | | | | | |

**Intersection Level Of Service Report
Intersection 7: Oak St @ Tolmie Ave**

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 9.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.356 |

Intersection Setup

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|------------------------------|------------|-------|-------|------------|-------|-------|------------|-------|-------|------------|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ⇐⇑⇐ | | | ⇑⇐⇑ | | | ⇑⇐⇑ | | | ⇑⇐⇑ | | |
| Turning Movement | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 17.00 | 30.48 | 30.48 | 30.00 | 30.48 | 30.48 | 40.00 | 30.48 | 30.48 | 28.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Oak St | | | Oak St | | | Tolmie Ave | | | Tolmie Ave | | |
|---|--------|--------|--------|--------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 68 | 24 | 100 | 28 | 10 | 18 | 30 | 281 | 20 | 74 | 257 | 33 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Proportion of CAVs [%] | 0.00 | | | | | | | | | | | |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 28 | 0 | 57 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 20 | 0 | 0 | 4 | 0 | 0 | 10 | 0 | 0 | 7 |
| Total Hourly Volume [veh/h] | 102 | 24 | 80 | 28 | 10 | 14 | 30 | 385 | 38 | 74 | 314 | 26 |
| Peak Hour Factor | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 | 0.9400 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 27 | 6 | 21 | 7 | 3 | 4 | 8 | 102 | 10 | 20 | 84 | 7 |
| Total Analysis Volume [veh/h] | 109 | 26 | 85 | 30 | 11 | 15 | 32 | 410 | 40 | 79 | 334 | 28 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing | 5 | | | 0 | | | 0 | | | 7 | | |
| v_di, Inbound Pedestrian Volume crossing m | 7 | | | 0 | | | 0 | | | 5 | | |
| v_co, Outbound Pedestrian Volume crossing | 2 | | | 9 | | | 3 | | | 6 | | |
| v_ci, Inbound Pedestrian Volume crossing mi | 3 | | | 6 | | | 2 | | | 9 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 90 |
| Active Pattern | Free Running (No Pattern) |
| Coordination Type | <i>Free Running</i> |
| Actuation Type | <i>Fully actuated</i> |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing (Basic)

| Control Type | Permiss |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Signal Group | 0 | 4 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 6 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Maximum Green [s] | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 18 | 0 | 0 | 18 | 0 |
| Amber [s] | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 4.0 | 0.0 |
| All red [s] | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| Walk [s] | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 0 |
| Pedestrian Clearance [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 8 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Location [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Advanced Detector Length [m] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Phasing & Timing: Free Running (No Pattern)

| | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Split [s] | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 0 |
| Lead / Lag | - | - | - | - | - | - | - | - | - | - | - | - |
| Minimum Green [s] | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 | 10 | 0 |
| Vehicle Extension [s] | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Minimum Recall | | No | | | No | | | No | | | No | |
| Maximum Recall | | No | | | No | | | No | | | No | |
| Pedestrian Recall | | No | | | No | | | No | | | No | |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | L | C | L | C | L | C |
|---|-------|------|-------|------|-------|------|-------|------|
| C, Calculated Cycle Length [s] | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| L, Total Lost Time per Cycle [s] | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 | 2.00 | 0.00 |
| l2, Clearance Lost Time [s] | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| g_i, Effective Green Time [s] | 9 | 9 | 9 | 9 | 14 | 14 | 14 | 14 |
| g / C, Green / Cycle | 0.28 | 0.28 | 0.28 | 0.28 | 0.43 | 0.43 | 0.43 | 0.43 |
| (v / s)_i Volume / Saturation Flow Rate | 0.09 | 0.07 | 0.03 | 0.02 | 0.03 | 0.27 | 0.09 | 0.22 |
| s, saturation flow rate [veh/h] | 1266 | 1480 | 1155 | 1552 | 918 | 1669 | 858 | 1644 |
| c, Capacity [veh/h] | 477 | 408 | 399 | 428 | 407 | 711 | 351 | 700 |
| d1, Uniform Delay [s] | 11.53 | 9.50 | 12.14 | 8.94 | 10.86 | 7.56 | 13.07 | 7.08 |
| k, delay calibration | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 0.24 | 0.36 | 0.08 | 0.06 | 0.08 | 0.94 | 0.32 | 0.59 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | |
|---------------------------------------|-------|------|-------|------|-------|-------|-------|-------|
| X, volume / capacity | 0.23 | 0.27 | 0.08 | 0.06 | 0.08 | 0.63 | 0.23 | 0.52 |
| d, Delay for Lane Group [s/veh] | 11.77 | 9.86 | 12.22 | 9.00 | 10.94 | 8.50 | 13.39 | 7.68 |
| Lane Group LOS | B | A | B | A | B | A | B | A |
| Critical Lane Group | Yes | No | No | No | No | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 0.57 | 0.50 | 0.16 | 0.11 | 0.16 | 1.70 | 0.46 | 1.25 |
| 50th-Percentile Queue Length [m/ln] | 4.32 | 3.82 | 1.22 | 0.83 | 1.20 | 12.92 | 3.51 | 9.55 |
| 95th-Percentile Queue Length [veh/ln] | 1.02 | 0.90 | 0.29 | 0.20 | 0.28 | 3.05 | 0.83 | 2.26 |
| 95th-Percentile Queue Length [m/ln] | 7.78 | 6.88 | 2.20 | 1.49 | 2.16 | 23.25 | 6.32 | 17.18 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|
| d_M, Delay for Movement [s/veh] | 11.77 | 9.86 | 9.86 | 12.22 | 9.00 | 9.00 | 10.94 | 8.50 | 8.50 | 13.39 | 7.68 | 7.68 |
| Movement LOS | B | A | A | B | A | A | B | A | A | B | A | A |
| d_A, Approach Delay [s/veh] | 10.80 | | | 10.72 | | | 8.66 | | | 8.70 | | |
| Approach LOS | B | | | B | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.17 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |
| Intersection V/C | 0.356 | | | | | | | | | | | |

