King City URA 6D Traffic Analysis

King City Urban Reserve Area 6D Concept Plan
King City, Oregon



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King City URA 6D Traffic Analysis

Project Information

Project:	**King City Urban Reserve Area 6D Concept Plan**
Prepared for:	**City of King City** 15300 SW 116th Avenue King City, Oregon 97224

Reviewing Agency

Jurisdiction:	King City, Oregon

Project Representative

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SIGNATURE

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Expires: 6/30/2018

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1. INTRODUCTION

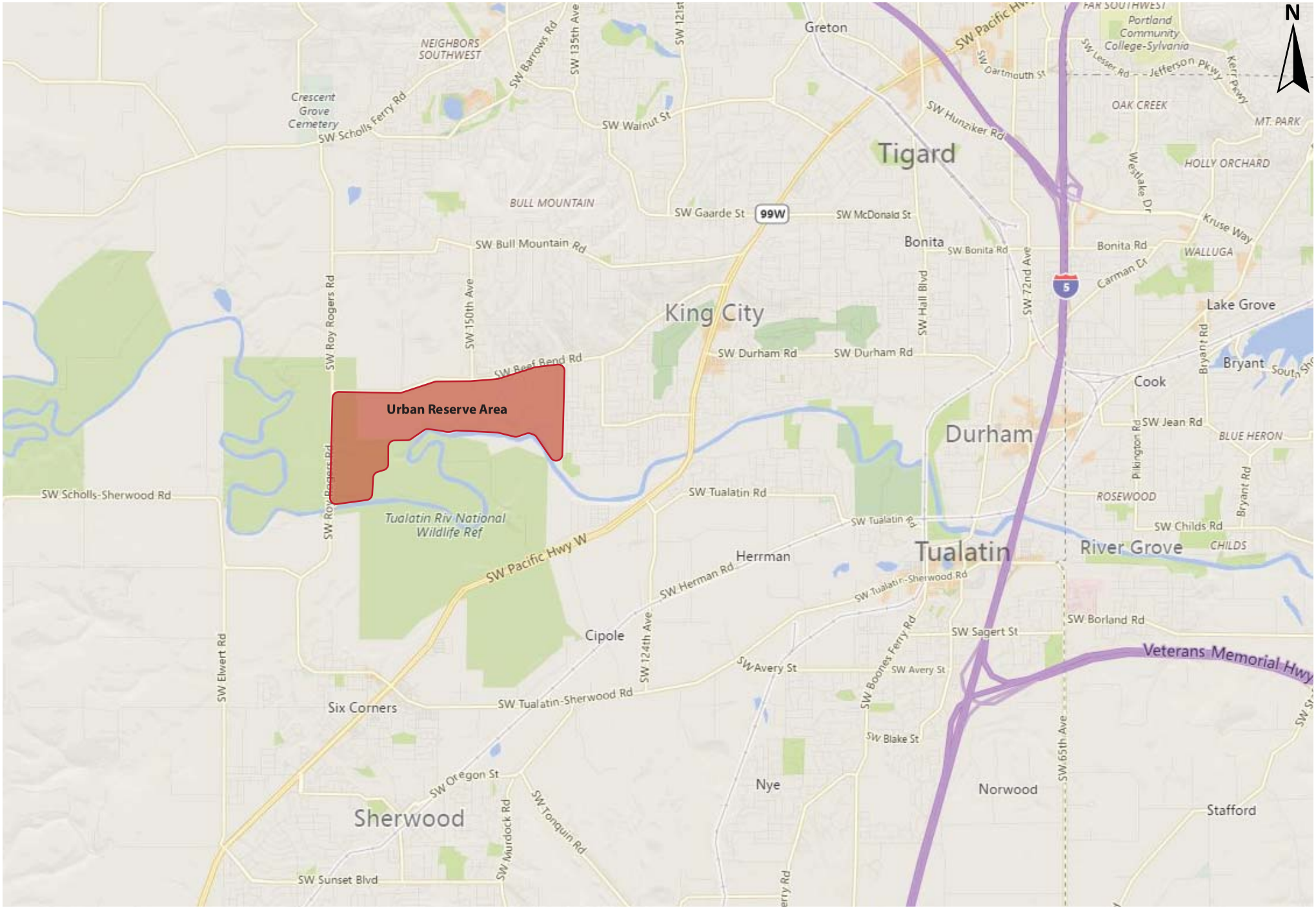
1.1 PURPOSE AND CONTENT OF THIS REPORT

The purpose of this memo is to summarize present the analysis of existing and future 2035 traffic conditions for the *King City Urban Reserve Area 6D Concept Plan* study area. The location of this study area and its surrounding street system is illustrated in **Figure 1-1**. Analysis is based on the draft *Concept Plan* as of February 2018, including both recommended land uses, densities and locations, as well as the proposed multimodal transportation infrastructure within the study area. Analysis also reflects recommendations in the Washington County Transportation System Plan (TSP) which illustrates the future multimodal system in the study area.

This memorandum is drawn from the analysis of existing transportation facilities and services, operating conditions, and transportation plans and policies that was prepared by SCJ and documented in a *Transportation Baseline Report* dated March 2017. Excerpts from that report have been incorporated herein to document physical features of the existing and planned transportation system. The analysis of existing conditions has been updated to reflect traffic counts taken in February 2018, and the planning context for the study area created by the Washington County TSP and other local plans has been acknowledged. Please refer to the March 2017 report for a discussion of existing crash history, transit service, bicycle and pedestrian facilities, as well as more information about the transportation policy and planning context.

This memo includes four chapters as described below:

- **Chapter 1** is this Introduction which provides context for the report and describes the transportation study area. This chapter also includes a summary of key findings and conclusions from the analysis.
- **Chapter 2** incorporates transportation system information originally prepared for and included in the Concept Plan's *Transportation Baseline Report* (March 2017). Material presented in this chapter includes a discussion of functional classifications and jurisdictional responsibilities, as well as a description of the existing street system. Traffic operations data has been updated to incorporate new intersection turning movement counts collected during February of 2018.
- **Chapter 3** highlights characteristics of the 2035 background land use and transportation system. This background system includes development within the Urban Reserve Area (URA) as anticipated under existing the Washington County *Comprehensive Plan,* as well as a range of currently planned improvements to the surrounding street system. The section identifies key findings and conclusions about the long-term transportation system.
- **Chapter 4** focuses on future traffic conditions associated with development of the land uses and transportation network proposed in the draft *Concept Plan* as of February 2018. This chapter identifies the location and magnitude of potential traffic impacts associated with implementation of the *Concept Plan* and makes recommendations for transportation system improvements to address identified deficiencies.



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King City URA 6D Concept Plan
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Figure 1-1
Project Vicinity Map

1.2 STUDY AREA

The study area for evaluating future transportation conditions as part of the *King City URA 6D Concept Plan* includes two primary areas of focus. The first is the *Concept Plan* area itself including its internal collector street system and connections to surrounding roadways, referred to in this report as the "project area". The location of the Concept Plan project area is illustrated in **Figure 1-2**, along with the existing boundaries of King City. The second focus area includes twelve key intersections located on the streets surrounding the project area. These twelve locations were identified for analysis in consultation with Washington County and the Oregon Department of Transportation (ODOT). Analysis focused on identifying any potential future (2035 PM peak hour) impacts associated with the Plan. These intersections include:

- Beef Bend Road at Roy Rogers Road
- Beef Bend Road at Elsner Road
- Beef Bend Road at 150th Avenue
- Beef Bend Road at 137th Avenue
- Beef Bend Road at 131st Avenue
- Elsner Road at Roy Rogers Road
- Fischer Road at 131st Avenue
- OR Highway 99W at Beef Bend Road
- OR Highway 99W at Durham Road
- OR Highway 99W at Fischer Road
- OR Highway 99W at 124th Avenue
- OR Highway 99W at Roy Rogers Road

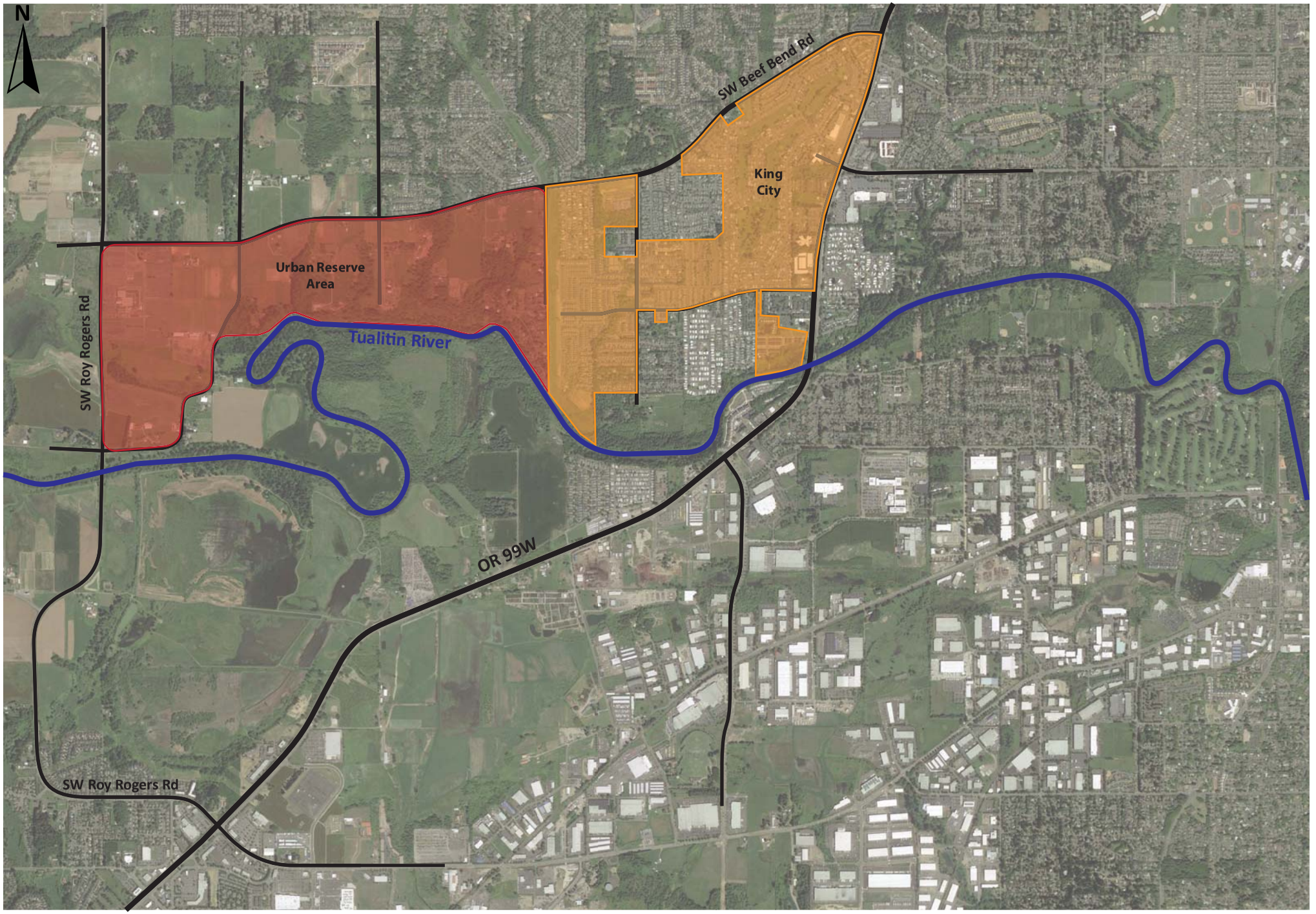
1.3 SUMMARY OF FINDINGS AND CONCLUSIONS

The *King City URA 6D Concept Plan* identifies the location and type of various land uses, as well as a transportation network for the project area. This area is bounded on the east by the existing city limits, on the north by Beef Bend Road, on the west by Roy Rogers Road, and generally on the south by the Tualatin River. Land uses in the URA are proposed to be largely residential, consisting of a nearly equal mix of single-family and multi-family units. Some employment-based development is also anticipated in the URA including retail, office and institutional uses. **Table 1-1** presents a summary of anticipated 2035 land development with the *Concept Plan* and compares it with development expectations in the regional travel demand model used to assess the 2035 Background Scenario. *Concept Plan* development is illustrated in **Figure 1-3** and the internal street system is shown in **Figure 1-4.**

Table 1-1. King City URA 6D Study Area – 2035 Land Use Comparison

Land Use	2035 Background Scenario	Added with Concept Plan	2035 Project Scenario	% Increase
Total Households	1,306	3,532	4,838	370%
Total Employees	313	363	676	216%

Source: Washington County 2018 and King City Concept Plan.



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King City URA 6D Concept Plan
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Figure 1-2
Project Study Area

Figure 1-3. URA 6D Concept Plan Land Uses

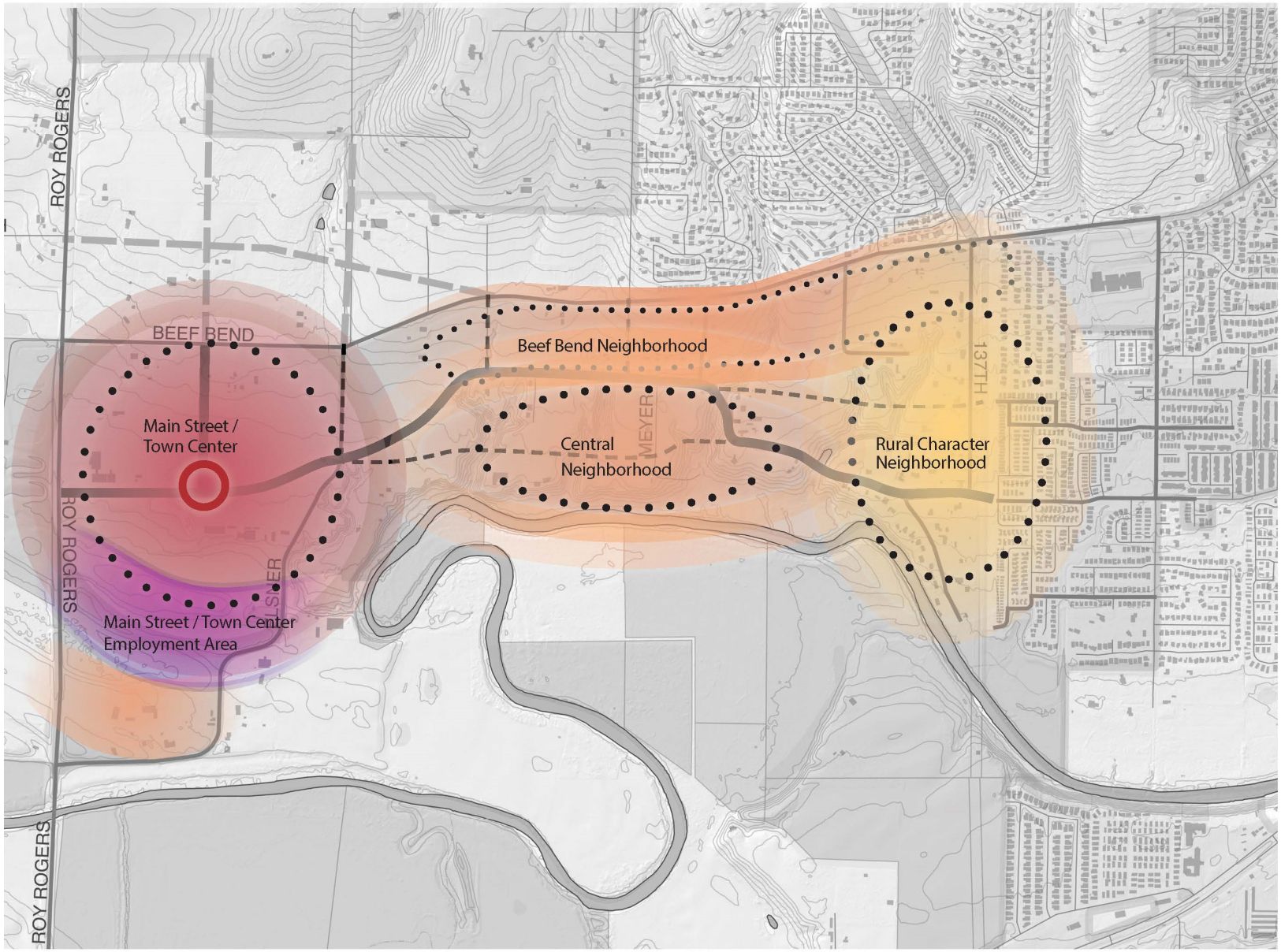
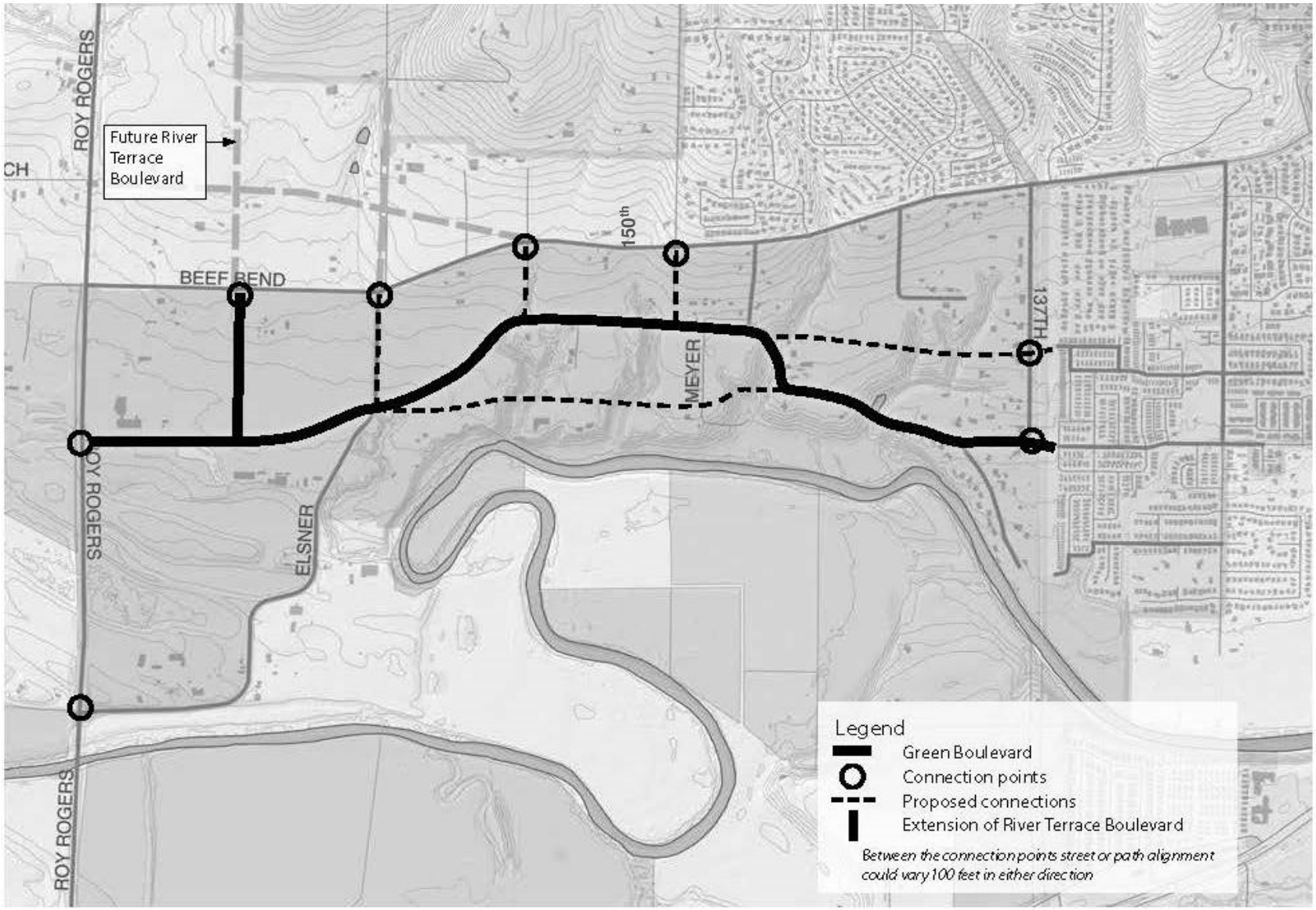


Figure 1-4. URA 6D Proposed Street System



1.3.1 Traffic Operations Analysis Results

Traffic analysis was conducted to identify any future long-term (2035) PM peak hour traffic deficiencies in the study area with *Concept Plan* development. The results of this analysis indicate that several intersections are expected to exceed their identified mobility target. These include:

- *Beef Bend Road at Roy Rogers Road* – This intersection is assumed to be improved to add a second through lane in each direction on Roy Rogers Road as identified in the RTP and County TSP. With URA development intersection operations are expected to meet the adopted mobility target of v/c = 0.99 and would improve in comparison with 2035 background conditions. This is largely due to the diversion of traffic away from Roy Rogers Road that would occur as a result of the added north/south street connectivity expected to be in place between URA 6D and River Terrace.
- *Beef Bend Road at 150th Avenue* – This stop-controlled intersection would operate substantially above its mobility target of v/c = 0.99 for the side street (150th Avenue) movement and would worsen from the 2035 background condition. Improvements will be needed beyond those anticipated in the *Concept Plan*.
- *Roy Rogers Road at Elsner Road* – The side street stop-controlled movement at this intersection would substantially exceed its mobility standard of v/c = 0.90. This condition would also exist with the 2035 Background Scenario. In actual practice, motorists would likely use another intersection with greater capacity to reach Roy Rogers Road when the Elsner Road intersection is significantly cogested. Accordingly, no mitigation is proposed at this location.
- *Fischer Road at 131st Avenue* – With the extension of Fischer Road further west through URA 6D, this road provides an attractive east/west connection paralleling Beef Bend Road between Roy Rogers Road and Highway 99W. While the road is effective in reducing traffic volumes along Beef Bend Road, its connection through the existing portions of King City will become increasingly congested. The current four-way stop controlled intersection will not have sufficient capacity to accommodate expected traffic volumes and improvements need to be considered.
- *Highway 99W at Beef Bend Road* – Traffic growth attributed to URA 6D is expected to worsen traffic operations at this location in comparison to the 2035 Background Scenario. Improvements at this location should be part of a long-term strategy for traffic management and enhancement in the Highway 99W corridor.
- *Highway 99W at Durham Road* – Traffic operations with or without URA 6D development are expected to be very similar in 2035. Improvements at this location should be part of a long-term strategy for traffic management and enhancement in the Highway 99W corridor.
- *Highway 99W at Fischer Road* – Traffic operations are expected to worsen at this location with the addition of traffic associated with URA 6D. Fischer Road is planned as the major east/west spine for the URA and will ultimately connect Roy Rogers Road with Highway 99W. While this connection will have a significant impact on reducing the need to widen Beef Bend Road beyond

the currently planned 3-lane cross-section, an improvement will be needed at this location to accommodate expected traffic volumes.

- *Highway 99W at Roy Rogers Road/Tualatin-Sherwood Road* – This intersection is expected to improve with development in URA 6D due to increased street connectivity in the larger area. However, the intersection will still substantially exceed its mobility target of v/c = 0.99.
- *Easterly new intersection on Beef Bend Road* (intersection #14 in Figure 4-3) – Initial forecasts for this intersection would show it slightly exceeding the v/c target of 0.99 on the stop-controlled side street movement. However, in actual practice this intersection would likely meet the mobility threshold as motorists would use another intersection with greater capacity to reach Beef Bend Road. Accordingly, no mitigation is proposed at this location beyond the intersection. Consideration should be given to providing separated right and left turn lanes for side street traffic.
- *New intersection of Roy Rogers Road with Fischer Road Extension* (intersection #15 in Figure 4-3) – This intersection would significantly exceed the mobility target of v/c = 0.99 and would require improvements beyond the initial *Concept Plan* which would include a shared right/left turn lane for the stop-controlled side street.

1.3.2 Off-Site Transportation Improvement Needs

Based on analysis results for 2035 PM peak hour traffic projections at study area intersections including planned development in URA 6D, a variety of street and intersection improvements would be needed. These improvements are summarized in **Table 1-2** and illustrated in **Figure 1-5**.