Emissions

| | | | | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|--------|-------|--------|
| Vehicle Kilometers Traveled [km/h] | 3.53 | 3.59 | 1.47 | 1.28 | 1.81 | 25.49 | 8.31 | 38.07 |
| Stops [stops/h] | 61.05 | 54.04 | 17.28 | 11.70 | 16.95 | 182.51 | 49.64 | 134.89 |
| Fuel consumption [L/h] | 2.61 | 2.32 | 0.79 | 0.55 | 0.80 | 9.23 | 2.66 | 8.65 |
| CO [g/h] | 48.13 | 42.85 | 14.52 | 10.13 | 14.77 | 170.49 | 49.07 | 159.70 |
| NOx [g/h] | 9.36 | 8.34 | 2.83 | 1.97 | 2.87 | 33.17 | 9.55 | 31.07 |
| VOC [g/h] | 11.15 | 9.93 | 3.37 | 2.35 | 3.42 | 39.51 | 11.37 | 37.01 |

Other Modes

| | | | | |
|--|--------|--------|-------|--------|
| g_Walk,mi, Effective Walk Time [s] | 11.0 | 11.0 | 11.0 | 11.0 |
| M_corner, Corner Circulation Area [m²/ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [m²/ped] | 490.52 | 167.85 | 0.00 | 207.33 |
| d_p, Pedestrian Delay [s] | 7.53 | 7.53 | 7.53 | 7.53 |
| I_p,int, Pedestrian LOS Score for Intersectio | 2.143 | 1.979 | 2.358 | 2.254 |
| Crosswalk LOS | B | A | B | B |
| s_b, Saturation Flow Rate of the bicycle lane | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 1017 | 1017 | 1077 | 1077 |
| d_b, Bicycle Delay [s] | 4.04 | 4.04 | 3.56 | 3.56 |
| I_b,int, Bicycle LOS Score for Intersection | 1.956 | 1.659 | 2.371 | 2.299 |
| Bicycle LOS | A | A | B | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 8 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Intersection Level Of Service Report
Intersection 8: Douglas St @ Ardersier Rd/Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 411.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | F |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.189 |

Intersection Setup

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|------------------------------|---|-------|-------|---|-------|-------|---|-------|-------|---|-------|-------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Entry Pocket Length [m] | 20.00 | 30.48 | 30.48 | 50.00 | 30.48 | 30.48 | 30.48 | 30.48 | 55.00 | 35.00 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | | 48.28 | | | 48.28 | | | 48.28 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | No | | | No | | | Yes | | | Yes | | |

Volumes

| Name | Douglas St | | | Douglas St | | | Ardersier Rd | | | Audley St | | |
|---|------------|--------|--------|------------|--------|--------|--------------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 20 | 1271 | 6 | 4 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 26 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 0.00 | 4.00 | 0.00 | 25.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 212 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 20 | 1271 | 218 | 33 | 1458 | 30 | 2 | 0 | 13 | 3 | 0 | 66 |
| Peak Hour Factor | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 | 0.9000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 353 | 61 | 9 | 405 | 8 | 1 | 0 | 4 | 1 | 0 | 18 |
| Total Analysis Volume [veh/h] | 22 | 1412 | 242 | 37 | 1620 | 33 | 2 | 0 | 14 | 3 | 0 | 73 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 2 | | | 42 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|-------|------|------|--------|--------|-------|--------|--------|-------|
| V/C, Movement V/C Ratio | 0.06 | 0.01 | 0.00 | 0.14 | 0.02 | 0.00 | 0.19 | 0.00 | 0.04 | 0.22 | 0.00 | 0.21 |
| d_M, Delay for Movement [s/veh] | 14.67 | 0.00 | 0.00 | 20.29 | 0.00 | 0.00 | 411.53 | 653.95 | 16.55 | 325.95 | 478.42 | 18.21 |
| Movement LOS | B | A | A | C | A | A | F | F | C | F | F | C |
| 95th-Percentile Queue Length [veh/ln] | 0.18 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 | 0.48 | 0.13 | 0.13 | 0.58 | 0.79 | 0.79 |
| 95th-Percentile Queue Length [m/ln] | 1.35 | 0.00 | 0.00 | 3.54 | 0.00 | 0.00 | 3.67 | 1.02 | 1.02 | 4.42 | 6.00 | 6.00 |
| d_A, Approach Delay [s/veh] | 0.19 | | | 0.44 | | | 65.92 | | | 30.36 | | |
| Approach LOS | A | | | A | | | F | | | D | | |
| d_I, Intersection Delay [s/veh] | 1.28 | | | | | | | | | | | |
| Intersection LOS | F | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 36: Audley Crossing @ Audley St

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | All-way stop | Delay (sec / veh): | 9.6 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.310 |

Intersection Setup

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|------------------------------|-----------------|-------|-----------------|-------|-----------|-------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Audley Crossing | | Audley St | |
|---|-----------------|--------|-----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 51 | 37 | 4 | 27 | 34 |
| Total Analysis Volume [veh/h] | 24 | 203 | 148 | 16 | 107 | 134 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

Lanes

| | | | |
|---------------------------------|------|------|------|
| Capacity per Entry Lane [veh/h] | 756 | 756 | 777 |
| Degree of Utilization, x | 0.30 | 0.22 | 0.31 |

Movement, Approach, & Intersection Results

| | | | |
|------------------------------------|------|------|-------|
| 95th-Percentile Queue Length [veh] | 1.26 | 0.82 | 1.32 |
| 95th-Percentile Queue Length [m] | 9.64 | 6.27 | 10.08 |
| Approach Delay [s/veh] | 9.80 | 9.08 | 9.70 |
| Approach LOS | A | A | A |
| Intersection Delay [s/veh] | 9.58 | | |
| Intersection LOS | A | | |

Intersection Level Of Service Report
Intersection 37: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.2 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.183 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 156 | 0 | 165 | 124 | 201 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 0 | 165 | 124 | 201 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 41 | 31 | 50 |
| Total Analysis Volume [veh/h] | 0 | 156 | 0 | 165 | 124 | 201 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 10.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| Movement LOS | | B | | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 5.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.16 | | 0.00 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.45 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 40: Superstore Access @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 13.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.081 |

Intersection Setup

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|------------------------------|---------------------|-------|-------------|-------|-------------|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | | | | | | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access N | | Roderick St | | Roderick St | |
|---|---------------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 40 | 178 | 20 | 190 | 167 | 2 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 40 | 178 | 20 | 190 | 167 | 2 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 10 | 45 | 5 | 48 | 42 | 1 |
| Total Analysis Volume [veh/h] | 40 | 178 | 20 | 190 | 167 | 2 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.08 | 0.19 | 0.00 | 0.00 | 0.12 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.90 | 10.49 | 0.00 | 0.00 | 8.01 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.10 | 1.10 | 0.00 | 0.00 | 0.41 | 0.41 |
| 95th-Percentile Queue Length [m/ln] | 8.35 | 8.35 | 0.00 | 0.00 | 3.15 | 3.15 |
| d_A, Approach Delay [s/veh] | 11.11 | | 0.00 | | 7.91 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.30 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 41: Superstore Access @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 10.7 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.128 |