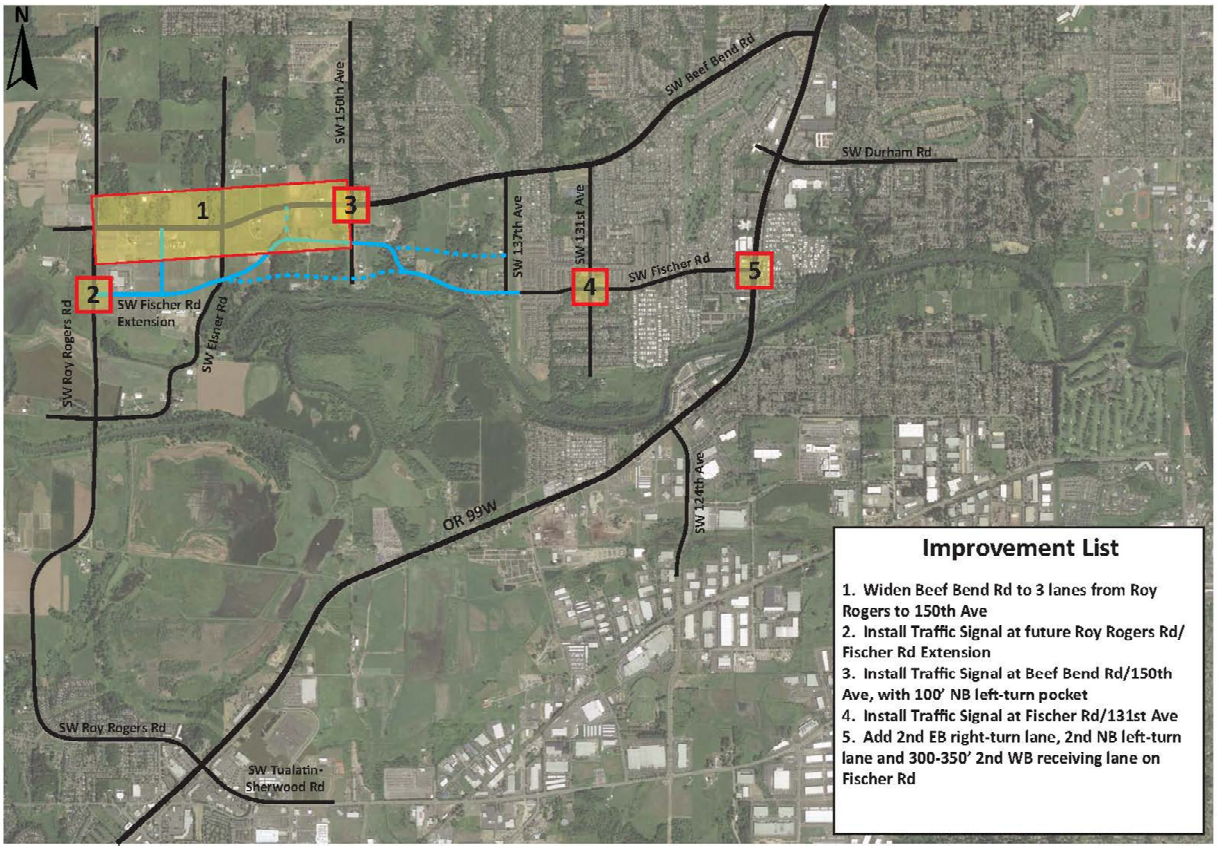
Table 1-2. Improvements Needed with 2035 Development with URA 6D

No.	Location	Limits	Improvement
1	Beef Bend Road	Roy Rogers Road to 150th Avenue	Widen to 3-lane urban minor arterial cross-section with sidewalks and bike lanes
2	Roy Rogers Road	At Fischer Road Extension	Install traffic signal and southbound left turn lane
3	Beef Bend Road	At 150th Avenue	Install traffic signal and separate northbound left and through/right lanes
4	Fischer Road	At 131st Avenue	Install traffic signal
5	Highway 99W	At Fischer Road	Add second eastbound right turn lane and second northbound left turn lane with an additional receiving lane on Fischer Road for approx. 300-350 feet.

- *#1 Widening of Beef Bend Road* – Of key importance to both regional traffic circulation and access to/from URA 6D is the widening of Beef Bend Road from a two-lane cross-section to a three-lane cross-section between Roy Rogers Road and 150th Avenue. This regional improvement is unlikely to be needed before 2030, beyond localized widening for left turn channelization at the five intersections proposed to access URA 6D. The development of a parallel collector road through the URA (Fischer Road Extension) will carry a significant percentage of the traffic that would otherwise use Beef Bend Road, reducing the need to

ultimately improve this facility to a five-lane cross-section. The widening of Beef Bend Road east of 150th Avenue to Highway 99W is included in the RTP and County TSP and is assumed as part of the background traffic condition. Consequently, this improvement is not included in the project list described in this section.

Figure 1-5. Off-Site Transportation Improvement Needs with URA 6D Development



- *#2 Roy Rogers Road at Fischer Road Extension* –This intersection would serve as the western terminus of the major east/west transportation spine through the URA. As proposed in the *Concept Plan*, it would provide direct access to the commercial/employment heart of the URA, linking this area with the URA's proposed residential neighborhoods and existing portions of King City. This intersection is expected to meet warrants for installation of a traffic signal. Signalization of this intersection would also offer an alternative to use of the intersection of Roy Rogers Road with Elsner Road which would experience significant congestion for the stop-controlled side street movement but would not meet warrants for signalization. Signalization would allow this intersection to operate well within its mobility target in the 2035 PM peak hour.
- *#3 Beef Bend Road at 150th Avenue* – This intersection would provide a major north/south connection between the URA and destinations in the City of Tigard to the north of Beef Bend Road. This intersection is expected to meet warrants for installation of a traffic signal. Signalization would allow this intersection to operate well within its mobility target in the 2035

PM peak hour. Additionally, signalization at this location would provide an alternative to other proposed collector street intersections linking the URA with Beef Bend Road when these stop-controlled intersections are experiencing side street delay.

- *#4 Fischer Road at 131st Avenue* – This intersection is currently stop-controlled on all approaches. With the addition of URA 6D traffic there would be insufficient capacity for the intersection to operate acceptably. This intersection would meet signal warrants and would operate within its mobility target with this improvement.
- *#5 Highway 99W at Fischer Road* – With full development in the URA this intersection would experience significant PM peak hour delays and long traffic queues. Proposed improvements include addition of a second northbound left turn lane coupled with a westbound receiving lane on Fischer Road for approximately 300 to 350 feet (beyond the existing gas station driveway); and the addition of a second eastbound right turn lane. The addition of these improvements would allow the intersection to operate within its mobility target of v/c = 0.99. However, this intersection would still experience significant traffic queuing for all turning movements.

2. EXISTING CONDITIONS

This chapter presents detailed information about the existing street and roadway system, and its current patterns of use and deficiencies including:

- Functional classification of streets
- Street jurisdiction
- Existing street characteristics
- Intersection channelization and traffic control
- Existing traffic volumes
- Existing traffic performance

A discussion of future (2035) roadway needs and improvement recommendations based on the TSP is included in Chapter 3.

2.1 EXISTING STREET FUNCTIONAL CLASSIFICATION IN STUDY AREA

The existing functional classification of streets in King City study area as adopted in either the County's TSP or the City's *Comprehensive Plan* is presented in **Table 2-1**. Any street not designated as either an arterial, collector, or neighborhood route is considered a local street. Since most of the streets within or near the study area are under the jurisdiction of Washington County, most of these streets follow the County's classification system. In a few instances, the City street classification is also identified. **Table 2-1** table also includes information about the number of travel lanes planned to be provided on each of these streets.

Table 2-1. Classification of Major Study Area Streets

	Functional Classification		Planned
Street	**King City**	**Washington County**	**Lanes**
Oregon 99W (SW Pacific Hwy)	--	Principal Arterial	5
Roy Rogers Road	--	Arterial	4/5
Beef Bend Road	--	Arterial	2/3
Elsner Road	--	Collector	2
150th Avenue	--	Collector	2
146th Avenue	--	N'hood Route	2
131st Avenue north of Fischer Road	Collector	Collector	2
131st Avenue south of Fischer Road	Collector	N'hood Route	2
Fischer Road east of 131st Avenue	Collector	Collector	2

Source: Washington County 2015 TSP and King City West Concept Plan

2.2 STREET JURISDICTION

Roadway ownership and maintenance responsibilities for the various roads throughout the study area are identified in **Table 2-2**. The arterial and street system is primarily owned and operated by Washington County, with the exception of Oregon Highway 99W (SW Pacific Highway) which is owned and operated by ODOT. As described in this table, the Washington County TSP also identifies potential jurisdictional transfers that could occur for many of the existing collector streets and neighborhood routes.

Table 2-2. Roadway Jurisdictional Ownership

Street	Current Jurisdiction	Long-Term Jurisdiction
Oregon 99W (SW Pacific Highway)	Oregon Dept. of Transportation	Oregon Dept. of Transportation
Roy Rogers Road	Washington County	Washington County
Beef Bend Road	Washington County	Washington County
Elsner Road	Washington County	Other
150th Avenue	Washington County	Other
146th Avenue	Washington County	Other
131st Avenue	Washington County	Other
Fischer Road	Washington County	Other

Source: Washington County TSP, 2015.

2.3 EXISTING STREET CHARACTERISTICS

This section provides a brief overview of the existing street and roadway system in the vicinity of URA 6D. Data collected includes a general description of the physical characteristics of key roadways, as well as intersection controls at key locations. Additional data related to pavement conditions and posted speeds is included in the March 2017 *Transportation Baseline Report*. These features characterize the backbone transportation system upon which new roadway improvement concepts for the URA will be developed. They also help to define factors that affect roadway and intersection capacity and influence driver route choices.

2.3.1 Existing Streets and Roadways

Located on the east side of Roy Rogers Road between Beef Bend Road and the Tualatin River, the study area is characterized by higher speed roads on its perimeter, and narrow, rural roads in its interior. The following is a short description of each key roadway.

Roy Rogers Road – This arterial provides for high capacity north/south travel that connects the study area with Highway 99W and the City of Sherwood to the south and the City of Tigard to the north. Roy Rogers Road has one travel lane in each direction with wide shoulders for bicycle travel. Left turn channelization is provided at key intersections and driveways. The posted speed is 45-55 mph depending on location. A traffic signal and turn lane channelization is provided at the intersections with Beef Bend Road and Highway 99W.

Beef Bend Road – This arterial offers high capacity east/west travel, connecting the URA with Highway 99W, and, ultimately, OR 217 and I-5. Beef Bend Road has one travel lane in each direction with minimal

shoulders west of 150th Avenue. There are sidewalks along the south side for portions of this road between 150th and east of 137th Avenues. The posted speed is 35-45 mph in the study area depending on location. A traffic signal and turn lane channelization is provided at the intersections with 131st Avenue and Highway 99W.

Elsner Road – This collector road provides for local circulation and property access in the western portion of the URA. The road has one travel lane in each direction and has minimal shoulders. The road runs between Roy Rogers Road on the west and Beef Bend Road on the north. The intersections with Roy Rogers and Beef Bend Roads are stop sign-controlled. The speed limit is unposted but there are several 30-35 mph curves.

150th Avenue – This north/south collector road provides residential property access and circulation north of Beef Bend Road and connects the study area to Bull Mountain Road. This road is narrow with no shoulders or sidewalks and a posted 40 mph speed. Within the URA on the south side of Beef Bend Road, 150th Avenue is a narrow, paved facility with no shoulders that provides local access only. It dead ends at private properties adjacent to the Tualatin River. The speed limit here is unposted.

137th Avenue – This local street provides a north/south connection between Beef Bend Road and the Rivermeade community located along the north bank of the Tualatin River. The BPA powerline corridor runs parallel and immediately east of 137th Avenue which creates a barrier between the existing King City limits and the URA. 137th Avenue is a narrow, paved facility with no shoulders. This road is posted for 25 mph speeds.

It should be noted that regional mobility to and from the King City URA is hindered along its southern edge by the Tualatin River. Connectivity across the river to the regionally significant Highway 99W corridor is provided only via Roy Rogers Road south of the river and by Beef Bend and Fischer Roads north of the river.

2.3.2 Intersection Channelization and Traffic Control

Most intersections within the study area are stop signed-controlled for minor street movements (i.e., for traffic entering Roy Rogers Road or Beef Bend Road). Traffic signals currently operate at:

- Roy Rogers Road at Beef Bend Road, Scholls-Sherwood Road, and Borchers Drive
- Beef Bend Road at 131st Avenue
- Highway 99W at Beef Bend Road, Durham Road, Fischer Road, 124th Avenue, and Roy Rogers Road

Existing traffic control and lane channelization at the twelve study area intersections is documented in **Figure 2-1.**

2.4 EXISTING TRAFFIC VOLUMES

Figure 2-2 presents existing (2018) PM peak hourly traffic volumes at key intersections in the study area. Since traffic counts in the study area were obtained during February of 2018, which is an off peak time of the year, volumes were seasonally adjusted for the intersections along Highway 99W to account for

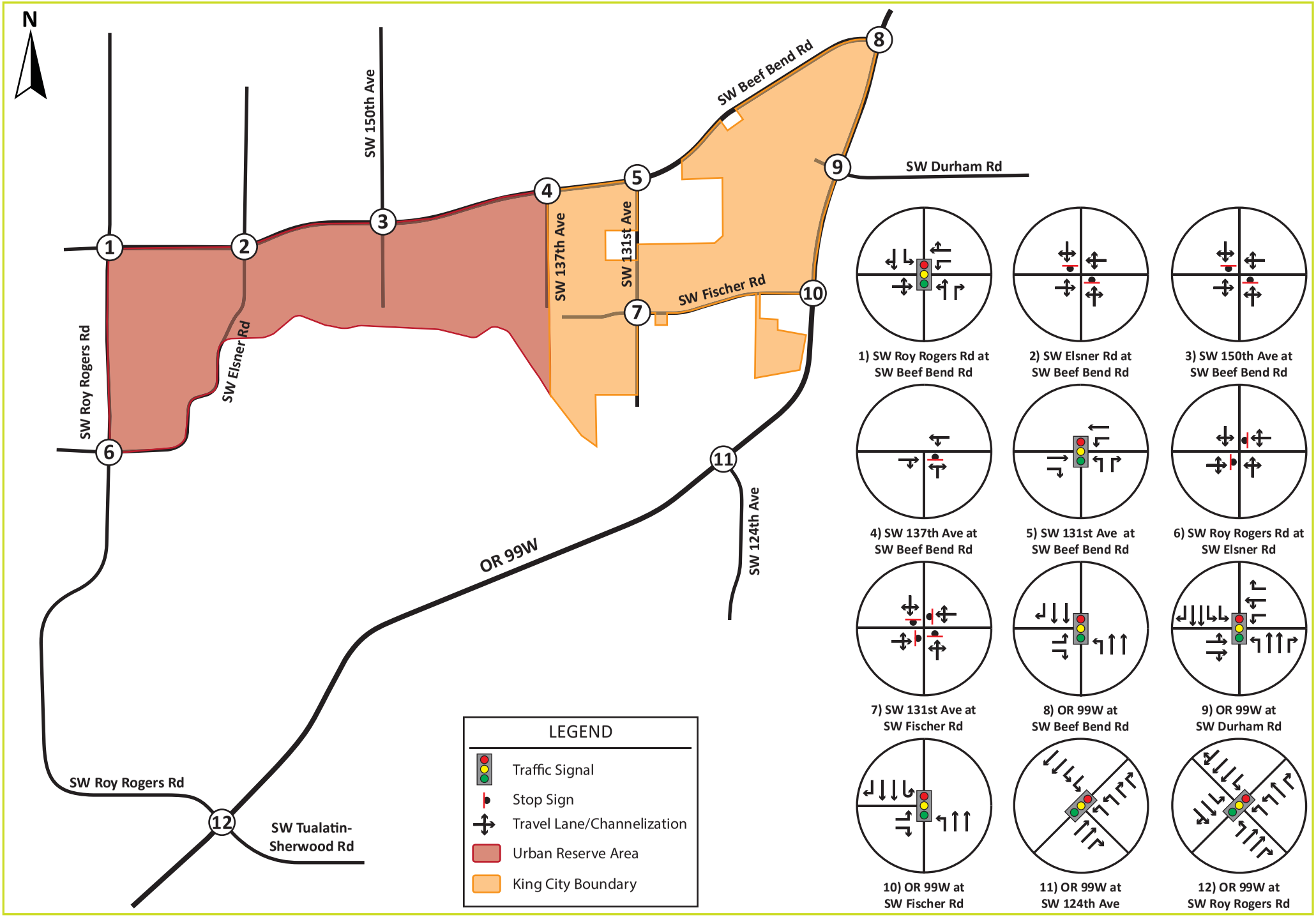


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Figure 2-1
Existing Intersection Control and Channelization

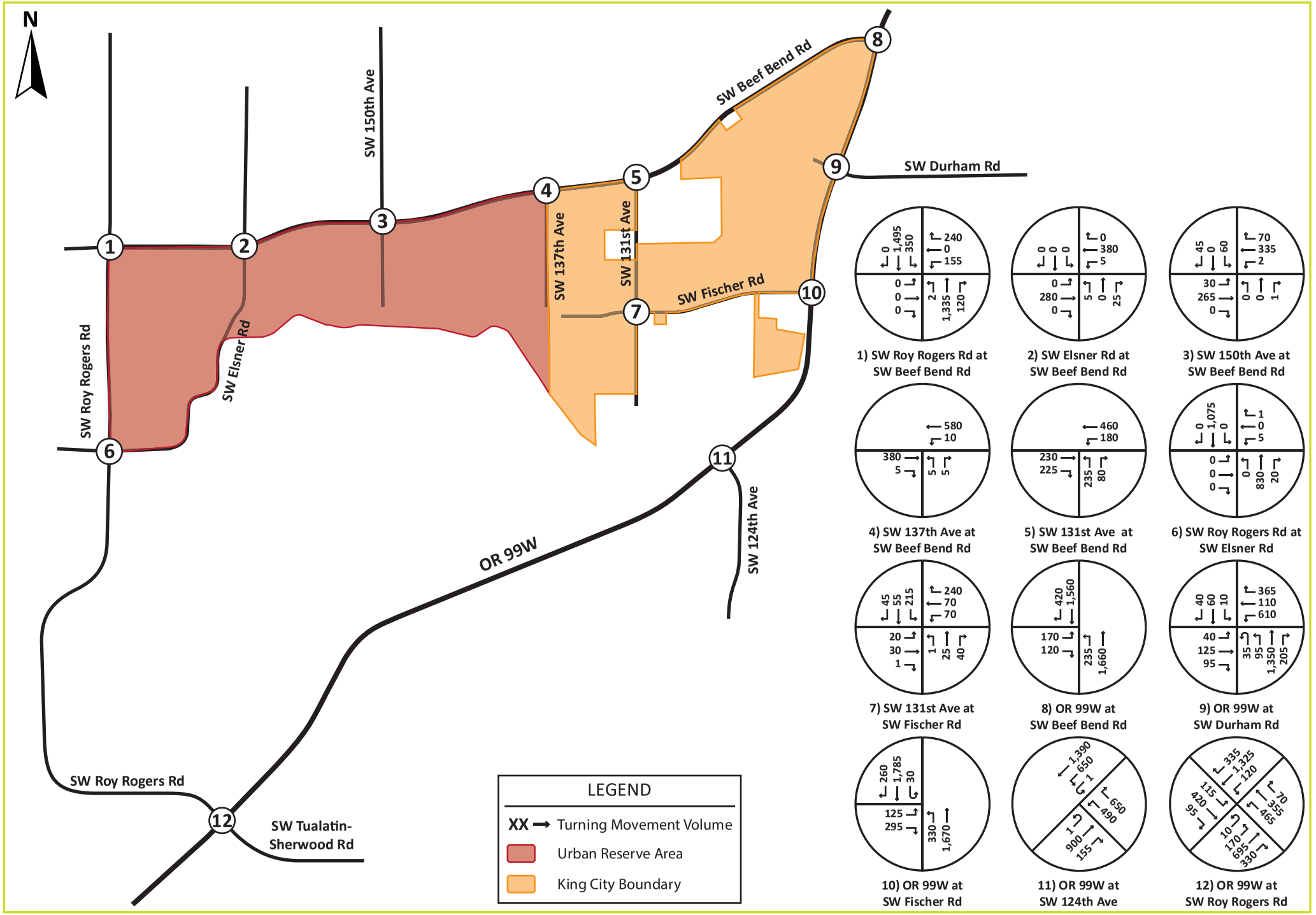

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Figure 2-2
Existing 2018 PM Peak Hour Traffic Volumes

fluctuations in travel that occur over a typical year. The methodology used to seasonally adjust Highway 99W turning movement volumes is identified in the ODOT *Analysis Procedures Manual*.[1] Steps involved in this adjustment included:

- A system peak hour of 4:35 to 5:35 was identified out of the two hours of PM peak period data collected.
- A seasonal adjustment was calculated to derive the 30th highest annual hourly traffic volumes (30 HV). Based on turning movement counts taken on February 13, 2018, and documented in **Appendix A**, a seasonal adjustment factor of 1.0038 was applied[2]. Raw counts before this adjustment and after this adjustment are provided in **Appendix B**.
- The 30 HV were rounded to the nearest 5 vehicles.

2.5 EXISTING TRAFFIC PERFORMANCE

This section presents a discussion of existing PM peak hour traffic operations at the twelve study area intersections. Included is a discussion of intersection mobility targets and standards, intersection performance including identification of any operational deficiencies, and existing traffic queuing.

2.5.1 Intersection Mobility Targets and Standards

State, local and regional transportation plans require that all study area intersections must operate at or below adopted performance measures or mitigation in the form of roadway improvements may be necessary to support future growth. The intersection performance measures (or mobility targets) vary by roadway jurisdiction including both ODOT and Washington County. King City does not have an adopted *Transportation System Plan* or mobility targets and has no collector or arterial roads currently under its jurisdiction that would require such adoption.

ODOT Facilities

Five intersections included in the study area are under the jurisdiction of ODOT. ODOT uses volume-to-capacity (v/c) ratio targets to assess traffic operations at intersections on state highway facilities. The applicable mobility target for these intersections is identified in Table 7 of the *Oregon Highway Plan (OHP)*, Policy 1F as revised and adopted by the Oregon Transportation Commission through May of 2015. From Table 7, the adopted mobility target identified along Highway 99W is an overall v/c ratio of 0.99.

Washington County Facilities

All the remaining study area intersections are under the jurisdiction of Washington County. For streets designated as "Corridors" or "Neighborhoods" in Metro's Arterial and Throughway Network, regional standards[3] require that a volume to capacity (v/c) ratio of 0.99 to be maintained during the highest two consecutive hours of the day. Within the urban portion of the study area Roy Rogers Road is a

[1] Oregon Department of Transportation, Analysis Procedures Manual Version 2, updated October 2015.
[2] The commuter seasonal trend was applied to Highway 99W mainline volumes.
[3] Metro, *Regional Transportation Functional Plan*, Updated 2010, Table 3.08-2.

designated corridor and Beef Bend Road is a designated neighborhood route. For the portions of Roy Rogers Road and Beef Bend Road outside of the Urban Growth Boundary (UGB), mobility targets are governed by Washington County. In Table 3.1 of the County's TSP, the mobility target for rural roads is a v/c of 0.90.

2.5.2 2018 Traffic Operational Analysis

Traffic analyses were conducted to identify any existing deficiencies within the study area for the 2018 PM peak hour. The acknowledged source for determining overall capacity for signalized and unsignalized intersections is the *Highway Capacity Manual (HCM)*. Consistent with the ODOT *Analysis Procedures Manual*, the 2010 HCM was used to obtain average delay, v/c ratios and level of service output for unsignalized intersections, as well as delay and levels of service for signalized intersections. The 2000 version of HCM was used to determine v/c ratios at signalized intersections, Capacity analyses were completed for all study intersections using the Synchro (Version 10) software package. The results of the 2018 PM peak hour intersection operations analysis are presented in **Table 2-3**. As indicated in this table, all intersections are currently operating within their identified mobility target. Worksheets are included in **Appendix C**.

Table 2-3. 2018 PM Peak Hour Intersection Operations

			PM Peak Hour		
Intersection	**Traffic Control**	**Mobility Target**	**Volume/ Capacity**	**Avg Delay (sec.)**	**Level of Service**
Beef Bend Road at Roy Rogers Road	Signal	v/c 0.90	0.81	23.9	C
Beef Bend Road at Elsner Road	Stop Sign	v/c 0.90	0.05	11.3	B
Beef Bend Road at 150th Avenue	Stop Sign	v/c 0.99	0.26	16.7	C
Beef Bend Road at 137th Avenue	Stop Sign	v/c 0.99	0.03	14.8	B
Beef Bend Road at 131st Avenue	Signal	v/c 0.99	0.55	9.3	A
Roy Rogers Road at Elsner Road	Stop Sign	v/c 0.90	0.15	91.2	F
Fischer Road at 131st Avenue	Stop Sign	v/c 0.99	0.47	12.8	B
Highway 99 at Beef Bend Road	Signal	v/c 0.99	0.81	19.5	B
Highway 99 at Durham Road	Signal	v/c 0.99	0.90	56.3	E
Highway 99W at Fischer Road	Signal	v/c 0.99	0.91	41.8	D
Highway 99W at 124th Avenue	Signal	v/c 0.99	0.85	34.4	C
Highway 99W at Roy Rogers Road	Signal	v/c 0.99	0.89	49.7	D

Note 1: Performance results for the unsignalized intersections represent the worst movement.
Note 2: Analysis conducted based on 2010 Highway Capacity Manual except for volume/capacity ratios at signalized intersections which used 2000 HCM.

2.5.3 2018 Traffic Queuing Analysis

An assessment of existing traffic queues was conducted for key movements at study area intersections using the Sim-Traffic analysis package. The results of this assessment are presented in **Table 2-4**. Queuing output worksheets are included in **Appendix C**.

Most existing traffic queues are expected to be accommodated within available vehicle storage. Exceptions include the south and westbound lefts at Roy Rogers/Beef Bend; the northbound left on Highway 99W at Beef Bend; the north and westbound lefts for Highway 99W at Durham; all major

turning movements for Highway 99W at Fischer; the northbound right on 124th at Highway 99W; and east and westbound lefts on Roy Rogers/Tualatin-Sherwood at Highway 99W.

Table 2-4. 2018 PM Peak Hour Intersection Traffic Queuing

Intersection	Movement	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Beef Bend Road at Roy Rogers Road	SB Left	150 ft	225 ft
	WB Left	75 ft	150 ft
	WB Thru/Right	>1,000 ft	250 ft
Beef Bend Road at Elsner Road	NB All	>500 ft	50 ft
Beef Bend Road at 150th Avenue	SB All	>500 ft	75 ft
Beef Bend Road at 137th Avenue	NB All	>500 ft	25 ft
Beef Bend Road at 131st Avenue	NB Left	150 ft	150 ft
	NB Right	250 ft	50 ft
	EB Right	200 ft	75 ft
	WB Left	150 ft	100 ft
Roy Rogers Road at Elsner Road	WB All	>1,000 ft	50 ft
Fischer Road at 131st Avenue	NB All	350 ft	50 ft
	SB All	125 ft	125 ft
	EB All	325 ft	75 ft
	WB All	175 ft	175 ft
Highway 99W at Beef Bend Road	NB Left	200 ft	275 ft
	SB Right	350 ft	200 ft
	EB Left	325 ft	275 ft
	EB Right	>500 ft	125 ft
Highway 99W at Durham Road	NB Left	200 ft	450 ft
	SB Right	400 ft	300 ft
	WB Left	300 ft	350 ft
	WB Right	350 ft	250 ft
Highway 99W at Fischer Road	NB Left	150 ft	525 ft
	SB Right	200 ft	300 ft
	EB Left	275 ft	350 ft
	EB Right	275 ft	650 ft
Highway 99W at 124th Avenue	NB Right	225 ft	250 ft
	SB Left	550 ft	550 ft
Highway 99W at Roy Rogers Road	NB Left	650 ft	300 ft
	SB Left	275 ft	300 ft
	EB Left	225 ft	250 ft
	WB Left	225 ft	300 ft

Note: Traffic queuing calculated using Sim-Traffic operations software. Values are rounded to the nearest 25 feet or whole vehicle.

Black boxes with white numbering indicates a movement where the queue is expected to exceed storage.

3. 2035 BACKGROUND TRANSPORTATION CONDITIONS

This chapter moves beyond a discussion of the existing transportation system and its needs and deficiencies, and addresses expected conditions on study area streets as the region continues to grow over time. Washington County's transportation forecast model was used to determine future traffic volumes in and around the study area. This model translates land use assumptions into person trips, selects a mode of travel and then assigns motor vehicles to the roadway network. Motor vehicle traffic volume forecasts form the basis for identifying potential roadway and intersection deficiencies and for determining appropriate improvements. The base year for analysis is 2015, and the planning horizon year is 2035.

This chapter includes a discussion of the traffic forecasting analysis approach and assumptions, identification of future background traffic volumes at study area intersections, and an assessment of traffic operational performance.

3.1 ANALYSIS APPROACH AND ASSUMPTIONS

Traffic forecasts for the King City Concept Plan study area were developed for 2035 at the twelve study area intersections and along key streets within the study area. The purpose of these forecasts was to assess roadway improvement needs for conditions with and without the *Concept Plan,* and to identify appropriate site-specific functional classification designations. Future year traffic volume forecasts were prepared using the following steps.

- **Develop Travel Model Forecasts** - Washington County provided PM peak one hour volumes for various scenarios from the Westside Focus Model. This model includes traffic generated by existing and expected development in both urban and rural portions of the County, with a focus on areas currently within the Metro Urban Growth Boundary. Model traffic volumes on study area streets were obtained for the following specific scenarios:
    - 2015 base year that was derived from the regional model available from Metro.
    - 2035 scenario that included full build-out of the County's existing Urban Growth Boundary or UGB (Background Scenario)[4]. This scenario was selected as the most appropriate representation of future year "background" traffic conditions without development of the URA to which URA volumes could be added.
    - 2035 scenario that added development in the study area based on the proposed *King City URA 6D Concept Plan* (Project Scenario)[5]. Most of the proposed internal traffic network within the URA was incorporated into this scenario to refine the assignment of forecasted traffic for the Project model (see **Figure 4-2** for an illustration of this network).

[4] This scenario is labeled as 35_CMAC_SCEN_2_disagg_020918.
[5] This scenario is labeled as 35_WKC_FischerRdExt_admustmentsB_022718.

- **Post-process Forecasts** - Modeled traffic volumes were "post-processed" using procedures identified in ODOT's *Analysis Procedures Manual* (APM) to obtain 2035 PM peak hour turning movement projections at the twelve study area intersections. These procedures rely on existing traffic volumes as a starting point and then overlay the increment of predicted traffic volume growth between 2015 and 2035 for both future conditions scenarios.
- **Determine Operational Performance and Identify Deficiencies** - Projected PM peak hour turning movement projections were analyzed using the Synchro 10 software to determine operational performance (measured in terms of volume/capacity ratios, delay, levels of service and traffic queuing) and identify deficiencies.
- **Identify Potential improvements –** Based on the results of the operational analysis, potential street and/or intersection improvements were identified and evaluated to address anticipated deficiencies with development of the URA.

Details related to each step including land use and network assumptions, the development of 2035 background traffic projections, and operational analysis results are presented in the sections that follow.

3.2 FUTURE (2035) LAND USES

Consideration of future land use types and locations is critical to understanding how community and regional growth will affect the transportation system, and to identifying where and what type of improvements may be needed to maintain or enhance transportation system operations.

Projected land uses for the King City 2035 Background Scenario are consistent with Metro's 2035 "William" land use assumptions. **Table 3-1** illustrates the land use data for the King City project area that was used in preparing the 2035 Background Scenario. Data is aggregated by Transportation Analysis Zone (TAZ) including TAZ 1001 and TAZ 1051 which represent the project area. 2035 data is contrasted with existing levels of development in the model base year of 2015. The two project area TAZs include both residential and employment development. A map showing the location of these two TAZs is included in **Appendix D**.

Table 3-1. King City URA 6D Study Area - Background Land Use Summary

Land Use	2015	2035	Numeric Increase	% Increase
Households				
TAZ 1001	17	17	0	0%
TAZ 1051	1,262	1,289	27	2%
Total Households	1,279	1,306	27	2%
Employees				
TAZ 1001	9	7	(2)	(22%)
TAZ 1051	163	306	143	88%
Total Employees	172	313	141	82%

Source: Washington County/Metro, 2018.

With the existing level of land development, the transportation system generally operates without significant motor vehicle deficiencies in the study area. As land uses change over time, traffic volumes are expected to grow, and motor vehicle deficiencies will emerge. Since URA 6D will be relatively homogeneous in its residentially-based land use character (similar to much of the surrounding area) traffic growth is expected to be heavily directional. The transportation system must support significant trips coming to or from the community rather than within the community. While non-residential land uses such as retail, office or institutional, will typically generate more peak hour trips than residential, the extent to which non-residential uses are included in the proposed development will help to moderate these direction peaks. Ideally, a mix of residential, commercial and employment type land uses will result in some residents working and shopping locally, reducing the need for longer distance travel.

3.3 2035 Background Transportation System

The 2035 Background Scenario assumes that a series of transportation system improvements will be made in the study area between 2018 and 2035. Planned network improvements that are reflected in the model are identified in the *Regional Transportation Plan* and supported by the *Washington County TSP*. They include:

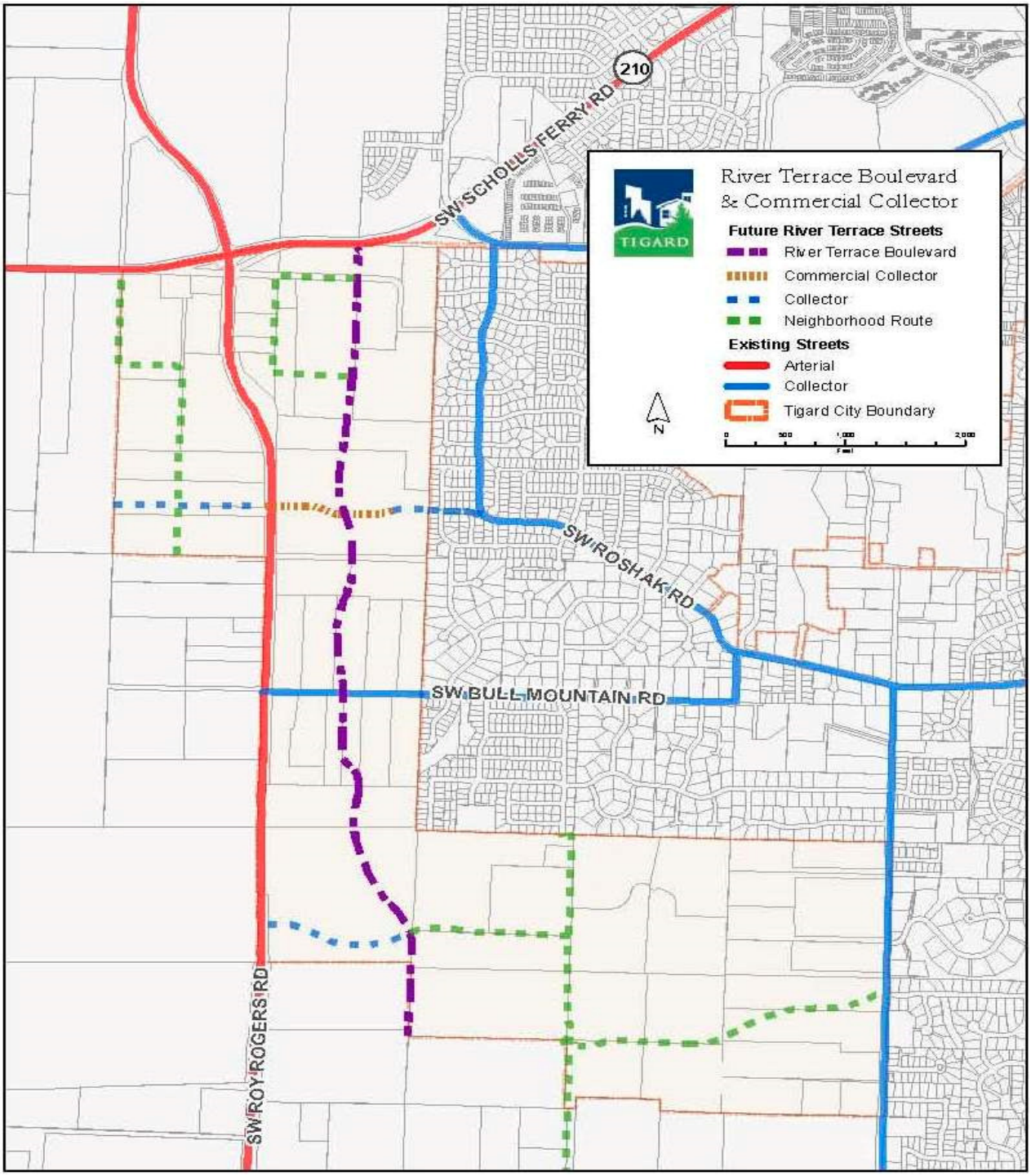
- Project #10708: **Roy Rogers Road** (Langer Farms Parkway to Borchers Drive) – Construct 5-lane cross-section (through intersection with OR Highway 99W)
- Project #11467: **Fischer Road** (131st Avenue to OR Highway 99W – Add sidewalks, bike lanes, lighting, turn lanes at major intersections. This project has recently been completed.
- Project #11486: **Roy Rogers Road** (Scholls Ferry Road to UGB) – Widen to five lanes with bike lanes and sidewalks.
- Project #11577: **Beef Bend Road** (150th to OR Highway 99W) – Widen to three lanes with bike lanes and sidewalks.

The 2016 Washington County *Capital Improvements Program* includes a roadway improvement project in the vicinity of the King City URA consistent with project #11486 above. This improvement would widen Roy Rogers Road to a full five-lane urban section between Scholls Ferry Road and Bull Mountain Road , include bicycle and pedestrian facilities along both sides of the road, and install street lighting. Construction is scheduled for 2018.

In addition to improvements in the existing County TSP, the approved River Terrace development to the north of URA 6D in the City of Tigard includes a variety of internal and local street improvement projects which are illustrated in **Figure 3-1**. The Background Scenario includes a north/south boulevard connection between Scholls Ferry Road and south of Bull Mountain Road as identified in the figure. It also provides a connection from this street to Roy Rogers Road as illustrated in the southerly portion of this graphic. **Figure 3-1** also shows potential future roadway alignments that could connect through URA 6C to Beef Bend Road at some time in the future. These future roads would align with Elsner Road and 150th Avenue on the south side of Beef Bend Road and offer opportunities for regional connectivity to

and from the King City Concept Planning area. These two connections are not included in the 2035 Background Scenario model.

Figure 3-1. Proposed River Terrace Street System



3.4 FUTURE (2035) BACKGROUND TRAFFIC VOLUMES

Figure 3-2 presents future 2035 PM peak hourly traffic volumes at key intersections in the study area. These volumes were developed using the Washington County transportation model which is described earlier in this chapter. Spreadsheets illustrating the development of future 2035 background traffic volumes are included in **Appendix D**.

3.5 FUTURE (2035) BACKGROUND TRAFFIC PERFORMANCE

3.5.1 2035 Background Traffic Operational Analysis

Traffic operations analysis was conducted to identify any future long-term (2035) PM peak hour background traffic deficiencies within the study area. The results of the 2016 PM peak hour intersection operations analysis are presented in **Table 3-2**. Worksheets are included in **Appendix E**.

As indicated in the table, several intersections are expected to exceed their identified mobility target. These include:

- *Beef Bend Road at Roy Rogers Road* – This intersection is assumed to be improved to add a second through lane in each direction on Roy Rogers Road as identified in the RTP and County TSP. In the background condition this intersection would remain outside the UGB with a target mobility standard of v/c = 0.90. Intersection operations would slightly exceed this target.
- *Beef Bend Road at 150th Avenue* – This stop-controlled intersection would operate substantially above its mobility standard of v/c = 0.99 for the southbound side street (150th Avenue) movement.

Table 3-2. 2035 PM Peak Hour Background Intersection Operations

			PM Peak Hour		
Intersection	**Traffic Control**	**Mobility Target**	**Volume/ Capacity**	**Avg Delay (sec.)**	**Level of Service**
Beef Bend Road at Roy Rogers Road	Signal	v/c 0.90	0.92	58.3	E
Beef Bend Road at Elsner Road	Stop Sign	v/c 0.90	0.71	43.3	E
Beef Bend Road at 150th Avenue	Stop Sign	v/c 0.99	1.36	>200	F
Beef Bend Road at 137th Avenue	Stop Sign	v/c 0.99	0.06	26.7	D
Beef Bend Road at 131st Avenue	Signal	v/c 0.99	0.82	14.1	B
Roy Rogers Road at Elsner Road	Stop Sign	v/c 0.90	>2.00	>200	F
Fischer Road at 131st Avenue	Stop Sign	v/c 0.99	0.52	12.2	B
Highway 99 at Beef Bend Road	Signal	v/c 0.99	1.00	35.8	D
Highway 99 at Durham Road	Signal	v/c 0.99	1.14	114.5	F
Highway 99W at Fischer Road	Signal	v/c 0.99	1.01	46.7	D
Highway 99W at 124th Avenue	Signal	v/c 0.99	0.86	34.2	C
Highway 99W at Roy Rogers Road	Signal	v/c 0.99	1.33	104.9	F

Note 1: Performance results for the unsignalized intersections represent the worst movement.
Note 2: Analysis conducted based on 2010 Highway Capacity Manual except for volume/capacity ratios at signalized intersections which used 2000 HCM.
Black boxes with white numbering indicates where the relevant mobility target will be exceeded.

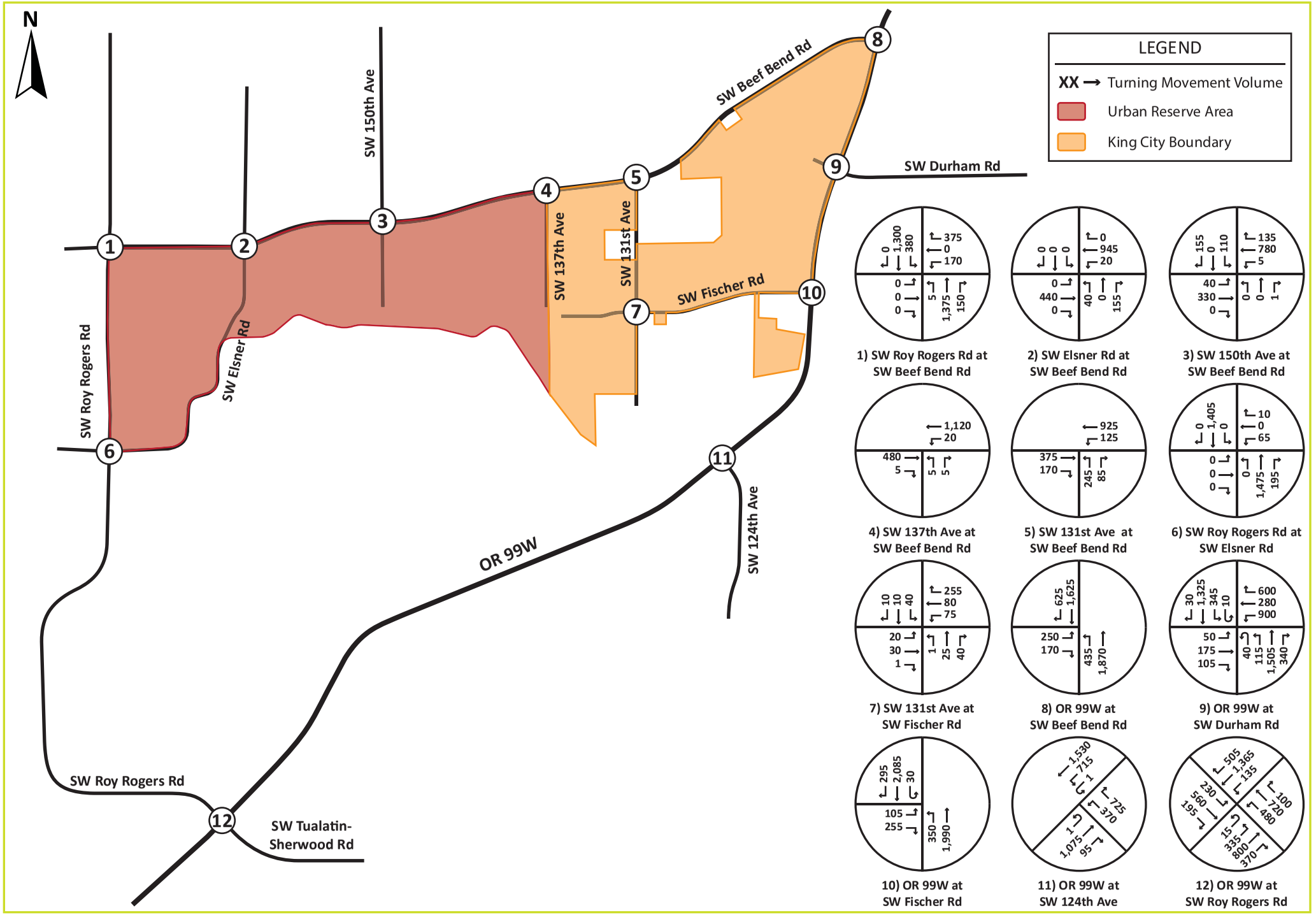


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Figure 3-2
2035 PM Peak Hour
Background Traffic Volumes

- *Roy Rogers Road at Elsner Road* – The side street stop-controlled movement at this intersection would substantially exceed its mobility standard of v/c = 0.90.
- *Highway 99W at Beef Bend Road, Durham Road and Fischer Road* – Each of these intersections is expected to exceed its mobility target of v/c = 0.99. At Beef Bend and Fischer Roads, the target would only be slightly exceeded. Longer delays would be experienced at Durham Road, in part due to the split phase signal operations necessitated by existing lane geometry.
- *Highway 99W at Roy Rogers Road/Tualatin-Sherwood Road* – This intersection is expected to substantially exceed its mobility target of v/c = 0.99 even with the addition of a second northbound and southbound through lane on Roy Rogers Road as identified in the RTP and County TSP.

3.5.2 2035 Background Traffic Queuing Analysis

An assessment of projected 2035 background traffic queues was conducted for key movements at study area intersections using the Sim-Traffic analysis package. The results of this assessment are presented in **Table 3-3**. Queuing output worksheets are included in **Appendix E**.

As indicated in the table, queues with 2035 background traffic are expected to exceed available vehicle storage for most key turning movements at study area intersections.

Table 3-3. 2035 PM Peak Hour Background Intersection Traffic Queuing

Intersection	Movement	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Beef Bend Road at Roy Rogers Road	SB Left	150 ft	200 ft
	WB Left	75 ft	150 ft
	WB Thru/Right	>1,000 ft	400 ft
Beef Bend Road at Elsner Road	NB All	>500 ft	125 ft
Beef Bend Road at 150th Avenue	SB All	>500 ft	875 ft
Beef Bend Road at 137th Avenue	NB All	>500 ft	25 ft
Beef Bend Road at 131st Avenue	NB Left	150 ft	175 ft
	NB Right	250 ft	50 ft
	EB Right	200 ft	50 ft
	WB Left	150 ft	100 ft
Roy Rogers Road at Elsner Road	WB All	>1,000 ft	375 ft
Fischer Road at 131st Avenue	NB All	350 ft	50 ft
	SB All	125 ft	100 ft
	EB All	325 ft	75 ft
	WB All	175 ft	150 ft
Highway 99W at Beef Bend Road	NB Left	200 ft	250 ft
	SB Right	350 ft	425 ft
	EB Left	325 ft	375 ft
	EB Right	>500 ft	400 ft

Table 3-3 Continued. 2035 PM Peak Hour Background Intersection Traffic Queuing

Intersection	Movement	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Highway 99W at Durham Road	NB Left	200 ft	625 ft
	SB Right	400 ft	350 ft
	WB Left	300 ft	375 ft
	WB Right	350 ft	>1,000
Highway 99W at Fischer Road	NB Left	150 ft	500 ft
	SB Right	200 ft	425 ft
	EB Left	275 ft	225 ft
	EB Right	275 ft	350 ft
Highway 99W at 124th Avenue	NB Right	225 ft	375 ft
	SB Left	550 ft	825 ft
Highway 99W at Roy Rogers Road	NB Left	650 ft	775 ft
	SB Left	275 ft	400 ft
	EB Left	225 ft	300 ft
	WB Left	225 ft	300 ft

Note: Traffic queuing calculated using Sim-Traffic operations software. Values are rounded to the nearest 25 feet or whole vehicle.
Black boxes with white numbering indicates a movement where the queue is expected to exceed storage.