Intersection Setup

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Superstore Access S | | Tolmie Ave | | Tolmie Ave | |
|---|---------------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 100 | 80 | 48 | 32 | 19 | 72 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 100 | 80 | 48 | 32 | 19 | 72 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 25 | 20 | 12 | 8 | 5 | 18 |
| Total Analysis Volume [veh/h] | 100 | 80 | 48 | 32 | 19 | 72 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.13 | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 10.69 | 9.64 | 7.45 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.78 | 0.78 | 0.08 | 0.08 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 5.92 | 5.92 | 0.63 | 0.63 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 10.23 | | 4.47 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.26 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 42: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.191 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 133 | 97 | 69 | 77 | 42 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 133 | 97 | 69 | 77 | 42 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 33 | 24 | 17 | 19 | 11 | 0 |
| Total Analysis Volume [veh/h] | 133 | 97 | 69 | 77 | 42 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|-------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.19 | 0.09 | 0.04 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.92 | 10.27 | 7.38 | 0.00 | 0.00 | 0.00 |
| Movement LOS | B | B | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.18 | 1.18 | 0.12 | 0.12 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 8.96 | 8.96 | 0.91 | 0.91 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 11.22 | | 3.49 | | 0.00 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 7.39 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 43: Audley Crossing @ Tolmie Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.9 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.040 |

Intersection Setup

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Southbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Left | Thru | Thru | Right |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Tolmie Ave | | Tolmie Ave | |
|---|-----------------|--------|------------|--------|------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 32 | 34 | 22 | 48 | 80 | 19 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 32 | 34 | 22 | 48 | 80 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 8 | 9 | 6 | 12 | 20 | 5 |
| Total Analysis Volume [veh/h] | 32 | 34 | 22 | 48 | 80 | 19 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.04 | 0.04 | 0.01 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.86 | 9.05 | 7.43 | 0.00 | 0.00 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.24 | 0.24 | 0.04 | 0.04 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [m/ln] | 1.86 | 1.86 | 0.28 | 0.28 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.44 | | 2.34 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.35 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 45: Audley Crossing @ Cloverdale Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 9.5 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | A |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.095 |

Intersection Setup

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|------------------------------|---|-------|--|-------|---|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Cloverdale Ave | | Cloverdale Ave | |
|---|-----------------|--------|----------------|--------|----------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 85 | 80 | 186 | 86 | 194 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 85 | 80 | 186 | 86 | 194 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 21 | 20 | 47 | 22 | 49 |
| Total Analysis Volume [veh/h] | 0 | 85 | 80 | 186 | 86 | 194 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Stop | Free | Free |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.10 | 0.00 | 0.00 | 0.07 | 0.00 |
| d_M, Delay for Movement [s/veh] | 0.00 | 9.46 | 0.00 | 0.00 | 7.88 | 0.00 |
| Movement LOS | | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.32 | 0.00 | 0.00 | 0.15 | 0.15 |
| 95th-Percentile Queue Length [m/ln] | 0.00 | 2.40 | 0.00 | 0.00 | 1.15 | 1.15 |
| d_A, Approach Delay [s/veh] | 9.46 | | 0.00 | | 2.42 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.35 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 46: Audley Crossing @ Roderick Ave

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| Analysis Method: | HCM 7th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.011 |

Intersection Setup

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|------------------------------|---|-------|---|-------|---|-------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [m] | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 | 3.66 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [m] | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 | 30.48 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [m] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [km/h] | 48.28 | | 48.28 | | 48.28 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Audley Crossing | | Roderick St | | Roderick St | |
|---|-----------------|--------|-------------|--------|-------------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 7 | 50 | 96 | 13 | 87 | 52 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 7 | 50 | 96 | 13 | 87 | 52 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 2 | 13 | 24 | 3 | 22 | 13 |
| Total Analysis Volume [veh/h] | 7 | 50 | 96 | 13 | 87 | 52 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | No | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.01 | 0.05 | 0.00 | 0.00 | 0.06 | 0.00 |
| d_M, Delay for Movement [s/veh] | 11.03 | 9.05 | 0.00 | 0.00 | 7.53 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.20 | 0.20 | 0.00 | 0.00 | 0.15 | 0.15 |
| 95th-Percentile Queue Length [m/ln] | 1.55 | 1.55 | 0.00 | 0.00 | 1.16 | 1.16 |
| d_A, Approach Delay [s/veh] | 9.30 | | 0.00 | | 4.71 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.89 | | | | | |
| Intersection LOS | B | | | | | |