4. FUTURE TRAFFIC CONDITIONS WITH URA 6D DEVELOPMENT

This chapter addresses future traffic volume forecasts, as well as deficiencies and improvement requirements resulting from development of the land uses included in the *URA 6D Concept Plan*. The projected travel data presented in this section was obtained from the Washington County Westside Focus Model as described in the preceding chapter. Consistent with the expectations described in the *Concept Plan*, two development phases have been addressed. These include:

- Full build-out of the *Concept Plan* area by 2035 with analysis focused on the PM peak hour.
- Interim development of the *Concept Plan's* first 10 years. Traffic analysis with this scenario was conducted for the 2030 PM peak hour.

This chapter includes a brief discussion of proposed *Concept Plan* land uses, the development and evaluation of future traffic volumes and the need for roadway or intersection improvements to address future deficiencies.

4.1 URA 6D CONCEPT PLAN BUILD-OUT LAND USES

The King City *URA 6D Concept Plan* identifies the location and type of various land uses, as well as a transportation network for the project area. This area is bounded on the east by the existing city limits, on the north by Beef Bend Road, on the west by Roy Rogers Road, and generally on the south by the Tualatin River. Land uses in the URA are proposed to be largely residential, consisting of a nearly equal mix of single-family and multi-family units. There is a wide variety of options for residential development under both categories that includes:

- Single family dwellings such as live/work rowhouses, clustered cottages, detached units on narrow lots, medium sized lots with Auxiliary Dwelling Units (ADUs), and medium-sized lots without ADUs. For purposes of this report, the mid-sized lots with an ADU were assumed to be 50% single-family and 50% multi-family.
- Multi-family dwellings such as flats over retail development, stand-alone flats along the project's main street, stand-alone flats along the project's "boulevard", and duplexes.

Some employment-based development is also anticipated in the URA including retail, office and institutional uses. The *Concept Plan* identifies developable acreage for residential land uses and densities in specific geographic areas, as well as employment uses. This information forms the basis for the estimate of future dwelling units by TAZ in each of these housing type categories.

Table 4-1 summarizes the land use assumptions for the 2035 Background Scenario, illustrates the development totals in URA 6D by type, and provides a total of all proposed development in TAZs 1001 and 1051 for the 2035 Project Scenario. The table also compares the two scenarios, identifying the total growth by land use type that is expected, as well as the percentile increase. **Figure 4-1** presents an illustration of the general areas for development in URA 6D based on the *Concept Plan*. **Figure 4-2** shows the proposed internal street system. On this graphic, both the solid and dashed lines indicate planned collector level streets.

Figure 4-1. URA 6D Concept Plan Land Uses

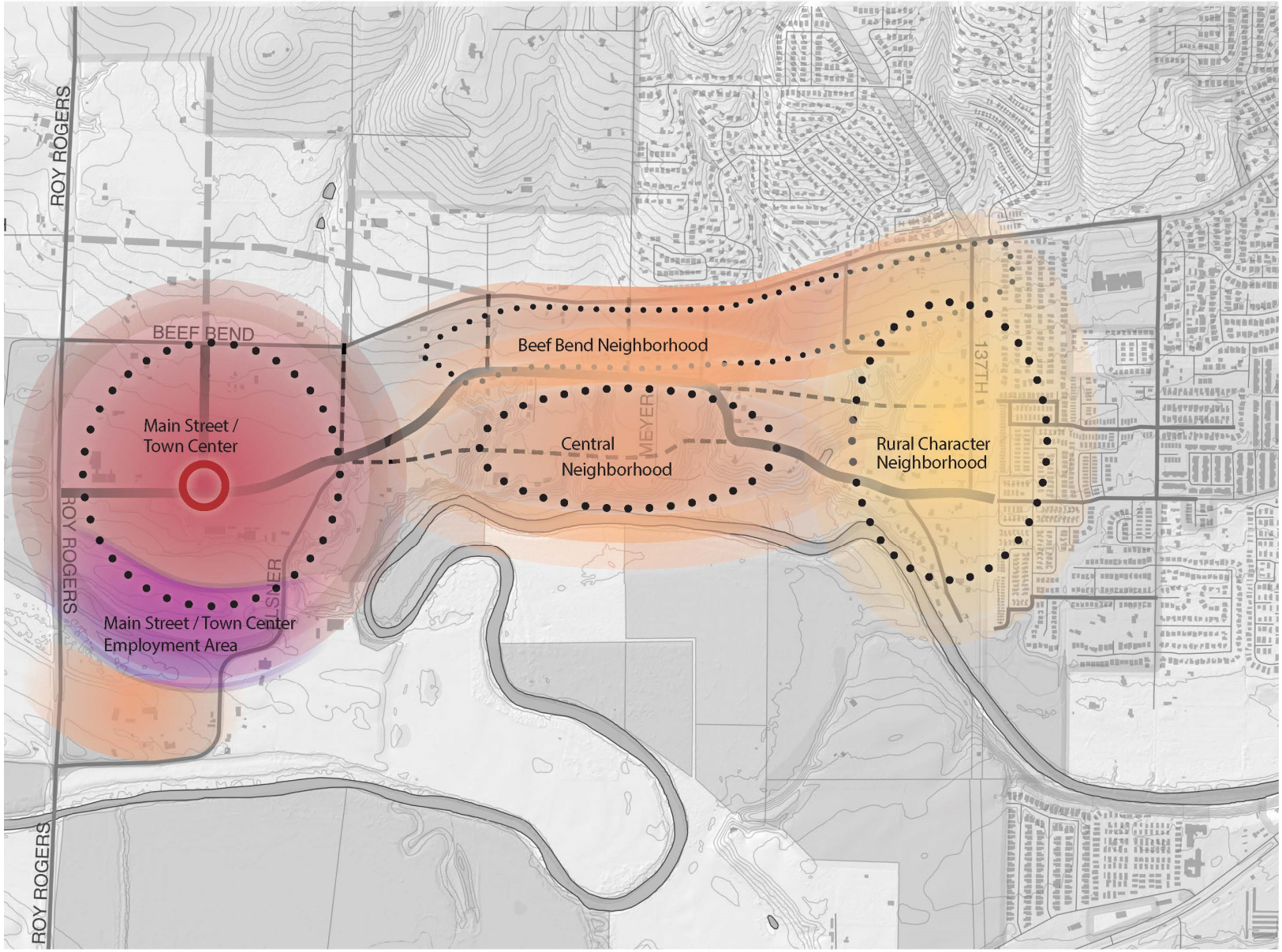

Figure 4-2. URA 6D Proposed Street System

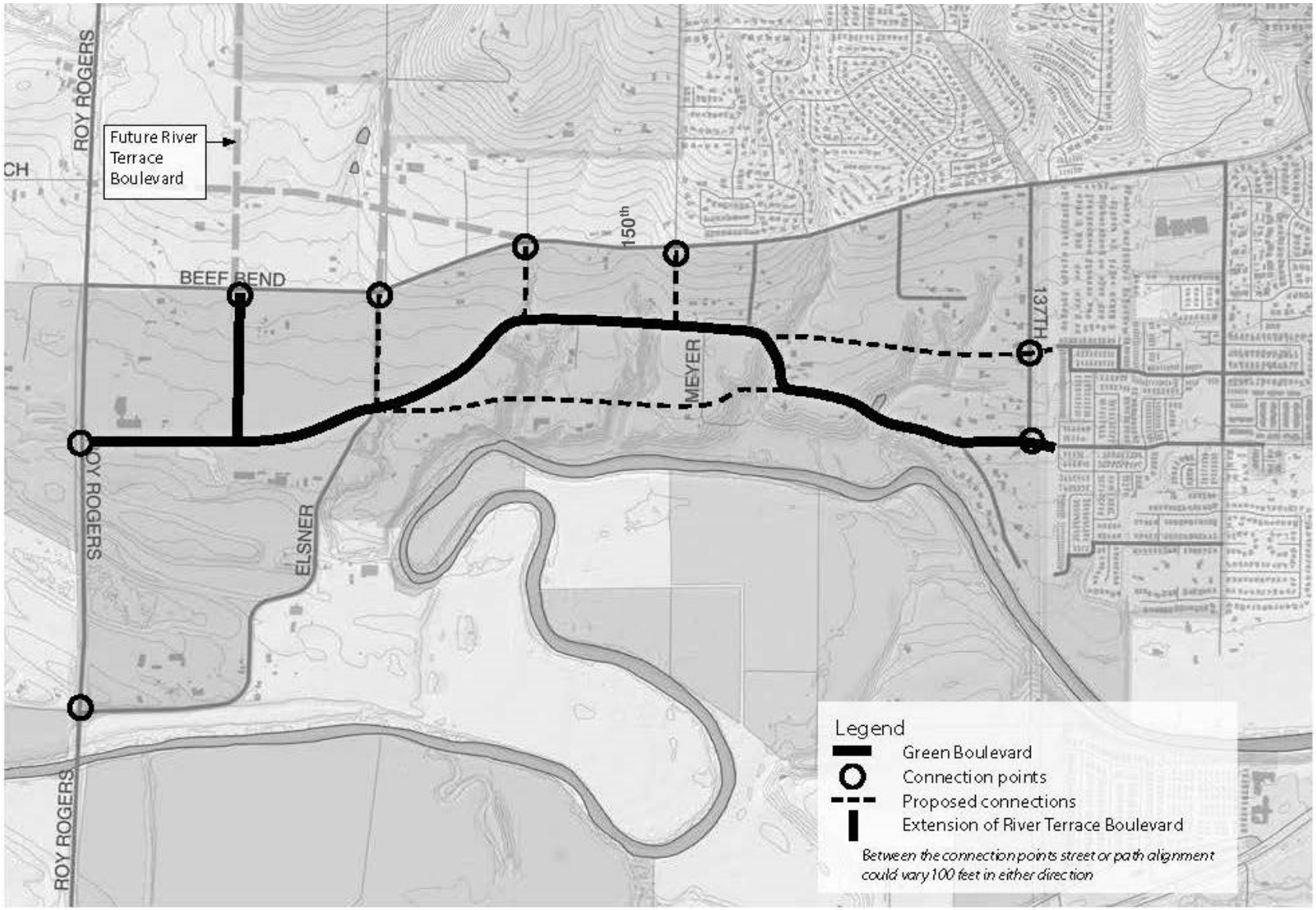

Table 4-1. King City URA 6D Study Area – 2035 Land Use Comparison

Land Use	2035 Background Scenario	Added with Concept Plan	2035 Project Scenario	% Increase
Households				
TAZ 1001	17	2,715	2,732	16,070%
TAZ 1051	1,289	817	2,106	163%
Total Households	1,306	3,532	4,838	370%
Employees				
TAZ 1001	7	343	350	5000%
TAZ 1051	306	20	326	7%
Total Employees	313	363	676	216%

Source: Washington County 2018 and King City Concept Plan.

4.2 FUTURE (2035) TRAFFIC VOLUMES WITH URA 6D BUILD-OUT

Figure 4-3 presents future 2035 PM peak hourly traffic volumes at key intersections in the study area. These volumes were developed using the County's Westside Focus Model which is described earlier in this chapter. Worksheets documenting the development of 2035 traffic volumes with the addition of URA 6D traffic are included in **Appendix D**.

4.3 FUTURE (2035) TRAFFIC PERFORMANCE WITH URA 6D BUILD-OUT

4.3.1 2035 Traffic Operational Analysis for URA 6D Build-Out

Traffic analysis was conducted to identify any future long-term (2035) PM peak hour traffic deficiencies in the study area with *Concept Plan* development. The results of this analysis are presented in **Table 4-2**. Worksheets documenting the analysis are included in **Appendix F.**

As indicated in the table, several intersections are expected to exceed their identified mobility target. These include:

- *Beef Bend Road at Roy Rogers Road* – This intersection is assumed to be improved to add a second through lane in each direction on Roy Rogers Road as identified in the RTP and County TSP. With URA development intersection operations are expected to meet the adopted mobility target of v/c = 0.99 and would improve in comparison with 2035 background conditions. This is largely due to the diversion of traffic away from Roy Rogers Road that would occur as a result of the added north/south street connectivity expected to be in place between URA 6D and River Terrace.
- *Beef Bend Road at 150th Avenue* – This stop-controlled intersection would operate substantially above its mobility target of v/c = 0.99 for the side street (150th Avenue) movement and would worsen from the 2035 background condition. Improvements will be needed beyond those anticipated in the *Concept Plan*.

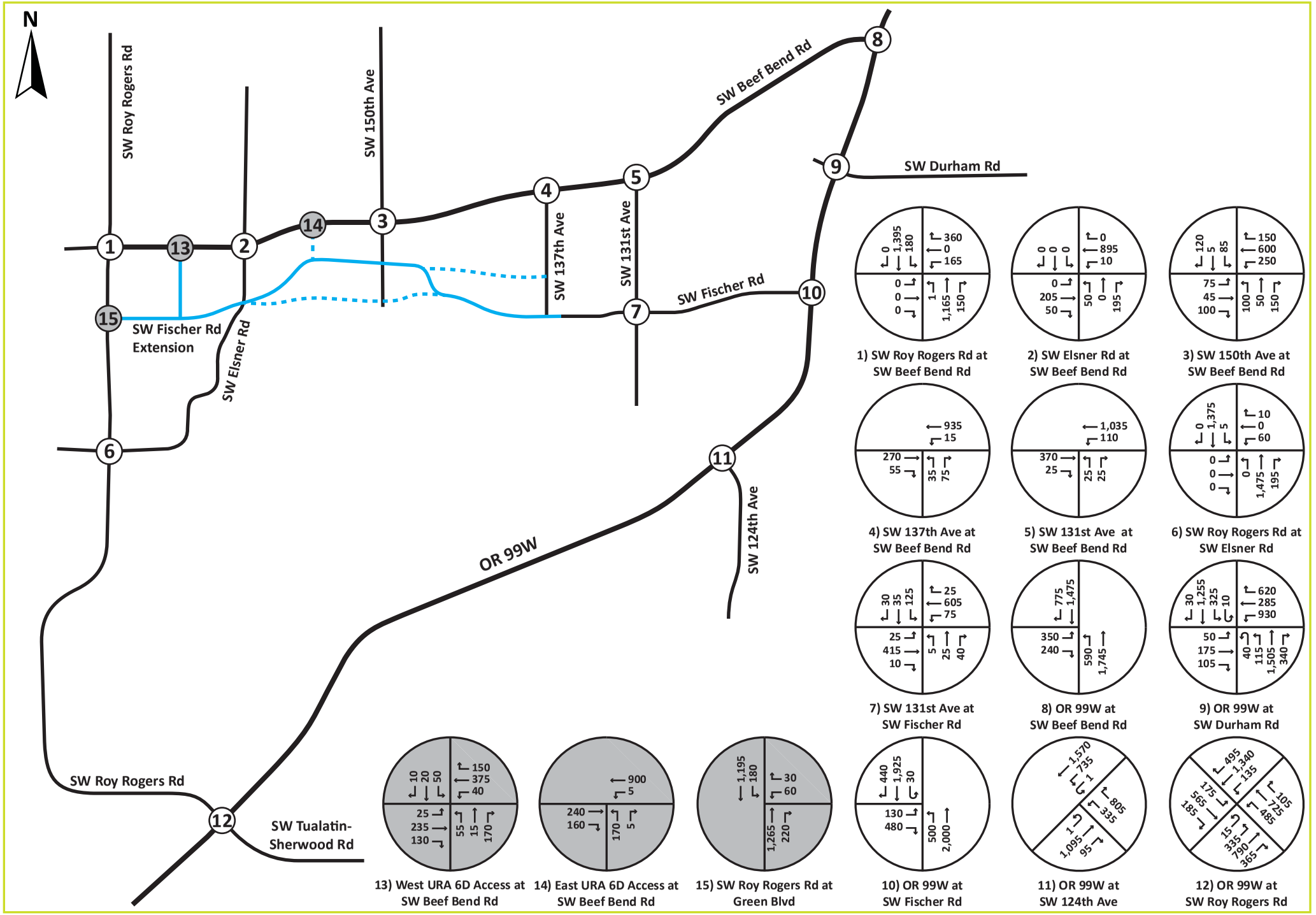

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Figure 4-3
2035 PM Peak Hour Traffic Volumes with URA 6D

Table 4-2. 2035 PM Peak Hour Intersection Operations with URA 6D

Intersection	Traffic Control	Mobility Target	PM Peak Hour		
			Volume/ Capacity	Avg Delay (sec.)	Level of Service
Beef Bend Road at Roy Rogers Road	Signal	v/c 0.99	0.73	24.0	C
Beef Bend Road at Elsner Road	Stop Sign	v/c 0.99	0.60	24.8	C
Beef Bend Road at 150th Avenue	Stop Sign	v/c 0.99	>2.00	>200	F
Beef Bend Road at 137th Avenue	Stop Sign	v/c 0.99	0.30	18.8	C
Beef Bend Road at 131st Avenue	Signal	v/c 0.99	0.78	5.9	A
Roy Rogers Road at Elsner Road	Stop Sign	v/c 0.99	>2.00	>200	F
Fischer Road at 131st Avenue	Stop Sign	v/c 0.99	1.14	106.2	F
Highway 99 at Beef Bend Road	Signal	v/c 0.99	1.12	73.5	E
Highway 99 at Durham Road	Signal	v/c 0.99	1.16	116.8	F
Highway 99W at Fischer Road	Signal	v/c 0.99	1.18	115.4	F
Highway 99W at 124th Avenue	Signal	v/c 0.99	0.87	36.0	D
Highway 99W at Roy Rogers Road	Signal	v/c 0.99	1.22	98.7	F
Beef Bend Road at Westerly Access (#13)	Stop Sign	v/c 0.99	0.44	17.0	C
Beef Bend Road at Easterly Access (#14)	Stop Sign	v/c 0.99	1.01	122.5	F
Roy Rogers Road at Fischer Extension (#15)	Stop Sign	v/c 0.99	>2.00	>200	F

Note 1: Performance results for the unsignalized intersections represent the worst movement.
Note 2: Analysis conducted based on 2010 Highway Capacity Manual except for volume/capacity ratios at signalized intersections which used 2000 HCM.
Black boxes with white numbering indicates where the relevant mobility target will be exceeded.

- *Roy Rogers Road at Elsner Road* – The side street stop-controlled movement at this intersection would substantially exceed its mobility standard of v/c = 0.90. This condition would also exist with the 2035 Background Scenario. In actual practice, motorists would likely use another intersection with greater capacity to reach Roy Rogers Road when the Elsner Road intersection is significantly cogested. Accordingly, no mitigation is proposed at this location.
- *Fischer Road at 131st Avenue* – With the extension of Fischer Road further west through URA 6D, this road provides an attractive east/west connection paralleling Beef Bend Road between Roy Rogers Road and Highway 99W. While the road is effective in reducing traffic volumes along Beef Bend Road, its connection through the existing portions of King City will become increasingly congested. The current four-way stop controlled intersection will not have sufficient capacity to accommodate expected traffic volumes and improvements need to be considered.
- *Highway 99W at Beef Bend Road* – Traffic growth attributed to URA 6D is expected to worsen traffic operations at this location in comparison to the 2035 Background Scenario. Improvements at this location should be part of a long-term strategy for traffic management and enhancement in the Highway 99W corridor.
- *Highway 99W at Durham Road* – Traffic operations with or without URA 6D development are expected to be very similar in 2035. Improvements at this location should be part of a long-term strategy for traffic management and enhancement in the Highway 99W corridor.

- *Highway 99W at Fischer Road* – Traffic operations are expected to worsen at this location with the addition of traffic associated with URA 6D. Fischer Road is planned as the major east/west spine for the URA and will ultimately connect Roy Rogers Road with Highway 99W. While this connection will have a significant impact on reducing the need to widen Beef Bend Road beyond the currently planned 3-lane cross-section, an improvement will be needed at this location to accommodate expected traffic volumes.
- *Highway 99W at Roy Rogers Road/Tualatin-Sherwood Road* – This intersection is expected to improve with development in URA 6D due to increased street connectivity in the larger area. However, the intersection will still substantially exceed its mobility target of v/c = 0.99.
- *Easterly new intersection on Beef Bend Road* (intersection #14 in Figure 4-3) – Initial forecasts for this intersection would show it slightly exceeding the v/c target of 0.99 on the stop-controlled side street movement. However, in actual practice this intersection would likely meet the mobility threshold as motorists would use another intersection with greater capacity to reach Beef Bend Road. Accordingly, no mitigation is proposed at this location beyond the intersection. Consideration should be given to providing separated right and left turn lanes for side street traffic.
- *New intersection of Roy Rogers Road with Fischer Road Extension* (intersection #15 in Figure 4-3) – This intersection would significantly exceed the mobility target of v/c = 0.99 and would require improvements beyond the initial *Concept Plan* intersection which would include a shared right/left turn lane for the stop-controlled side street.

4.3.2 2035 Traffic Queuing Analysis for URA 6D Build-Out

An assessment of projected 2035 traffic queues with development of URA 6D was conducted for key movements at study area intersections using the Sim-Traffic analysis package. The results of this assessment are presented in **Table 4-3**. Queuing output worksheets are included in **Appendix F**.

As indicated in the table, traffic queues with 2035 project traffic are expected to exceed available vehicle storage for most key turning movements at study area intersections. In comparison with the information in **Table 3-3** for 2035 background conditions, queuing in some locations would improve with the addition of URA 6D traffic and street connectivity including the southbound movement on 150th Avenue at Beef Bend Road and the northbound left turn on Highway 99W at Durham Road. Queuing is expected to get worse with URA 6D traffic for certain movements at the intersections of Fischer Road with 131st Avenue, Highway 99W at Beef Bend Road, and Highway 99W at Fischer Road. At most other locations there are nominal differences between queues with or without URA 6D development.

Table 4-3. 2035 PM Peak Hour Intersection Traffic Queuing with URA 6D

Intersection	Movement	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Beef Bend Road at Roy Rogers Road	SB Left	150 ft	200 ft
	WB Left	75 ft	150 ft
	WB Thru/Right	>1,000 ft	300 ft
Beef Bend Road at Elsner Road	NB All	>500 ft	125 ft
Beef Bend Road at 150th Avenue	SB All	>500 ft	625 ft
Beef Bend Road at 137th Avenue	NB All	>500 ft	75 ft
Beef Bend Road at 131st Avenue	NB Left	150 ft	50 ft
	NB Right	250 ft	50 ft
	EB Right	200 ft	25 ft
	WB Left	150 ft	75 ft
Roy Rogers Road at Elsner Road	WB All	>1,000 ft	775 ft
Fischer Road at 131st Avenue	NB All	350 ft	75 ft
	SB All	125 ft	100 ft
	EB All	325 ft	225 ft
	WB All	175 ft	300 ft
Highway 99W at Beef Bend Road	NB Left	200 ft	225 ft
	SB Right	350 ft	400 ft
	EB Left	325 ft	375 ft
	EB Right	>500 ft	975 ft
Highway 99W at Durham Road	NB Left	200 ft	250 ft
	SB Right	400 ft	350 ft
	WB Left	300 ft	375 ft
	WB Right	350 ft	>1,000 ft
Highway 99W at Fischer Road	NB Left	150 ft	475 ft
	SB Right	200 ft	450 ft
	EB Left	275 ft	400 ft
	EB Right	275 ft	>1,000 ft
Highway 99W at 124th Avenue	NB Right	225 ft	425 ft
	SB Left	550 ft	850 ft
Highway 99W at Roy Rogers Road	NB Left	650 ft	700 ft
	SB Left	275 ft	400 ft
	EB Left	225 ft	350 ft
	WB Left	225 ft	300 ft

Note: Traffic queuing calculated using Sim-Traffic operations software. Values are rounded to the nearest 25 feet or whole vehicle.
Black boxes with white numbering indicates a movement where the queue is expected to exceed storage.

4.4 2035 IMPROVEMENTS WITH URA 6D DEVELOPMENT

Based on analysis results for the 2035 PM peak hour including planned development in URA 6D, a variety of street and intersection improvements would be needed. These improvements are summarized in **Table 4-4** and illustrated in **Figure 4-4**. **Table 4-5** summarizes intersection operations analysis with the proposed improvements in place. Recommeded improvements include:

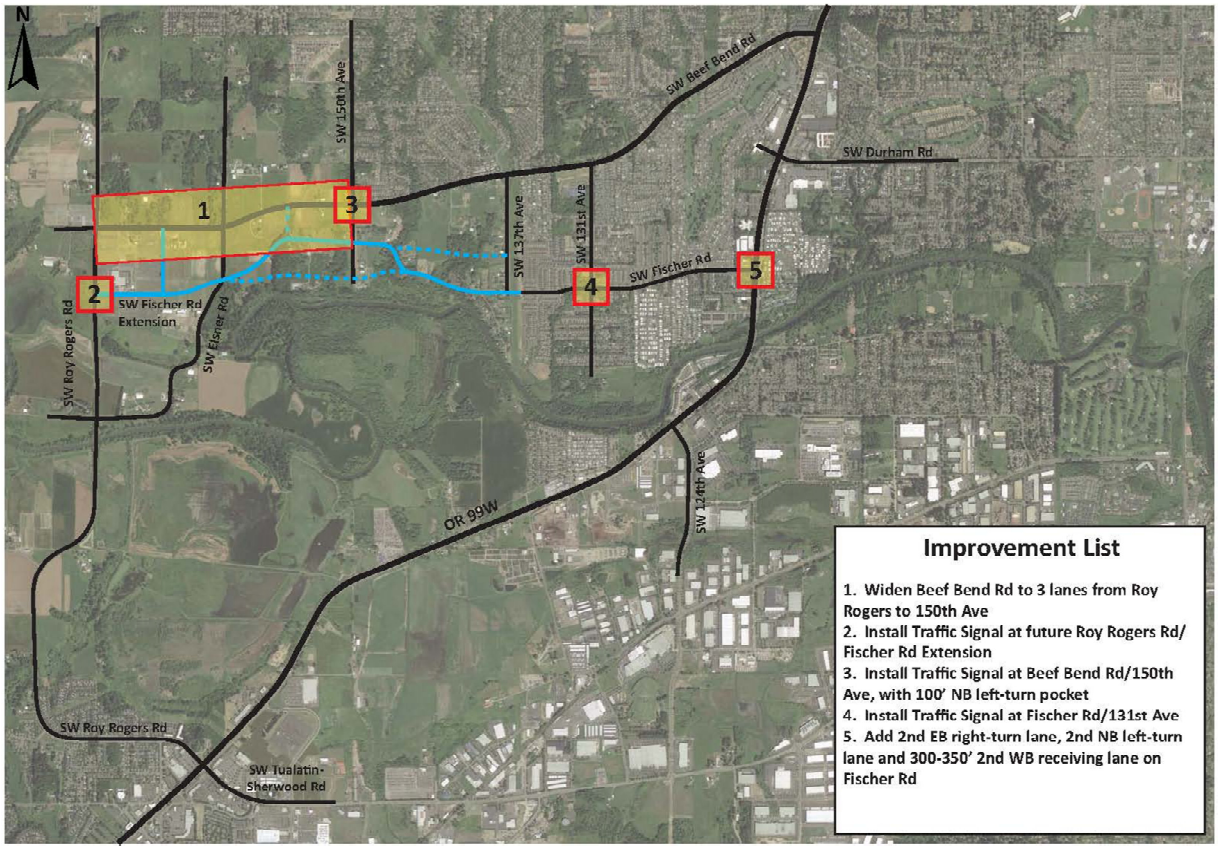
- *#1 Widening of Beef Bend Road* – Of key importance to both regional traffic circulation and access to/from URA 6D is the widening of Beef Bend Road from a two-lane cross-section to a three-lane cross-section between Roy Rogers Road and 150th Avenue. Beyond localized widening

for left turn channelization at the five intersections proposed to access URA 6D, this regional improvement is unlikely to be needed before 2030. The development of a parallel collector road through the URA (Fischer Road Extension) will carry a significant percentage of the traffic that would otherwise use Beef Bend Road, reducing the need to ultimately improve this facility to a five-lane cross-section. The widening of Beef Bend Road east of 150th Avenue to Highway 99W is included in the RTP and County TSP and is assumed as part of the background traffic condition. Consequently, this improvement is not included in the project list described in this section.

Table 4-4. Improvements Needed with 2035 Development with URA 6D

No.	Location	Limits	Improvement
1	Beef Bend Road	Roy Rogers Road to 150th Avenue	Widen to 3-lane urban minor arterial cross-section with sidewalks and bike lanes
2	Roy Rogers Road	At Fischer Road Extension	Install traffic signal and southbound left turn lane
3	Beef Bend Road	At 150th Avenue	Install traffic signal and separate northbound left and through/right lanes
4	Fischer Road	At 131st Avenue	Install traffic signal
5	Highway 99W	At Fischer Road	Add second eastbound right turn lane and second northbound left turn lane with an additional receiving lane on Fischer Road for approx. 300-350 feet.

Figure 4-4. Off-Site Transportation Improvement Needs with URA 6D Development



- *#2 Roy Rogers Road at Fischer Road Extension* –This intersection would serve as the western terminus of the major east/west transportation spine through the URA. As proposed in the *Concept Plan*, it would provide direct access to the commercial/employment heart of the URA, linking this area with the URA's proposed residential neighborhoods and existing portions of King City. As shown in **Table 4-5** this intersection is expected to meet warrants for installation of a traffic signal. Signalization of this intersection would also offer an alternative to use of the intersection of Roy Rogers Road with Elsner Road which would experience significant congestion for the stop-controlled side street movement but would not meet warrants for signalization. As shown in **Table 4-6** signalization would allow this intersection to operate well within its mobility target in the 2035 PM peak hour. Operations analysis and signal warrant worksheets are included in **Appendix G**.
- *#3 Beef Bend Road at 150th Avenue* – This intersection would provide a major north/south connection between the URA and destinations in the City of Tigard to the north of Beef Bend Road. As shown in **Table 4-5** this intersection is expected to meet warrants for installation of a traffic signal. Signalization would allow this intersection to operate well within its mobility target in the 2035 PM peak hour (see **Table 4-6**). Additionally, signalization at this location would provide an alternative to other proposed collector street intersections linking the URA with Beef Bend Road when these stop-controlled intersections are experiencing side street delay.

Table 4-5. Signal Warrant Analysis Results

	Eight Hour Warrant			
Intersection	**Minimum Volume**	**Interruption of Flow**	**Four Hour Warrant**	**Peak Hour Warrant**
Beef Bend Road at 150th Avenue	Yes	Yes	Yes	Yes
Fischer Road at 131st Avenue	No	Yes	Yes	Yes
Roy Rogers Road at Fischer Extension (#15)	No	Yes	Yes	Yes
Roy Rogers Road at Elsner Road	No	No	No	No

Table 4-6. 2035 PM Peak Hour Intersection Operations with Proposed Improvements

			PM Peak Hour		
Intersection	**Traffic Control**	**Mobility Target**	**Volume/ Capacity**	**Avg Delay (sec.)**	**Level of Service**
Beef Bend Road at 150th Avenue	Signal	v/c 0.99	0.78	24.0	C
Fischer Road at 131st Avenue	Signal	v/c 0.99	0.69	8.1	A
Highway 99W at Fischer Road	Signal	v/c 0.99	0.91	49.6	D
Roy Rogers Road at Fischer Extension (#15)	Signal	v/c 0.99	0.73	10.1	B

Note 1: Performance results for the unsignalized intersections represent the worst movement.
Note 2: Analysis conducted based on 2010 Highway Capacity Manual except for volume/capacity ratios at signalized intersections which used 2000 HCM.

- *#4 Fischer Road at 131st Avenue* – This intersection is currently stop-controlled on all approaches. With the addition of URA 6D traffic there would be insufficient capacity for the intersection to operate acceptably. As indicated in **Table 4-5**, this intersection would meet signal

warrants and, as shown in **Table 4-6**, would operate within its mobility target with this improvement.

- *#5 Highway 99W at Fischer Road* – With full development in the URA this intersection would experience significant PM peak hour delays and long traffic queues. Proposed improvements include addition of a second northbound left turn lane coupled with a westbound receiving lane on Fischer Road for approximately 300 to 350 feet (beyond the existing gas station driveway); and the addition of a second eastbound right turn lane. As shown in **Table 4-6**, the addition of these improvements would allow the intersection to operate within its mobility target of v/c = 0.99. However, as indicated in **Table 4-7**, this intersection would still experience significant traffic queuing for all turning movements. Traffic queuing analysis worksheets can be found in **Appendix G**.

Table 4-7. 2035 PM Peak Hour Intersection Traffic Queuing with Proposed Improvements

Intersection	Movement	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Beef Bend Road at 150th Avenue	SB All	>500 ft	200 ft
	NB Left	100 ft	100 ft
	NB Right	500 ft	125 ft
Fischer Road at 131st Avenue	NB All	350 ft	75 ft
	SB All	125 ft	125 ft
	EB All	325 ft	225 ft
	WB All	175 ft	400 ft
Highway 99W at Fischer Road	NB Left	150 ft	575 ft
	SB Right	200 ft	500 ft
	EB Left	275 ft	325 ft
	EB Right	275 ft	460 ft
Roy Rogers Road at Fischer Road Extension	SB Left	200 ft	150 ft
	WB Left/Right	250 ft	100 ft

Note: Traffic queuing calculated using Sim-Traffic operations software. Values are rounded to the nearest 25 feet or whole vehicle.
Black boxes with white numbering indicates a movement where the queue is expected to exceed storage.

4.5 2030 URA 6D INTERIM (PHASE 1) DEVELOPMENT

In addition to conducting a long-term (2035) evaluation of traffic operations with full development of URA 6D, an evaluation was also conducted for an interim development phase that is expected to occur between 2020 and 2030. This interim development or Phase 1 of the *Concept Plan* is illustrated in **Figure 4-5**, and would generally occur in the area between Roy Rogers Road and 150th Avenue. An internal street system to serve this development would be built in the area west of 150th Avenue including the Fischer Road Extension. However, this portion of Fischer Road is not expected to connect through the area between 150th Avenue and its existing western terminus in King City until Phase 2 development occurs. For a period of time between initial and full URA development it will be necessary for people traveling between the URA and King City to use Beef Bend Road as the major connecting route. To test the need for improvements along Beef Bend Road with this interim development scenario, an analysis of

2030 development and traffic operations was conducted. This analysis is descripted in the following sections.

4.5.1 Land Use Assumptions

As noted above, Phase 1 of development in the URA would occur during the first 10 years after plan approval or by 2030, and would be largely concentrated in the area between Roy Rogers Road and 150th Avenue. **Table 4-8** summarizes the land use assumptions for the 2030 Interim Development (Phase 1) scenario for the two project area TAZs (1001 and 1051).

Table 4-8. King City URA 6D Study Area – 2030 Interim Development

Land Use	Units	TAZ 1001	TAZ 1051
Single-Family Residential	Dwellings	869	0
Multi-Family Residential	Dwellings	1,424	0
Retail	Employees	98	0
Office	Employees	135	0
Other	Employees	117	0

Source: King City Concept Plan.

4.5.2 Traffic Network Assumptions

Figure 4-5 also shows the assumed improvements to the internal collector street network within URA 6D. As noted, the major east/west street serving this development (Fischer Road Extension) would connect Roy Rogers Road to 150th Avenue but would extend no further east. Traffic that wishes to make connections between the URA and the existing portions of King City will need to use Beef Bend Road east of 150th Avenue. Street improvements outside of the URA are assumed to be the same as previously described for the 2035 analysis.

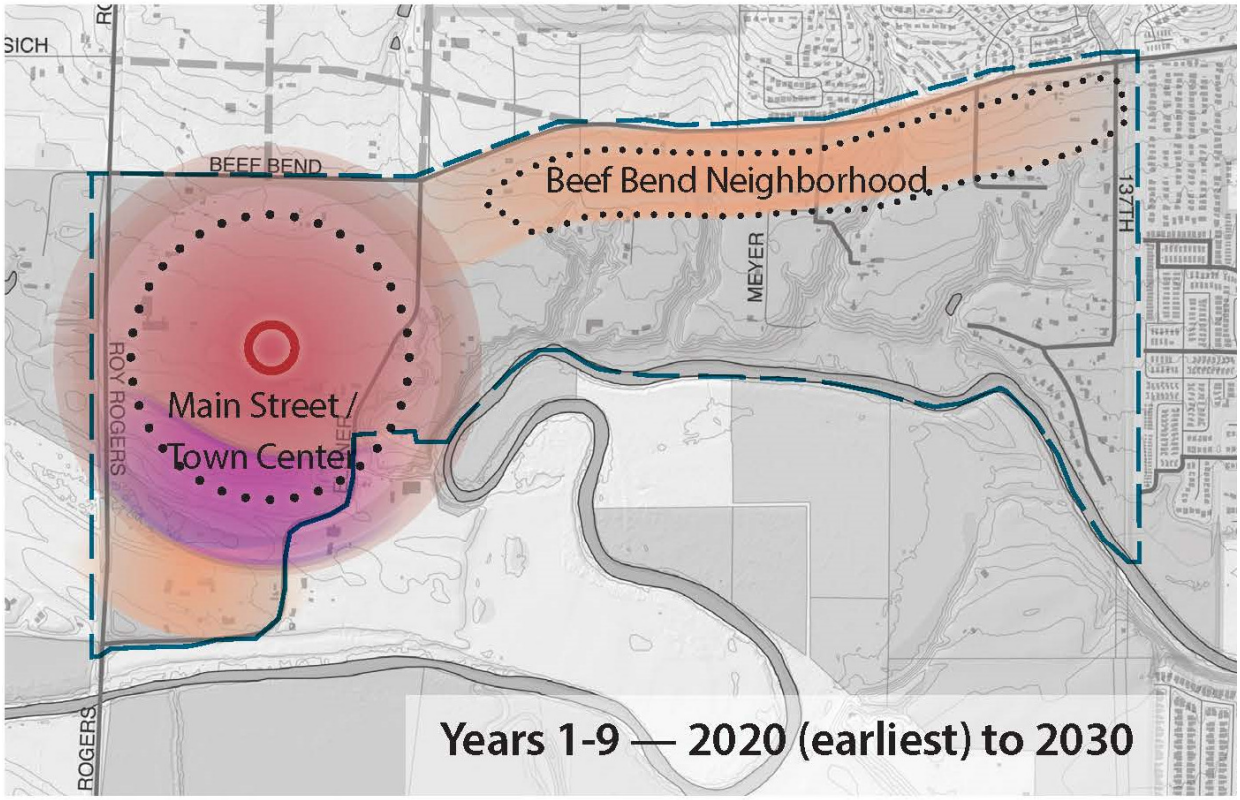
4.5.3 2030 Interim Development Traffic Forecasts

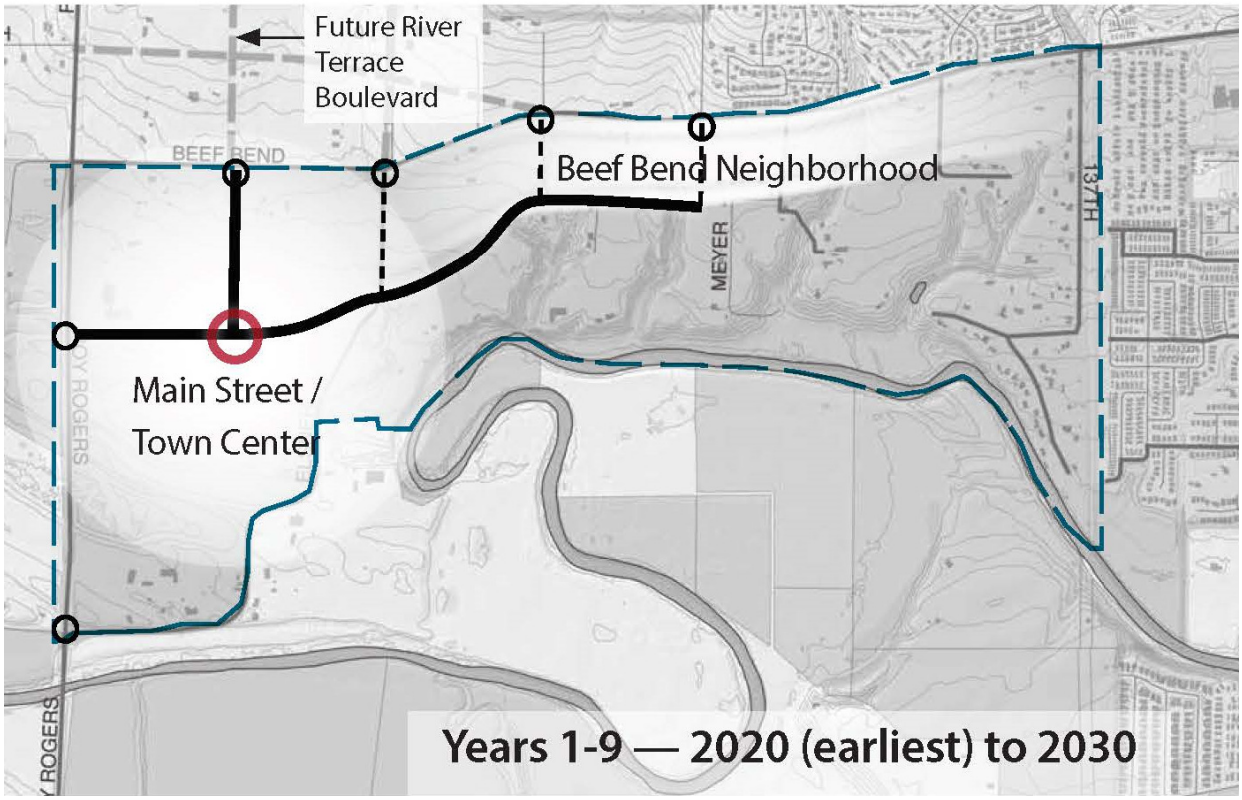
Figure 4-6 presents future 2030 PM peak hourly traffic volumes at a short list of key intersections in the study area that could be most affected by the need to use Beef Bend Road for connectivity between the URA and existing King City. These volumes were developed using the Washington County transportation model which is described earlier in this chapter.

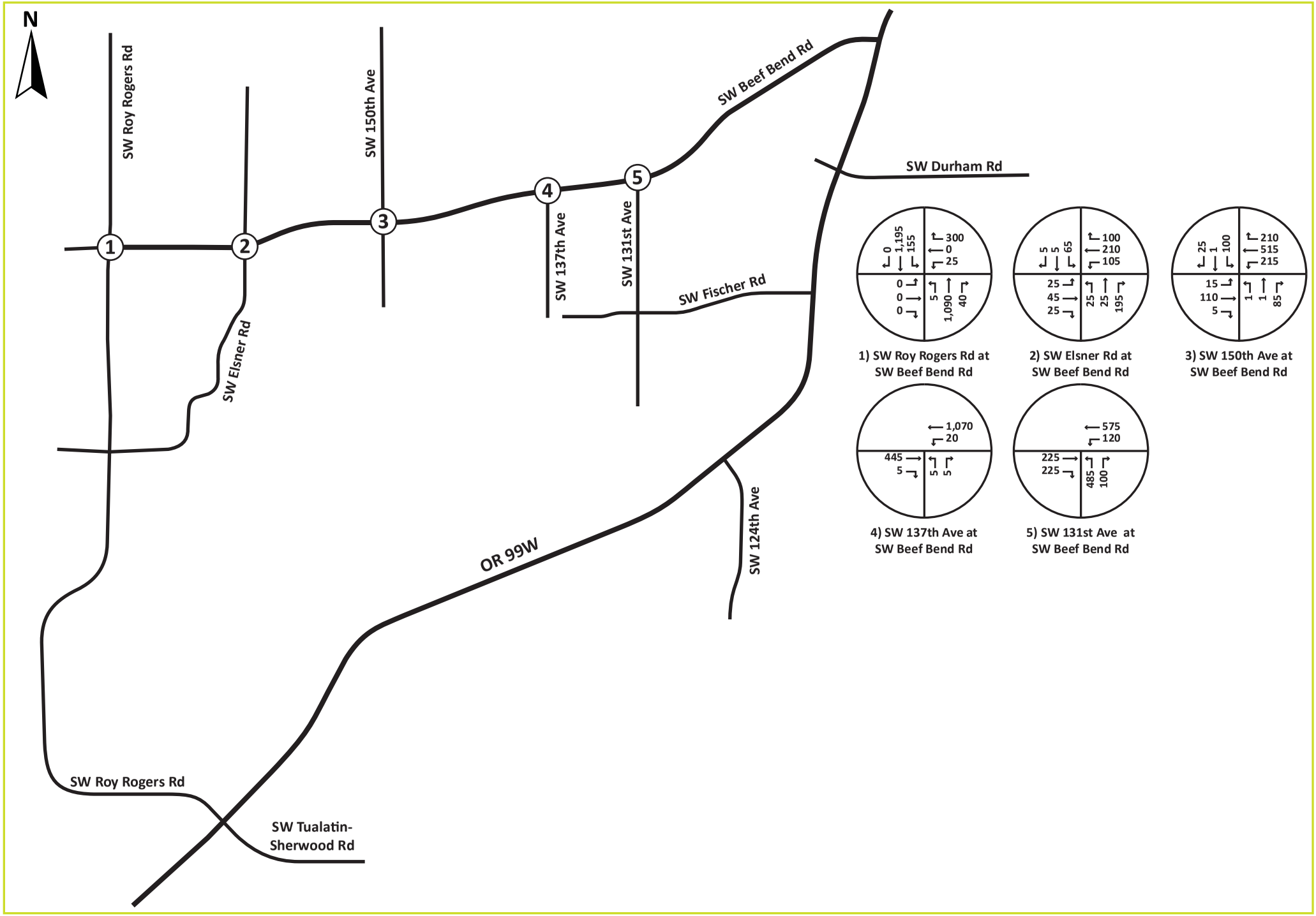
4.5.4 2030 Traffic Operations with Interim Development

Traffic analysis was conducted to identify any future long-term (2035) PM peak hour background traffic deficiencies within the study area. The results of this analysis are presented in **Table 4-9**. Worksheets documenting the analysis are included in **Appendix H.** As indicated in this table, all intersections are expected to operate within their identified mobility targets.

Figure 4-5. URA 6D Interim (Phase 1) Development and Street Network







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King City URA 6D Concept Plan
King City, Oregon

Figure 4-6
2030 PM Peak Hour Traffic Volumes
With Interim Build-out of URA 6D

Table 4-9. 2030 PM Peak Hour Intersection Operations with Interim Development

Intersection	Traffic Control	Mobility Target	PM Peak Hour Volume/ Capacity	PM Peak Hour Avg Delay (sec.)	PM Peak Hour Level of Service
Beef Bend Road at Roy Rogers Road	Signal	v/c 0.99	0.75	19.6	B
Beef Bend Road at Elsner Road	Stop Sign	v/c 0.99	0.15	13.2	B
Beef Bend Road at 150th Avenue	Stop Sign	v/c 0.99	0.73	78.5	F
Beef Bend Road at 137th Avenue	Stop Sign	v/c 0.99	0.07	17.8	C
Beef Bend Road at 131st Avenue	Signal	v/c 0.99	0.78	12.5	B

Note: Performance results for the unsignalized intersections represent the worst movement.
Note 2: Analysis conducted based on 2010 Highway Capacity Manual except for volume/capacity ratios at signalized intersections which used 2000 HCM.

4.5.5 2030 Traffic Queuing with Interim Development

An assessment of expected 2030 traffic queues was conducted for key movements at study area intersections using the Sim-Traffic analysis package. The results of this assessment are presented in **Table 4-10**. Queuing output worksheets are included in **Appendix H**.

As indicated in the table, all existing traffic queues are expected to be accommodated within available vehicle storage with the exception of the south and westbound lefts at the intersection of Roy Rogers Road with Beef Bend Road, and the northbound left at the intersection of Beef Bend Road with 131st Avenue. Additional storage capacity for this vehicular overflow can be provided as needed.

Table 4-10. 2030 PM Peak Hour Intersection Traffic Queuing with Interim Development

Intersection	Moment	Existing Vehicle Storage	PM Peak Hour Vehicle Queue
Beef Bend Road at Roy Rogers Road	SB Left	150 ft	225 ft
	WB Left	75 ft	150 ft
	WB Thru/Right	>1,000 ft	200 ft
Beef Bend Road at Elsner Road	NB All	>500 ft	100 ft
Beef Bend Road at 150th Avenue	SB All	>500 ft	100 ft
	NB Left/Right	100 ft	50 ft
Beef Bend Road at 137th Avenue	NB All	>500 ft	50 ft
Beef Bend Road at 131st Avenue	NB Left	150 ft	175 ft
	NB Right	250 ft	50 ft
	EB Right	200 ft	50 ft
	WB Left	150 ft	100 ft

Note: Traffic queuing calculated using Sim-Traffic operations software. Values are rounded to the nearest 25 feet or whole vehicle.
Black boxes with white numbering indicates a movement where the queue is expected to exceed storage.

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APPENDIX A

2018 TURNING MOVEMENT COUNTS

Type of peak hour being reported: Intersection Peak

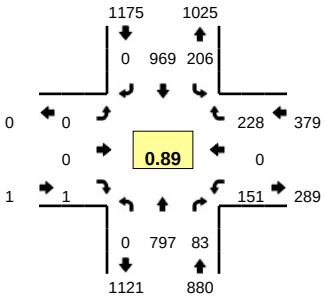
Method for determining peak hour: Total Entering Volume

LOCATION: SW Roy Rogers Rd -- SW Beef Bend Rd

QC JOB #: 14625601

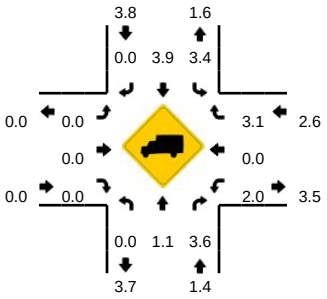
CITY/STATE: Portland, OR

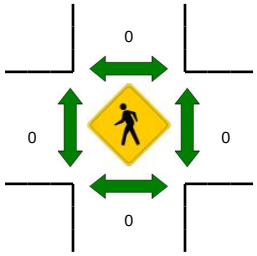
DATE: Tue, Feb 13 2018

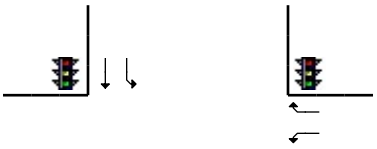


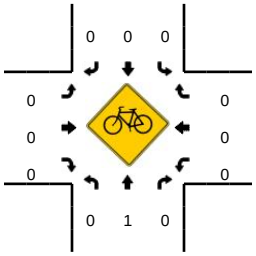
Peak-Hour: 4:20 PM -- 5:20 PM

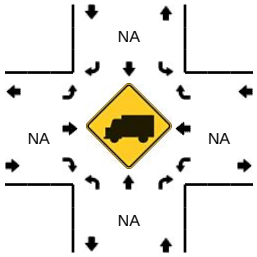
Peak 15-Min: 4:20 PM -- 4:35 PM

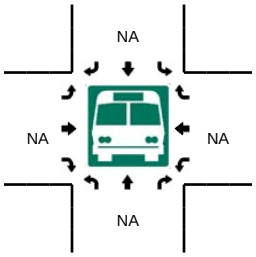












5-Min Count Period Beginning At	SW Roy Rogers Rd (Northbound)				SW Roy Rogers Rd (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	39	20	1	1	36	0	0	0	0	0	0	21	0	12	0	130	
4:05 PM	0	35	15	0	7	45	0	0	0	0	0	0	17	0	7	0	126	
4:10 PM	0	21	15	0	5	33	0	0	0	0	0	0	14	0	14	3	105	
4:15 PM	0	25	17	0	8	77	0	0	0	0	0	0	2	0	8	0	137	
4:20 PM	0	75	12	0	12	90	0	0	0	0	0	0	13	0	19	0	221	
4:25 PM	0	66	11	0	24	101	0	0	0	0	0	0	19	0	22	0	243	
4:30 PM	0	81	11	0	11	102	0	0	0	0	1	0	6	0	11	0	223	
4:35 PM	0	57	7	0	25	72	0	0	0	0	0	0	17	0	27	0	205	
4:40 PM	0	71	6	0	15	58	0	0	0	0	0	0	11	0	17	0	178	
4:45 PM	0	59	3	0	20	84	0	0	0	0	0	0	11	0	20	0	197	
4:50 PM	0	62	10	0	15	81	0	0	0	0	0	0	12	0	24	0	204	
4:55 PM	0	70	5	0	15	75	0	0	0	0	0	0	15	0	14	0	194	2163
5:00 PM	0	57	5	0	20	81	0	0	0	0	0	0	12	0	17	0	192	2225
5:05 PM	0	52	6	0	13	66	0	0	0	0	0	0	14	0	16	0	167	2266
5:10 PM	0	69	4	0	23	79	0	0	0	0	0	0	13	0	24	0	212	2373
5:15 PM	0	78	3	0	13	80	0	0	0	0	0	0	8	0	17	0	199	2435
5:20 PM	1	72	7	0	17	66	0	0	0	0	0	0	16	0	23	0	202	2416
5:25 PM	0	66	7	0	21	83	0	0	0	0	0	0	15	0	25	0	217	2390
5:30 PM	0	82	7	0	11	66	0	0	0	0	0	0	9	0	18	0	193	2360
5:35 PM	0	71	5	0	12	66	0	0	0	0	0	0	10	0	22	0	186	2341
5:40 PM	0	61	4	0	28	89	0	0	0	0	0	0	8	0	21	0	211	2374
5:45 PM	0	86	6	0	7	71	0	0	0	0	0	0	14	0	22	0	206	2383
5:50 PM	0	71	6	0	17	73	0	0	0	0	0	0	10	0	15	0	192	2371
5:55 PM	0	66	12	0	9	68	0	0	0	0	0	0	8	0	21	0	184	2361

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	888	136	0	188	1172	0	0	0	0	4	0	152	0	208	0	2748
Heavy Trucks	0	16	8		8	52	0		0	0	0		0	0	12		96
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

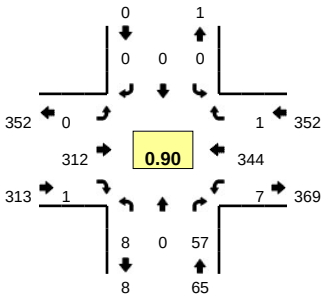
LOCATION: SW Elsner Rd -- SW Beef Bend Rd

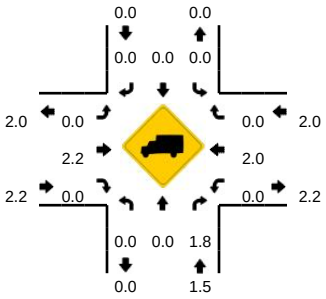
QC JOB #: 14625607

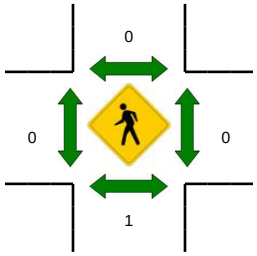
CITY/STATE: Washington, OR

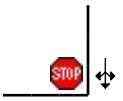
DATE: Tue, Feb 13 2018

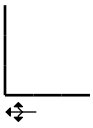
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

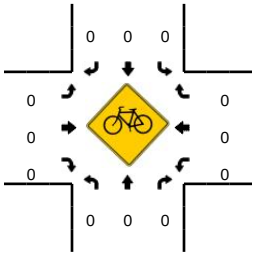


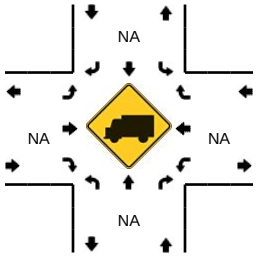


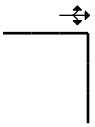


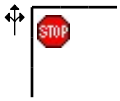


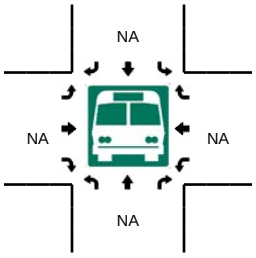












5-Min Count Period Beginning At	SW Elsner Rd (Northbound)				SW Elsner Rd (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	2	0	0	0	0	0	0	16	0	0	1	34	0	0	54	
4:05 PM	0	0	8	0	0	0	0	0	0	27	1	0	0	25	0	0	61	
4:10 PM	0	0	6	0	0	0	0	0	0	20	0	0	1	22	0	0	49	
4:15 PM	1	0	14	0	0	0	0	0	0	30	0	0	0	22	0	0	67	
4:20 PM	0	0	6	0	0	0	0	0	0	28	0	0	2	36	0	0	72	
4:25 PM	3	0	7	0	0	0	0	0	0	29	0	0	1	23	0	0	63	
4:30 PM	0	0	3	0	0	0	0	0	0	28	0	0	0	22	1	0	54	
4:35 PM	1	0	7	0	0	0	0	0	0	22	0	0	0	41	0	0	71	
4:40 PM	0	0	0	0	0	0	0	0	0	31	0	0	1	29	0	0	61	
4:45 PM	1	0	1	0	0	0	0	0	0	15	0	0	0	31	0	0	48	
4:50 PM	2	0	2	0	0	0	0	0	0	30	0	0	0	29	0	0	63	
4:55 PM	0	0	1	0	0	0	0	0	0	27	0	0	1	27	0	0	56	719
5:00 PM	0	0	2	0	0	0	0	0	0	25	0	0	1	37	0	0	65	730
5:05 PM	0	0	0	0	0	0	0	0	0	18	0	0	0	21	0	0	39	708
5:10 PM	0	0	1	0	0	0	0	0	0	19	0	0	2	35	0	0	57	716
5:15 PM	0	0	2	0	0	0	0	0	0	25	0	0	0	34	0	0	61	710
5:20 PM	0	0	2	0	0	0	0	0	0	23	0	0	0	29	0	0	54	692
5:25 PM	0	0	2	0	0	0	0	0	0	18	0	0	0	42	0	0	62	691
5:30 PM	2	0	3	0	0	0	0	0	0	27	0	0	1	24	0	0	57	694
5:35 PM	0	0	1	0	0	0	0	0	0	16	0	0	1	32	0	0	50	673
5:40 PM	0	0	1	0	0	0	0	0	0	25	1	0	0	29	0	0	56	668
5:45 PM	0	0	0	0	0	0	0	0	0	18	0	0	0	43	0	0	61	681
5:50 PM	0	0	1	0	0	0	0	0	0	25	0	0	0	16	0	0	42	660
5:55 PM	0	0	1	0	0	0	0	0	0	22	0	0	1	27	0	0	51	655

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	108	0	0	0	0	0	0	348	0	0	12	324	0	0	808
Heavy Trucks	0	0	4		0	0	0		0	8	0		0	8	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

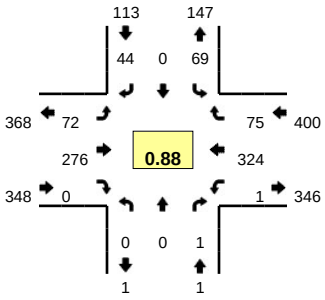
LOCATION: SW 150th Ave -- SW Beef Bend Rd

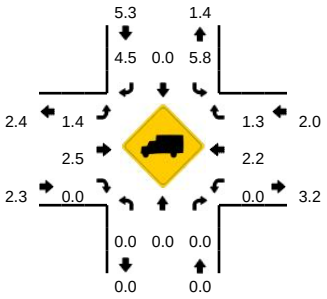
QC JOB #: 14625612

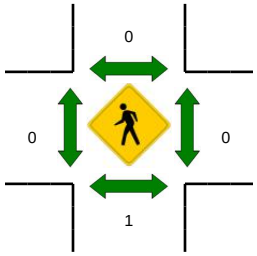
CITY/STATE: Portland, OR

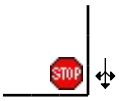
DATE: Tue, Feb 13 2018

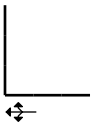
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

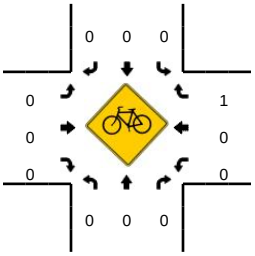


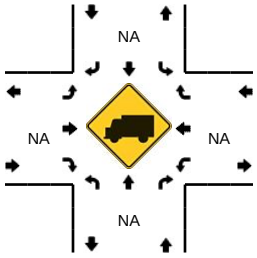


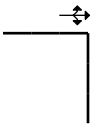


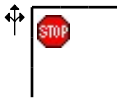


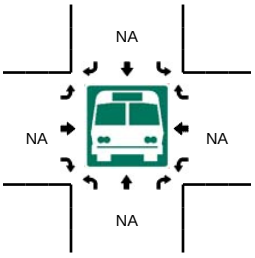












5-Min Count Period Beginning At	SW 150th Ave (Northbound)				SW 150th Ave (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	8	0	9	0	8	13	0	0	0	25	5	0	68	
4:05 PM	0	0	0	0	3	0	8	0	11	15	0	0	0	15	4	0	56	
4:10 PM	0	0	0	0	7	0	5	0	12	13	0	0	0	21	6	0	64	
4:15 PM	0	0	0	0	5	0	3	0	22	21	0	0	0	20	6	0	77	
4:20 PM	0	0	0	0	5	0	4	0	13	18	0	0	0	31	8	0	79	
4:25 PM	0	0	0	0	7	0	3	0	6	36	0	0	0	20	5	0	77	
4:30 PM	0	0	0	0	12	0	5	0	11	22	0	0	0	28	10	0	88	
4:35 PM	0	0	1	0	9	0	6	0	5	21	0	0	0	29	5	0	76	
4:40 PM	0	0	0	0	7	0	4	0	3	23	0	0	1	26	3	0	67	
4:45 PM	0	0	0	0	8	0	4	0	0	22	0	0	0	27	5	0	66	
4:50 PM	0	0	0	0	4	0	5	0	3	31	0	0	0	31	5	0	79	
4:55 PM	0	0	0	0	4	0	5	0	4	16	0	0	0	19	9	0	57	854
5:00 PM	0	0	0	0	3	0	3	0	2	25	0	0	0	33	7	0	73	859
5:05 PM	0	0	0	0	4	0	1	0	2	24	0	0	0	24	2	0	57	860
5:10 PM	0	0	0	0	1	0	1	0	1	17	0	0	0	36	10	0	66	862
5:15 PM	0	0	0	0	7	0	7	0	2	21	0	0	0	30	10	0	77	862
5:20 PM	0	0	0	0	5	0	5	0	5	25	0	0	0	25	5	0	70	853
5:25 PM	0	0	0	0	3	0	4	0	2	18	0	0	0	35	7	0	69	845
5:30 PM	0	0	0	0	4	0	2	0	2	23	0	0	1	22	3	0	57	814
5:35 PM	0	0	0	0	6	0	4	0	2	21	0	0	0	32	3	0	68	806
5:40 PM	0	0	1	0	0	0	4	0	4	21	1	0	1	26	7	0	65	804
5:45 PM	1	0	1	0	2	0	7	0	1	16	0	0	0	28	9	0	65	803
5:50 PM	0	0	0	0	5	0	2	0	3	14	0	0	0	21	8	0	53	777
5:55 PM	0	0	0	0	7	0	5	0	6	27	0	0	0	20	4	0	69	789

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	96	0	48	0	120	304	0	0	0	316	92	0	976
Heavy Trucks	0	0	0		8	0	0		4	16	0		0	8	0		36
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	1		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 137th Ave -- SW Beef Bend Rd

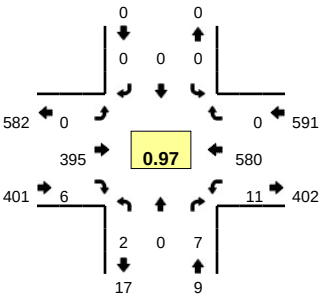
QC JOB #: 14625608

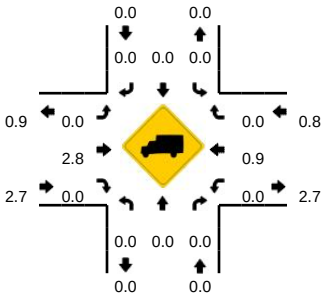
CITY/STATE: Washington, OR

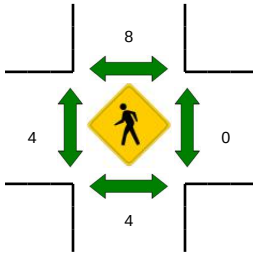
DATE: Tue, Feb 13 2018

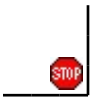
Peak-Hour: 4:30 PM -- 5:30 PM

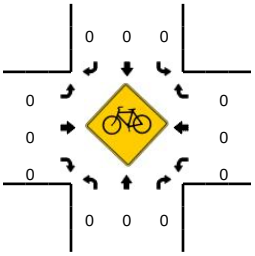
Peak 15-Min: 5:15 PM -- 5:30 PM

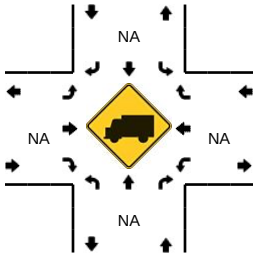


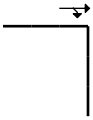


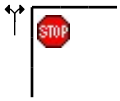


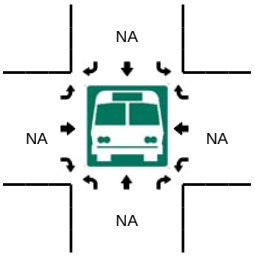












5-Min Count Period Beginning At	SW 137th Ave (Northbound)				SW 137th Ave (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	2	0	0	0	0	0	0	19	0	0	1	35	0	0	57	
4:05 PM	0	0	0	0	0	0	0	0	0	26	1	0	0	37	0	0	64	
4:10 PM	0	0	1	0	0	0	0	0	0	30	0	0	0	34	0	0	65	
4:15 PM	0	0	0	0	0	0	0	0	0	33	0	0	3	35	0	0	71	
4:20 PM	0	0	0	0	0	0	0	0	0	28	0	0	1	50	0	0	79	
4:25 PM	0	0	0	0	0	0	0	0	0	36	0	0	1	30	0	0	67	
4:30 PM	0	0	0	0	0	0	0	0	0	42	1	0	1	48	0	0	92	
4:35 PM	0	0	2	0	0	0	0	0	0	37	0	0	1	40	0	0	80	
4:40 PM	0	0	0	0	0	0	0	0	0	35	0	0	0	40	0	0	75	
4:45 PM	0	0	0	0	0	0	0	0	0	33	0	0	1	49	0	0	83	
4:50 PM	0	0	1	0	0	0	0	0	0	32	1	0	0	50	0	0	84	
4:55 PM	0	0	0	0	0	0	0	0	0	34	0	0	1	43	0	0	78	895
5:00 PM	0	0	0	0	0	0	0	0	0	29	3	0	0	56	0	0	88	926
5:05 PM	0	0	1	0	0	0	0	0	0	40	0	0	3	43	0	0	87	949
5:10 PM	1	0	1	0	0	0	0	0	0	20	1	0	1	51	0	0	75	959
5:15 PM	1	0	0	0	0	0	0	0	0	37	0	0	0	48	0	0	86	974
5:20 PM	0	0	1	0	0	0	0	0	0	23	0	0	2	59	0	0	85	980
5:25 PM	0	0	1	0	0	0	0	0	0	33	0	0	1	53	0	0	88	1001
5:30 PM	1	0	0	0	0	0	0	0	0	26	0	0	1	48	0	0	76	985
5:35 PM	0	0	2	0	0	0	0	0	0	33	1	0	3	47	0	0	86	991
5:40 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	52	0	0	81	997
5:45 PM	0	0	2	0	0	0	0	0	0	38	2	0	1	40	0	0	83	997
5:50 PM	0	0	0	0	0	0	0	0	0	27	0	0	2	44	0	0	73	986
5:55 PM	0	0	1	0	0	0	0	0	0	29	0	0	0	31	0	0	61	969

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	8	0	0	0	0	0	0	372	0	0	12	640	0	0	1036
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	4	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 131st Ave -- SW Beef Bend Rd

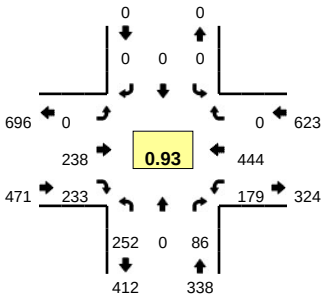
QC JOB #: 14625609

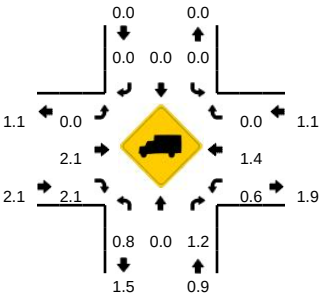
CITY/STATE: Washington, OR

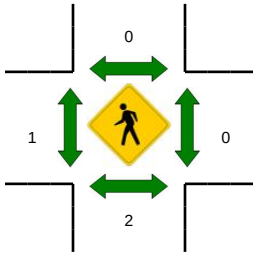
DATE: Tue, Feb 13 2018

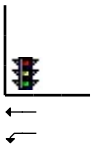
Peak-Hour: 4:30 PM -- 5:30 PM

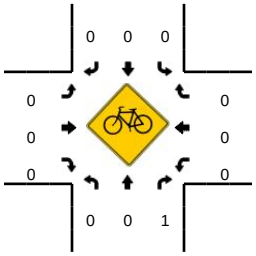
Peak 15-Min: 4:45 PM -- 5:00 PM

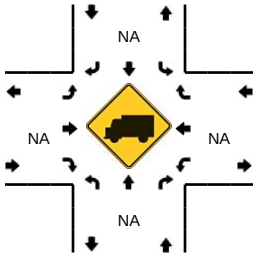


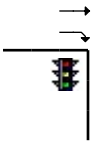


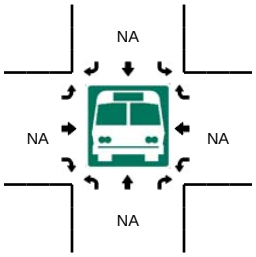












5-Min Count Period Beginning At	SW 131st Ave (Northbound)				SW 131st Ave (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	0	7	0	0	0	0	0	0	20	14	0	8	35	0	0	93	
4:05 PM	16	0	12	0	0	0	0	0	0	19	9	0	15	30	0	0	101	
4:10 PM	17	0	6	0	0	0	0	0	0	23	9	0	11	26	0	0	92	
4:15 PM	25	0	7	0	0	0	0	0	0	30	12	0	8	31	0	0	113	
4:20 PM	25	0	4	0	0	0	0	0	0	25	7	0	8	31	0	0	100	
4:25 PM	5	0	6	0	0	0	0	0	0	27	23	0	10	24	0	0	95	
4:30 PM	28	0	9	0	0	0	0	0	0	25	21	0	16	35	0	0	134	
4:35 PM	12	0	9	0	0	0	0	0	0	27	19	0	11	39	0	0	117	
4:40 PM	19	0	7	0	0	0	0	0	0	21	16	0	8	31	0	0	102	
4:45 PM	22	0	3	0	0	0	0	0	0	23	26	0	20	31	0	0	125	
4:50 PM	20	0	16	0	0	0	0	0	0	22	16	0	18	34	0	0	126	
4:55 PM	18	0	16	0	0	0	0	0	0	7	26	0	18	47	0	0	132	1330
5:00 PM	20	0	4	0	0	0	0	0	0	19	15	0	21	38	0	0	117	1354
5:05 PM	19	0	3	0	0	0	0	0	0	25	25	0	18	36	0	0	126	1379
5:10 PM	22	0	7	0	0	0	0	0	0	15	12	0	15	38	0	0	109	1396
5:15 PM	17	0	4	0	0	0	0	0	0	19	20	0	17	44	0	0	121	1404
5:20 PM	21	0	5	0	0	0	0	0	0	14	21	0	6	48	0	0	115	1419
5:25 PM	34	0	3	0	0	0	0	0	0	21	16	0	11	23	0	0	108	1432
5:30 PM	12	0	5	0	0	0	0	0	0	16	14	0	16	49	0	0	112	1410
5:35 PM	15	0	5	0	0	0	0	0	0	20	25	0	12	37	0	0	114	1407
5:40 PM	24	0	10	0	0	0	0	0	0	21	17	0	13	36	0	0	121	1426
5:45 PM	21	0	5	0	0	0	0	0	0	18	24	0	16	25	0	0	109	1410
5:50 PM	21	0	4	0	0	0	0	0	0	18	10	0	13	38	0	0	104	1388
5:55 PM	12	0	11	0	0	0	0	0	0	24	19	0	11	26	0	0	103	1359

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	240	0	140	0	0	0	0	0	0	208	272	0	224	448	0	0	1532
Heavy Trucks	0	0	0		0	0	0		0	4	4		0	4	0		12
Pedestrians		4				0				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

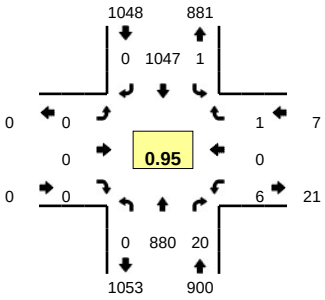
LOCATION: SW Roy Rogers Rd -- SW Elsner Rd

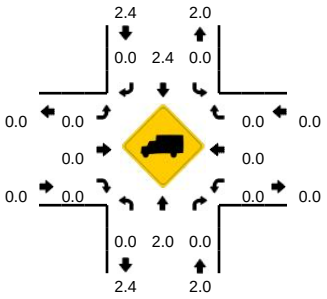
QC JOB #: 14625606

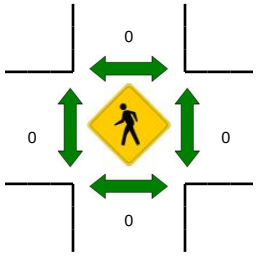
CITY/STATE: Washington, OR

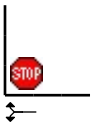
DATE: Tue, Feb 13 2018

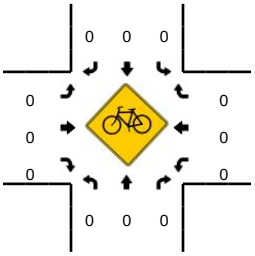
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

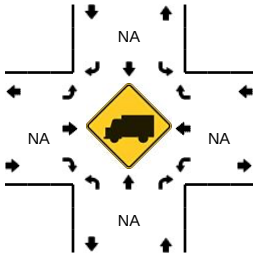


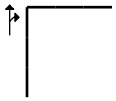


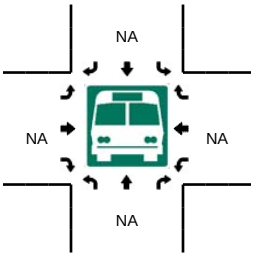












5-Min Count Period Beginning At	SW Roy Rogers Rd (Northbound)				SW Roy Rogers Rd (Southbound)				SW Elsner Rd (Eastbound)				SW Elsner Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	56	6	0	3	55	0	0	1	0	0	0	1	0	1	0	123	
4:05 PM	0	48	3	0	1	67	0	0	0	0	0	0	0	0	0	0	119	
4:10 PM	0	62	4	0	0	44	0	0	0	0	0	0	0	0	0	0	110	
4:15 PM	0	53	13	1	3	81	0	0	0	0	0	0	0	0	0	0	151	
4:20 PM	0	53	10	0	1	102	0	0	0	0	0	0	0	0	1	0	167	
4:25 PM	0	66	4	0	0	122	0	0	0	0	0	0	0	0	0	0	192	
4:30 PM	0	65	6	0	0	86	0	0	0	0	0	0	0	0	1	0	158	
4:35 PM	0	64	2	0	0	107	0	0	0	0	0	0	0	0	0	0	173	
4:40 PM	0	67	0	0	0	75	0	0	0	0	0	0	0	0	0	0	142	
4:45 PM	0	55	2	0	0	90	0	0	0	0	0	0	1	0	0	0	148	
4:50 PM	0	73	3	0	0	97	0	0	0	0	0	0	0	0	1	0	174	
4:55 PM	0	76	3	0	0	93	0	0	0	0	0	0	3	0	0	0	175	1832
5:00 PM	0	52	1	0	0	91	0	0	0	0	0	0	0	0	0	0	144	1853
5:05 PM	0	66	2	0	0	82	0	0	0	0	0	0	1	0	0	0	151	1885
5:10 PM	0	68	4	0	0	86	0	0	0	0	0	0	0	0	0	0	158	1933
5:15 PM	0	74	0	0	0	83	0	0	0	0	0	0	1	0	0	0	158	1940
5:20 PM	0	81	4	0	0	88	0	0	0	0	0	0	0	0	0	0	173	1946
5:25 PM	0	83	0	0	0	98	0	0	0	0	0	0	0	0	0	0	181	1935
5:30 PM	0	71	1	0	0	85	0	0	0	0	0	0	0	0	0	0	157	1934
5:35 PM	0	75	1	0	1	59	0	0	0	0	0	0	1	0	0	0	137	1898
5:40 PM	0	74	0	0	0	105	0	0	0	0	0	0	0	0	0	0	179	1935
5:45 PM	0	87	1	0	0	80	0	0	0	0	0	0	0	0	0	0	168	1955
5:50 PM	0	81	2	0	0	87	0	0	0	0	0	0	0	0	1	0	171	1952
5:55 PM	0	62	1	0	0	68	0	0	0	0	0	0	0	0	0	0	131	1908

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	952	16	0	0	1076	0	0	0	0	0	0	4	0	0	0	2048
Heavy Trucks	0	28	0		0	36	0		0	0	0		0	0	0		64
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 131st Ave -- SW Fischer Rd

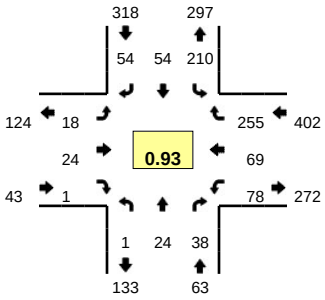
CITY/STATE: King City, OR

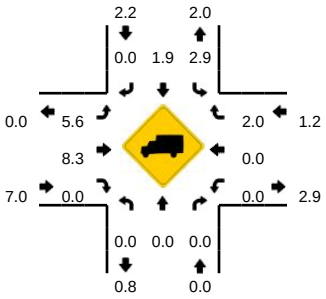
QC JOB #: 14625610

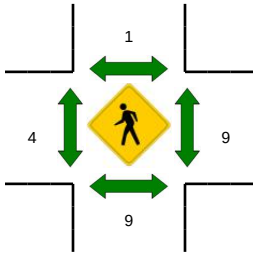
DATE: Tue, Feb 13 2018

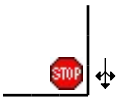
Peak-Hour: 4:45 PM -- 5:45 PM

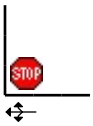
Peak 15-Min: 5:30 PM -- 5:45 PM

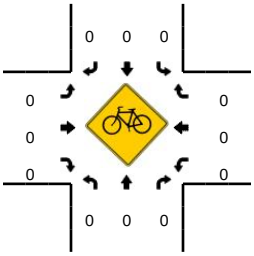


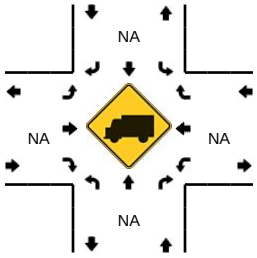


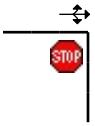


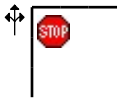


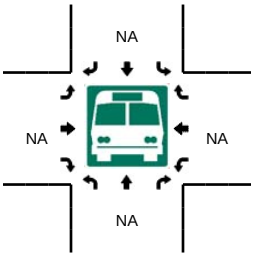












5-Min Count Period Beginning At	SW 131st Ave (Northbound)				SW 131st Ave (Southbound)				SW Fischer Rd (Eastbound)				SW Fischer Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	1	0	13	1	4	0	1	4	0	0	5	2	21	0	53	
4:05 PM	0	3	5	0	10	4	5	0	0	4	0	0	4	7	19	0	61	
4:10 PM	0	2	2	0	11	2	0	0	0	2	1	0	9	2	15	0	46	
4:15 PM	0	0	3	0	7	1	0	0	1	2	0	0	5	2	19	0	40	
4:20 PM	0	1	0	0	11	2	1	0	2	1	0	0	4	7	17	0	46	
4:25 PM	0	1	2	0	16	3	4	0	1	1	1	0	3	7	16	0	55	
4:30 PM	0	5	4	0	25	6	6	0	1	1	0	0	4	4	25	0	81	
4:35 PM	0	5	5	0	21	2	3	0	1	4	0	0	1	5	12	0	59	
4:40 PM	0	0	4	0	17	5	3	0	2	5	0	0	8	6	25	0	75	
4:45 PM	0	3	2	0	28	5	2	0	1	1	0	0	4	6	22	0	74	
4:50 PM	0	2	6	0	15	6	3	0	2	2	0	0	2	5	18	0	61	
4:55 PM	0	3	2	0	20	6	2	0	3	1	1	0	8	8	16	0	70	721
5:00 PM	1	3	2	0	16	3	4	0	2	2	0	0	8	5	21	0	67	735
5:05 PM	0	3	6	0	23	8	1	0	2	1	0	0	4	10	17	0	75	749
5:10 PM	0	0	2	0	14	7	4	0	1	1	0	0	7	6	23	0	65	768
5:15 PM	0	1	1	0	14	5	6	0	2	2	0	0	6	4	18	0	59	787
5:20 PM	0	1	2	0	16	1	7	0	3	3	0	0	4	4	26	0	67	808
5:25 PM	0	0	2	0	13	5	4	0	0	4	0	0	9	6	23	0	66	819
5:30 PM	0	4	5	0	16	1	8	0	1	3	0	0	7	7	17	0	69	807
5:35 PM	0	2	3	0	18	2	9	0	0	2	0	0	8	4	24	0	72	820
5:40 PM	0	2	5	0	17	5	4	0	1	2	0	0	11	4	30	0	81	826
5:45 PM	0	5	2	0	20	5	1	0	3	2	0	0	6	3	21	0	68	820
5:50 PM	0	3	5	0	17	1	4	0	1	4	0	0	7	1	22	0	65	824
5:55 PM	0	2	3	0	8	4	0	0	1	3	0	0	5	6	10	0	42	796

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	32	52	0	204	32	84	0	8	28	0	0	104	60	284	0	888
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	0	12		16
Pedestrians		0				4				0				8			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW Pacific Hwy -- SW Beef Bend Rd

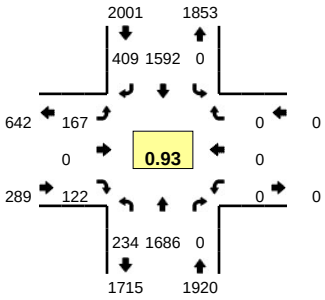
CITY/STATE: Tigard, OR

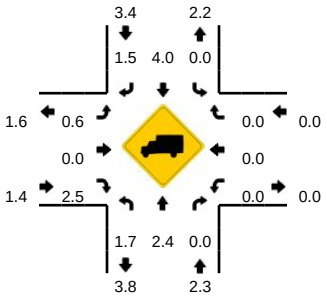
QC JOB #: 14625602

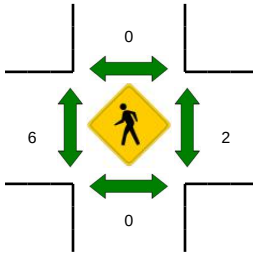
DATE: Tue, Feb 13 2018

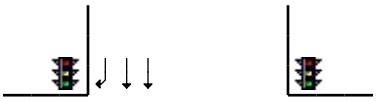
Peak-Hour: 4:45 PM -- 5:45 PM

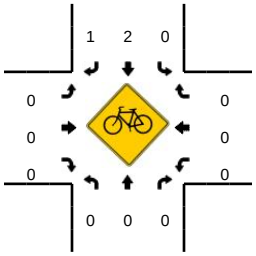
Peak 15-Min: 4:45 PM -- 5:00 PM

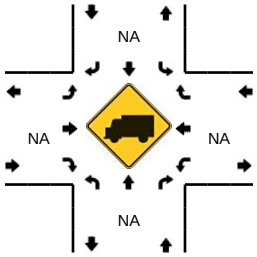


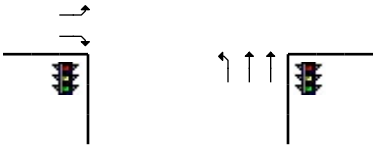


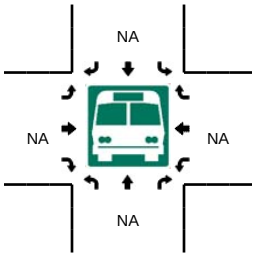












5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Beef Bend Rd (Eastbound)				SW Beef Bend Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	155	0	1	0	134	32	0	16	0	7	0	0	0	0	0	354	
4:05 PM	16	136	0	0	0	119	28	0	19	0	7	0	0	0	0	0	325	
4:10 PM	18	157	0	0	0	135	23	0	20	0	9	0	0	0	0	0	362	
4:15 PM	13	122	0	1	0	132	29	0	23	0	14	0	0	0	0	0	334	
4:20 PM	10	133	0	0	0	141	25	0	21	0	11	0	0	0	0	0	341	
4:25 PM	11	150	0	0	0	130	30	0	20	0	7	0	0	0	0	0	348	
4:30 PM	9	153	0	0	0	126	32	1	18	0	15	0	0	0	0	0	354	
4:35 PM	16	125	0	0	0	115	34	0	17	0	12	0	0	0	0	0	319	
4:40 PM	14	136	0	0	0	94	31	0	16	0	8	0	0	0	0	0	299	
4:45 PM	24	136	0	1	0	129	37	0	22	0	15	0	0	0	0	0	364	
4:50 PM	25	138	0	0	0	142	34	0	23	0	14	0	0	0	0	0	376	
4:55 PM	21	154	0	0	0	153	38	0	15	0	8	0	0	0	0	0	389	4165
5:00 PM	22	123	0	0	0	144	36	0	11	0	12	0	0	0	0	0	348	4159
5:05 PM	18	123	0	0	0	125	33	0	14	0	13	0	0	0	0	0	326	4160
5:10 PM	19	140	0	0	0	133	39	0	10	0	8	0	0	0	0	0	349	4147
5:15 PM	19	154	0	0	0	137	34	0	11	0	5	0	0	0	0	0	360	4173
5:20 PM	26	137	0	0	0	123	27	0	12	0	8	0	0	0	0	0	333	4165
5:25 PM	13	142	0	0	0	133	38	0	11	0	6	0	0	0	0	0	343	4160
5:30 PM	19	146	0	0	0	126	35	0	8	0	9	0	0	0	0	0	343	4149
5:35 PM	18	147	0	0	0	117	25	0	16	0	7	0	0	0	0	0	330	4160
5:40 PM	9	146	0	0	0	130	33	0	14	0	17	0	0	0	0	0	349	4210
5:45 PM	15	112	0	0	0	121	32	0	13	0	3	0	0	0	0	0	296	4142
5:50 PM	18	131	0	0	0	106	30	0	15	0	11	0	0	0	0	0	311	4077
5:55 PM	24	119	0	0	0	124	30	0	14	0	10	0	0	0	0	0	321	4009

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	280	1712	0	4	0	1696	436	0	240	0	148	0	0	0	0	0	4516
Heavy Trucks	8	56	0		0	72	8		4	0	4		0	0	0		152
Pedestrians		0				0				12				4			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

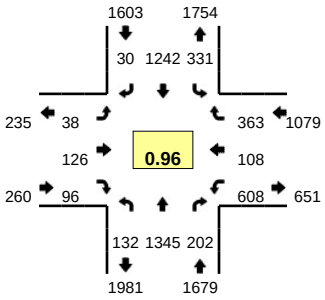
Method for determining peak hour: Total Entering Volume

LOCATION: SW Pacific Hwy -- SW 116th Ave / SW Durham Rd

QC JOB #: 14625603

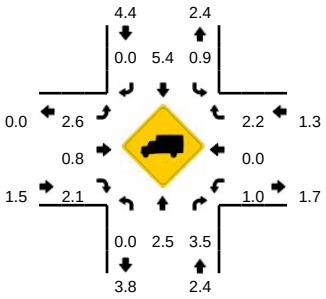
CITY/STATE: Tigard, OR

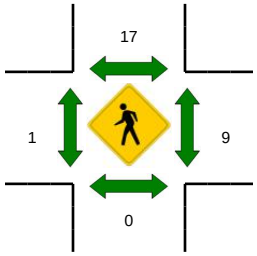
DATE: Tue, Feb 13 2018

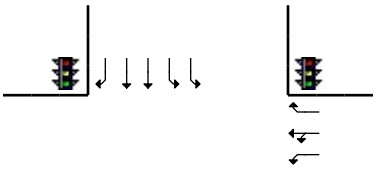


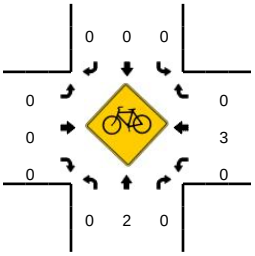
Peak-Hour: 4:35 PM -- 5:35 PM

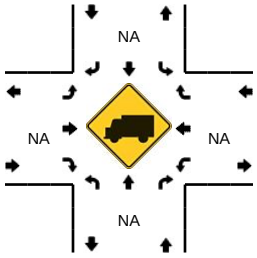
Peak 15-Min: 4:55 PM -- 5:10 PM

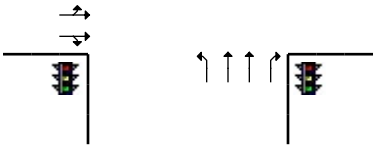


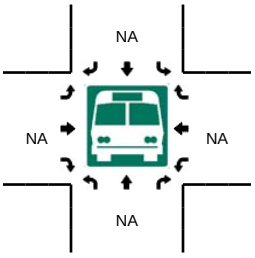












5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW 116th Ave / SW Durham Rd (Eastbound)				SW 116th Ave / SW Durham Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	130	18	2	22	116	0	0	3	13	14	0	30	5	10	1	375	
4:05 PM	4	126	20	6	15	104	2	0	3	8	6	0	40	10	19	0	363	
4:10 PM	3	121	17	5	20	102	2	0	4	14	6	0	18	9	22	0	343	
4:15 PM	6	106	16	3	14	91	2	1	2	9	8	0	42	7	27	0	334	
4:20 PM	8	105	23	2	22	85	4	1	2	11	5	0	69	6	29	0	372	
4:25 PM	14	91	17	6	34	68	1	0	3	9	8	0	49	4	21	0	325	
4:30 PM	8	138	26	1	13	89	2	0	3	5	0	0	11	3	15	0	314	
4:35 PM	9	121	20	4	28	74	1	1	3	10	14	0	47	11	15	0	358	
4:40 PM	8	125	20	3	23	132	0	0	1	11	6	0	54	6	25	0	414	
4:45 PM	7	96	12	2	22	106	2	1	4	12	5	0	57	9	33	0	368	
4:50 PM	9	107	22	1	23	96	2	1	3	9	7	0	57	8	40	0	385	
4:55 PM	8	107	12	3	36	98	4	1	3	12	7	0	68	14	32	0	405	4356
5:00 PM	10	100	19	6	41	106	5	0	1	13	9	0	44	11	37	0	402	4383
5:05 PM	8	122	16	5	30	119	2	0	4	11	4	0	42	13	18	0	394	4414
5:10 PM	8	118	24	3	17	111	2	0	4	8	6	0	51	7	42	0	401	4472
5:15 PM	8	119	20	2	30	95	2	1	2	11	8	0	51	5	27	0	381	4519
5:20 PM	7	113	10	1	27	105	5	0	3	12	9	0	46	7	28	0	373	4520
5:25 PM	6	119	10	4	12	117	2	2	6	8	13	0	40	8	33	0	380	4575
5:30 PM	9	98	17	1	34	83	3	1	4	9	8	0	51	9	33	0	360	4621
5:35 PM	15	113	21	2	20	78	1	2	4	8	13	0	38	11	28	0	354	4617
5:40 PM	5	117	13	4	31	98	2	1	0	13	5	0	46	6	25	0	366	4569
5:45 PM	7	119	16	0	31	94	2	0	2	9	10	0	37	3	34	0	364	4565
5:50 PM	2	99	19	3	28	83	0	0	2	9	6	0	31	6	27	0	315	4495
5:55 PM	8	102	26	2	25	75	3	0	3	6	9	0	46	3	24	0	332	4422

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	104	1316	188	56	428	1292	44	4	32	144	80	0	616	152	348	0	4804
Heavy Trucks	0	24	4		4	72	0		4	4	0		8	0	0		120
Pedestrians		0				4				0				0			4
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

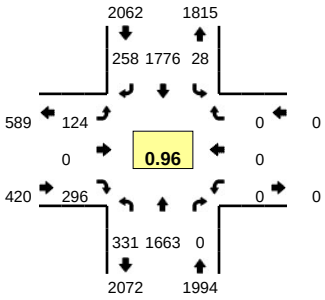
Method for determining peak hour: Total Entering Volume

LOCATION: SW Pacific Hwy -- SW Fischer Dr

CITY/STATE: Washington, OR

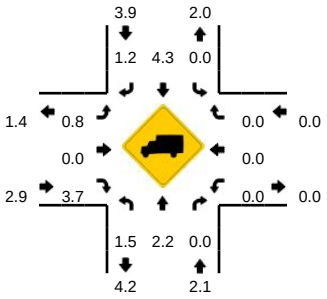
QC JOB #: 14625611

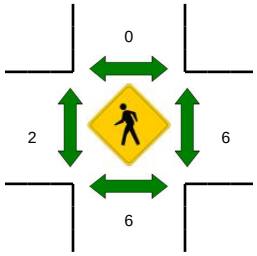
DATE: Tue, Feb 13 2018

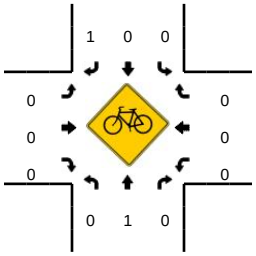


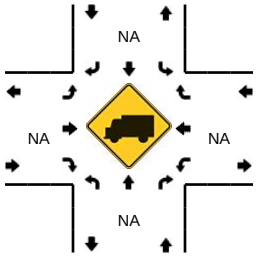
Peak-Hour: 4:35 PM -- 5:35 PM

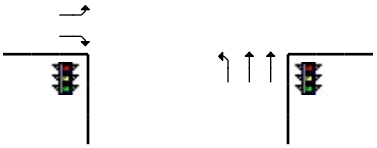
Peak 15-Min: 4:35 PM -- 4:50 PM

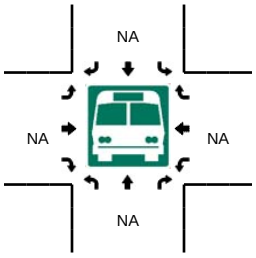












5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Fischer Dr (Eastbound)				SW Fischer Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	24	128	0	0	0	132	20	1	18	0	26	0	0	0	0	0	349	
4:05 PM	22	154	0	0	0	117	19	1	10	0	14	0	0	0	0	0	337	
4:10 PM	34	141	0	0	0	114	12	2	10	0	24	0	0	0	0	0	337	
4:15 PM	27	177	0	0	0	144	23	2	5	0	17	0	0	0	0	0	395	
4:20 PM	24	121	0	0	0	126	17	1	14	0	15	0	0	0	0	0	318	
4:25 PM	28	157	0	0	0	147	15	2	9	0	15	0	0	0	0	0	373	
4:30 PM	25	118	0	0	0	66	11	1	19	0	33	0	0	0	0	0	273	
4:35 PM	29	154	0	0	0	132	12	4	13	0	22	0	0	0	0	0	366	
4:40 PM	31	127	0	0	0	159	21	1	16	0	31	0	0	0	0	0	386	
4:45 PM	26	149	0	0	0	169	23	2	11	0	31	0	0	0	0	0	411	
4:50 PM	20	125	0	0	0	143	21	3	13	0	21	0	0	0	0	0	346	
4:55 PM	29	143	0	0	0	163	23	2	10	0	20	0	0	0	0	0	390	4281
5:00 PM	27	120	0	0	0	148	25	2	9	0	36	0	0	0	0	0	367	4299
5:05 PM	27	141	0	0	0	129	20	3	13	0	29	0	0	0	0	0	362	4324
5:10 PM	28	151	0	0	0	140	22	3	8	0	30	0	0	0	0	0	382	4369
5:15 PM	36	166	0	0	0	121	20	2	8	0	16	0	0	0	0	0	369	4343
5:20 PM	23	134	0	0	0	168	25	4	7	0	26	0	0	0	0	0	387	4412
5:25 PM	29	116	0	0	0	135	22	1	9	0	13	0	0	0	0	0	325	4364
5:30 PM	26	137	0	0	0	169	24	1	7	0	21	0	0	0	0	0	385	4476
5:35 PM	28	114	0	0	0	145	26	4	12	0	26	0	0	0	0	0	355	4465
5:40 PM	24	99	0	0	0	112	27	7	16	0	23	0	0	0	0	0	308	4387
5:45 PM	32	126	0	0	0	111	28	2	7	0	22	0	0	0	0	0	328	4304
5:50 PM	23	110	0	0	0	115	21	4	13	0	26	0	0	0	0	0	312	4270
5:55 PM	22	111	0	0	0	82	26	3	22	0	18	0	0	0	0	0	284	4164

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	344	1720	0	0	0	1840	224	28	160	0	336	0	0	0	0	0	4652
Heavy Trucks	0	44	0		0	100	4		0	0	12		0	0	0		160
Pedestrians		0				0				0				8			8
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

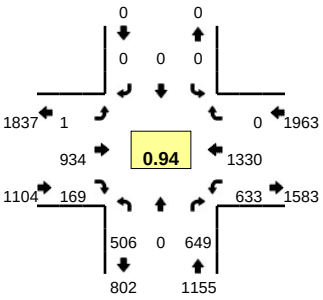
Type of peak hour being reported: Intersection Peak

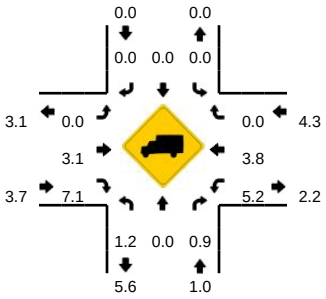
Method for determining peak hour: Total Entering Volume

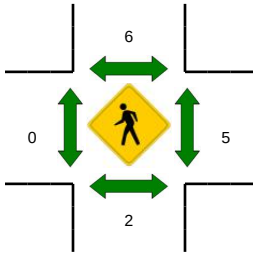
LOCATION: SW Pacific Hwy -- SW 124th Ave
CITY/STATE: Tualatin, OR

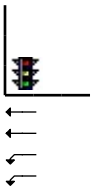
QC JOB #: 14625604
DATE: Tue, Feb 13 2018

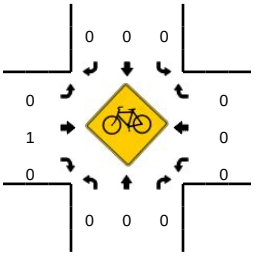
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

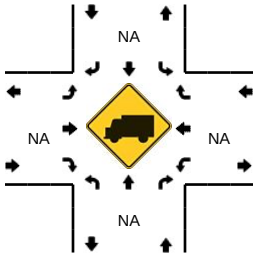


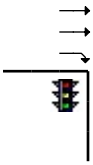


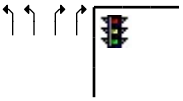


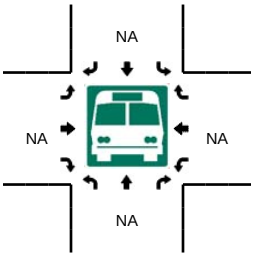












5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW 124th Ave (Eastbound)				SW 124th Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	46	0	60	0	0	0	0	0	0	51	9	0	47	141	0	0	354	
4:05 PM	48	0	55	0	0	0	0	0	0	84	21	0	34	86	0	0	328	
4:10 PM	54	0	69	0	0	0	0	0	0	68	8	0	54	113	0	0	366	
4:15 PM	50	0	48	0	0	0	0	0	0	74	7	0	35	80	0	0	294	
4:20 PM	40	0	38	0	0	0	0	0	0	75	13	0	40	105	0	0	311	
4:25 PM	26	0	40	0	0	0	0	0	0	104	20	0	42	107	0	0	339	
4:30 PM	57	0	49	0	0	0	0	0	0	84	12	0	38	54	0	0	294	
4:35 PM	35	0	46	0	0	0	0	0	0	68	15	0	59	120	0	0	343	
4:40 PM	47	0	48	0	0	0	0	0	0	89	17	0	52	145	0	0	398	
4:45 PM	54	0	64	0	0	0	0	0	0	76	15	1	52	122	0	0	384	
4:50 PM	32	0	53	0	0	0	0	0	0	66	11	0	69	98	0	0	329	
4:55 PM	30	0	52	0	0	0	0	0	0	91	9	0	49	125	0	0	356	4096
5:00 PM	47	0	41	0	0	0	0	0	0	81	11	0	49	117	0	0	346	4088
5:05 PM	43	0	73	0	0	0	0	0	0	47	11	0	67	102	0	0	343	4103
5:10 PM	47	0	62	0	0	0	0	0	0	101	17	0	54	143	0	0	424	4161
5:15 PM	33	0	48	0	0	0	0	0	0	74	13	0	38	92	0	0	298	4165
5:20 PM	55	0	73	0	0	0	0	0	0	53	18	0	64	105	0	0	368	4222
5:25 PM	45	0	58	0	0	0	0	0	0	64	6	0	36	116	0	1	326	4209
5:30 PM	19	0	31	0	0	0	0	0	0	88	12	0	59	98	0	0	307	4222
5:35 PM	52	0	59	0	0	0	0	0	0	40	14	0	51	124	0	0	340	4219
5:40 PM	31	0	50	0	0	0	0	0	0	59	19	0	47	99	0	0	305	4126
5:45 PM	49	0	41	0	0	0	0	0	0	70	22	0	39	92	0	0	313	4055
5:50 PM	23	0	41	0	0	0	0	0	0	82	8	0	46	101	0	0	301	4027
5:55 PM	37	0	35	0	0	0	0	0	0	65	6	0	40	79	0	0	262	3933

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	544	0	632	0	0	0	0	0	0	932	188	4	652	1548	0	0	4500
Heavy Trucks	12	0	4		0	0	0		0	28	12		24	76	0		156
Pedestrians		8				0				0				4			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

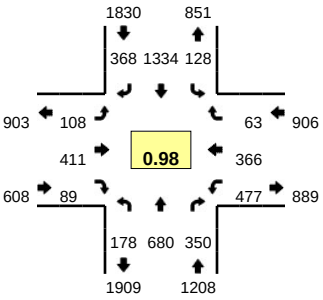
Method for determining peak hour: Total Entering Volume

LOCATION: SW Pacific Hwy -- SW Roy Rogers Rd

CITY/STATE: Sherwood, OR

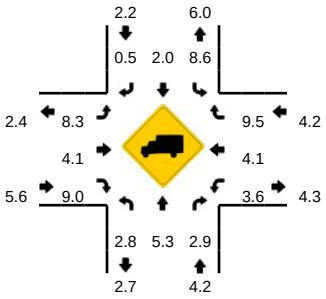
QC JOB #: 14625605

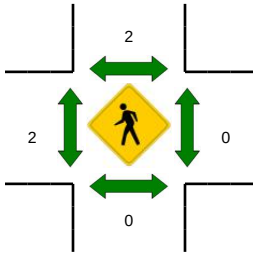
DATE: Tue, Feb 13 2018

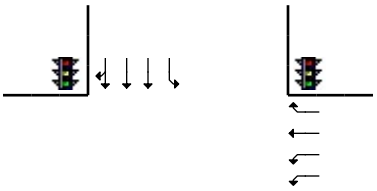


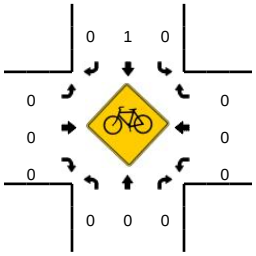
Peak-Hour: 4:55 PM -- 5:55 PM

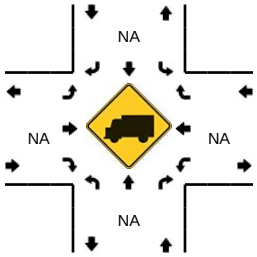
Peak 15-Min: 5:30 PM -- 5:45 PM

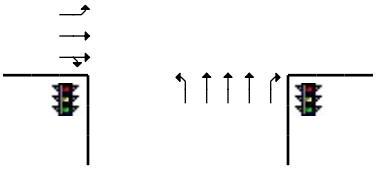


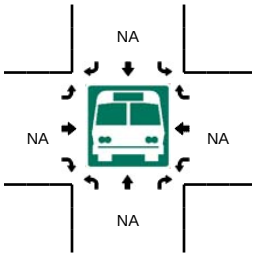












5-Min Count Period Beginning At	SW Pacific Hwy (Northbound)				SW Pacific Hwy (Southbound)				SW Roy Rogers Rd (Eastbound)				SW Roy Rogers Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	17	50	29	0	13	87	15	0	19	34	15	0	33	30	14	0	356	
4:05 PM	16	80	25	0	8	110	18	0	5	30	12	0	31	26	5	0	366	
4:10 PM	11	42	25	1	16	116	50	0	7	32	3	0	25	30	3	0	361	
4:15 PM	10	46	29	0	13	101	21	0	8	28	5	0	38	39	15	0	353	
4:20 PM	18	71	22	1	5	86	28	0	11	41	13	0	37	26	11	0	370	
4:25 PM	7	79	27	0	15	147	27	0	7	34	5	0	31	25	5	0	409	
4:30 PM	11	49	33	0	8	91	27	0	7	28	6	0	44	37	8	0	349	
4:35 PM	15	67	17	2	6	70	34	0	14	41	12	0	44	23	8	0	353	
4:40 PM	13	61	28	1	3	127	23	0	6	25	11	0	35	26	5	0	364	
4:45 PM	8	53	38	0	15	110	22	0	13	35	4	0	36	33	4	0	371	
4:50 PM	13	46	18	0	8	105	19	0	11	46	8	0	37	31	10	0	352	
4:55 PM	19	75	29	1	8	114	32	0	6	26	9	0	31	23	7	0	380	4384
5:00 PM	8	57	25	0	18	134	27	0	8	26	10	0	40	29	5	0	387	4415
5:05 PM	12	47	24	2	8	100	21	0	7	43	7	0	51	34	6	0	362	4411
5:10 PM	16	88	24	0	12	112	25	0	8	36	9	0	33	29	3	0	395	4445
5:15 PM	14	60	24	2	12	117	41	0	5	28	7	0	37	30	6	0	383	4475
5:20 PM	16	28	31	0	9	96	25	0	9	33	6	0	51	43	6	0	353	4458
5:25 PM	20	63	27	1	13	97	26	0	15	48	6	0	27	26	6	0	375	4424
5:30 PM	13	46	45	1	9	138	41	0	12	32	4	0	42	29	3	0	415	4490
5:35 PM	10	39	43	0	5	101	31	0	10	35	7	0	54	31	4	0	370	4507
5:40 PM	15	74	27	0	7	86	32	0	14	41	12	0	35	30	4	0	377	4520
5:45 PM	18	64	27	2	11	120	37	0	5	32	6	0	30	28	6	0	386	4535
5:50 PM	8	39	24	0	16	119	30	0	9	31	6	0	46	34	7	0	369	4552
5:55 PM	11	41	34	0	11	90	18	0	15	48	9	0	35	31	7	0	350	4522

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	152	636	460	4	84	1300	416	0	144	432	92	0	524	360	44	0	4648
Heavy Trucks	4	28	16		4	8	0		8	24	8		24	4	4		132
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/21/2018 2:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX B

2018 VOLUME ADJUSTMENT WORKSHEETS

SEASONAL TREND TABLE (Updated: 9/19/2017)																									Seasonal Trend Peak Period Factor	Seasonal Trend K30 Value
TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec		
INTERSTATE URBANIZED	1.0505	1.0659	1.0360	1.0061	0.9881	0.9701	0.9616	0.9530	0.9544	0.9558	0.9339	0.9120	0.9127	0.9154	0.9116	0.9078	0.9279	0.9481	0.9536	0.9592	0.9789	0.9986	1.0210	1.0434	0.9078	0.0824
INTERSTATE NONURBANIZED	1.2276	1.2860	1.2343	1.1825	1.1244	1.0662	1.0562	1.0461	1.0221	0.9981	0.9532	0.9082	0.8850	0.8575	0.8569	0.8564	0.9011	0.9458	0.9833	1.0207	1.0429	1.0650	1.1128	1.1605	0.8564	0.1225
COMMUTER	1.0578	1.0635	1.0337	1.0038	0.9943	0.9849	0.9693	0.9538	0.9488	0.9439	0.9491	0.9543	0.9321	0.9107	0.9072	0.9037	0.9198	0.9359	0.9431	0.9504	0.9808	1.0113	1.0375	1.0637	0.9037	0.0997
COASTAL DESTINATION	1.2144	1.2255	1.1807	1.1359	1.1048	1.0737	1.0729	1.0721	1.0473	1.0224	0.9805	0.9385	0.8853	0.8206	0.8204	0.8202	0.8726	0.9251	0.9862	1.0474	1.1053	1.1632	1.1911	1.2190	0.8202	0.1216
COASTAL DESTINATION ROUTE	1.4648	1.5007	1.4182	1.3357	1.2719	1.2080	1.1972	1.1864	1.1258	1.0652	1.0058	0.9464	0.8673	0.7660	0.7681	0.7703	0.8383	0.9063	1.0104	1.1145	1.1996	1.2848	1.3566	1.4284	0.7660	0.1630
AGRICULTURE	1.2660	1.2884	1.2341	1.1798	1.1400	1.1002	1.0624	1.0246	0.9798	0.9351	0.9038	0.8725	0.8538	0.8319	0.8317	0.8315	0.8397	0.8479	0.8844	0.9208	0.9936	1.0664	1.1632	1.2600	0.8315	0.1407
RECREATIONAL SUMMER	1.6772	1.7234	1.6678	1.6122	1.5251	1.4380	1.3855	1.3330	1.1823	1.0317	0.9473	0.8628	0.8028	0.7303	0.7449	0.7596	0.8179	0.8763	0.9888	1.1013	1.2469	1.3925	1.4752	1.5579	0.7303	0.1954
RECREATIONAL SUMMER WINTER	1.1733	1.2256	1.2446	1.2635	1.2945	1.3255	1.4481	1.5706	1.5411	1.5115	1.3013	1.0911	0.9793	0.8307	0.8687	0.9068	1.0479	1.1889	1.4188	1.6270	1.7098	1.7710	1.4135	1.0562	0.8307	0.2260
RECREATIONAL WINTER	1.0031	0.9909	0.9956	1.0002	1.0165	1.0328	1.2614	1.4899	1.8635	2.2372	1.9344	1.6317	1.4383	1.1339	1.1597	1.1855	1.3222	1.4588	1.7556	2.0525	2.3741	2.6957	1.8795	1.0634	0.9909	0.3314
SUMMER	1.2125	1.2424	1.1995	1.1567	1.1212	1.0856	1.0561	1.0265	0.9929	0.9593	0.9241	0.8888	0.8648	0.8350	0.8395	0.8440	0.8775	0.9110	0.9452	0.9794	1.0363	1.0933	1.1408	1.1884	0.8350	0.1147
SUMMER < 2500	1.2969	1.3292	1.2825	1.2359	1.1786	1.1213	1.0719	1.0225	0.9721	0.9217	0.8901	0.8584	0.8391	0.8154	0.8234	0.8314	0.8460	0.8606	0.9004	0.9401	1.0138	1.0875	1.1758	1.2642	0.8154	0.1371

***Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.**
***Grey shading indicates months were seasonal factor is greater than 30%**

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment:	1.0038
Growth Rate:	4%

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**		
		L	0	0	**0**		
	EB	T	0	0	**0**		
		R	0	0	**0**		
1		L	153	0	**153**		
SW Roy Rogers Rd	WB	T	0	0	**0**		
SW Beef Bend Rd		R	242	0	**242**		
		L	1	0	**1**		
TMC Date: 02/13/2018	NB	T	795	0	**795**		
		R	70	0	**70**		
Peak Hour: 4:35 - 5:35 PM		L	208	0	**208**		
PHF: .96	SB	T	891	0	**891**		
		R	0	0	**0**		
			2,360				
		L	0	0	**0**		
	EB	T	280	0	**280**		
		R	0	0	**0**		
2		L	6	0	**6**		
SW Elsner Rd/SW April Ln	WB	T	379	0	**379**		
SW Beef Bend Rd		R	0	0	**0**		
		L	6	0	**6**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	23	0	**23**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .94	SB	T	0	0	**0**		
		R	0	0	**0**		
			694				
		L	31	0	**31**		
	EB	T	266	0	**266**		
		R	0	0	**0**		
3		L	2	0	**2**		
SW 150th Ave	WB	T	337	0	**337**		
SW Beef Bend Rd		R	71	0	**71**		
		L	0	0	**0**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	1	0	**1**		
Peak Hour: 4:35 - 5:35 PM		L	59	0	**59**		
PHF: .97	SB	T	0	0	**0**		
		R	47	0	**47**		
			814				
		L	0	0	**0**		
	EB	T	379	0	**379**		
		R	5	0	**5**		
4		L	11	0	**11**		
SW 137th Ave	WB	T	580	0	**580**		
SW Beef Bend Rd		R	0	0	**0**		
		L	3	0	**3**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	7	0	**7**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .99	SB	T	0	0	**0**		
		R	0	0	**0**		
			985				

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment:	1.0038
Growth Rate:	4%

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**		
		L	0	0	**0**		
	EB	T	229	0	**229**		
		R	226	0	**226**		
5		L	179	0	**179**		
SW 131st Ave	WB	T	458	0	**458**		
SW Beef Bend Rd		R	0	0	**0**		
		L	236	0	**236**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	82	0	**82**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .94	SB	T	0	0	**0**		
		R	0	0	**0**		
			1,410				
		L	0	0	**0**		
	EB	T	0	0	**0**		
		R	0	0	**0**		
6		L	6	0	**6**		
SW Roy Rogers Rd	WB	T	0	0	**0**		
SW Elsner Rd		R	1	0	**1**		
		L	0	0	**0**		
TMC Date: 02/13/2018	NB	T	830	0	**830**		
		R	22	0	**22**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .94	SB	T	1,075	0	**1,075**		
		R	0	0	**0**		
			1,934				
		L	20	0	**20**		
	EB	T	29	0	**29**		
		R	1	0	**1**		
7		L	68	0	**68**		
SW 131st Ave	WB	T	72	0	**72**		
SW Fischer Rd		R	238	0	**238**		
		L	1	0	**1**		
TMC Date: 02/13/2018	NB	T	25	0	**25**		
		R	39	0	**39**		
Peak Hour: 4:35 - 5:35 PM		L	213	0	**213**		
PHF: .97	SB	T	54	0	**54**		
		R	47	0	**47**		
			807				
		L	170	1	**171**		
	EB	T	0	0	**0**		
		R	118	0	**118**		
8		L	0	0	**0**		
SR 99 W	WB	T	0	0	**0**		
SW Beef Bend Rd		R	0	0	**0**		
		L	236	1	**237**		
TMC Date: 02/13/2018	NB	T	1,654	6	**1,660**		
		R	0	0	**0**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .93	SB	T	1,554	6	**1,560**		
		R	416	2	**418**		
			4,148				

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment:	1.0038
Growth Rate:	4%

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**		
		L	38	0	**38**		
	EB	T	126	0	**126**		
		R	96	0	**96**		
9		L	608	2	**610**		
SR 99 W	WB	T	108	0	**108**		
SW Durham Rd		R	363	1	**364**		
		L	97	0	**97**		
TMC Date: 02/13/2018	NB	T	1,345	5	**1,350**		
		R	202	1	**203**		
		U	35	0	**35**		
Peak Hour: 4:35 - 5:35 PM		L	323	1	**324**		
PHF: .97	SB	T	1,242	5	**1,247**		
		R	30	0	**30**		
		U	8	0	**8**		
			4,621				
		L	124	0	**124**		
	EB	T	0	0	**0**		
		R	296	1	**297**		
10		L	0	0	**0**		
SR 99 W	WB	T	0	0	**0**		
SW Fischer Rd		R	0	0	**0**		
		L	331	1	**332**		
TMC Date: 02/13/2018	NB	T	1,663	6	**1,669**		
		R	0	0	**0**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .96	SB	T	1,776	7	**1,783**		
		R	258	1	**259**		
		U	28	0	**28**		
			4,476				
		L	0	0	**0**		
	EB	T	898	3	**901**		
		R	155	1	**156**		
11		L	648	2	**650**		
SR 99 W	WB	T	1,383	5	**1,388**		
SW 124th Ave		R	0	0	**0**		
		L	487	2	**489**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	649	2	**651**		
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**		
PHF: .94	SB	T	0	0	**0**		
		R	0	0	**0**		
			4,220				
		L	114	0	**114**		
	EB	T	419	0	**419**		
		R	93	0	**93**		
12		L	464	2	**466**		
SR 99 W	WB	T	356	0	**356**		
SW Roy Rogers Rd		R	69	0	**69**		
		L	167	1	**168**		
TMC Date: 02/13/2018	NB	T	691	3	**694**		
		R	330	1	**331**		
		U	10	0	**10**		
Peak Hour: 4:35 - 5:35 PM		L	121	0	**121**		
PHF: .98	SB	T	1,320	5	**1,325**		
		R	336	1	**337**		
			4,490				

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

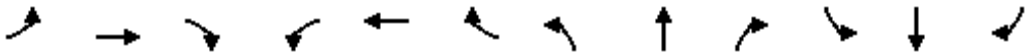
PM Peak Hour Volumes

Seasonal Adjustment:	1.0038
Growth Rate:	4%

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**		
		L	0	0	**0**		
	EB	T	278	0	**278**		
		R	0	0	**0**		
13		L	0	0	**0**		
West URA 6D Access	WB	T	395	0	**395**		
SW Beef Bend Rd		R	0	0	**0**		
		L	0	0	**0**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	0	0	**0**		
		L	0	0	**0**		
	SB	T	0	0	**0**		
		R	0	0	**0**		
			673				
		L	0	0	**0**		
	EB	T	303	0	**303**		
		R	0	0	**0**		
14		L	0	0	**0**		
West URA 6D Access	WB	T	385	0	**385**		
SW Beef Bend Rd		R	0	0	**0**		
		L	0	0	**0**		
TMC Date: 02/13/2018	NB	T	0	0	**0**		
		R	0	0	**0**		
		L	0	0	**0**		
	SB	T	0	0	**0**		
		R	0	0	**0**		
			688				
		L	0	0	**0**		
	EB	T	0	0	**0**		
		R	0	0	**0**		
15		L	0	0	**0**		
SW Roy Rogers Rd	WB	T	0	0	**0**		
Green Blvd		R	0	0	**0**		
		L	0	0	**0**		
TMC Date: 02/13/2018	NB	T	866	0	**866**		
		R	0	0	**0**		
		L	0	0	**0**		
	SB	T	1,044	0	**1,044**		
		R	0	0	**0**		
			1,910				

APPENDIX C

2018 OPERATIONS ANALYSIS WORKSHEETS



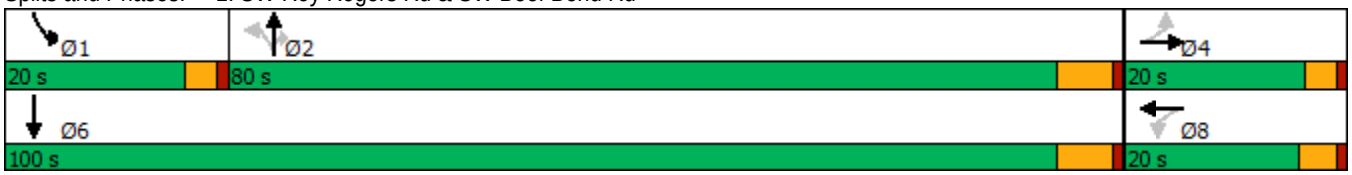
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	155	1	240	1	795	70	210	890	1
Future Volume (vph)	1	1	1	155	1	240	1	795	70	210	890	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.95		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1785		1752	1585			1863	1599	1752	1844	
Flt Permitted		0.93		0.76	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1685		1394	1585			1862	1599	1752	1844	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1	1	161	1	250	1	828	73	219	927	1
RTOR Reduction (vph)	0	1	0	0	210	0	0	0	24	0	0	0
Lane Group Flow (vph)	0	2	0	161	41	0	0	829	49	219	928	0
Heavy Vehicles (%)	0%	0%	0%	3%	0%	2%	0%	2%	1%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Actuated Green, G (s)		15.5		15.0	15.0			49.1	49.1	15.9	69.0	
Effective Green, g (s)		15.5		15.0	15.0			49.1	49.1	15.9	69.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.52	0.52	0.17	0.73	
Clearance Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		276		221	251			967	830	294	1346	
v/s Ratio Prot					0.03					0.12	c0.50	
v/s Ratio Perm		0.00		c0.12				c0.45	0.03			
v/c Ratio		0.01		0.73	0.16			0.86	0.06	0.74	0.69	
Uniform Delay, d1		33.1		37.8	34.3			19.7	11.3	37.4	6.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		11.4	0.3			7.6	0.0	9.8	1.5	
Delay (s)		33.1		49.2	34.6			27.3	11.3	47.2	8.4	
Level of Service		C		D	C			C	B	D	A	
Approach Delay (s)		33.1			40.3			26.0			15.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	14.5
Intersection Capacity Utilization	117.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	155	1	240	1	795	70	210	890	1
Future Volume (vph)	1	1	1	155	1	240	1	795	70	210	890	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		150	175		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		854			2607			3980			1191	
Travel Time (s)		19.4			59.3			90.5			27.1	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	28.0	28.0		26.5	26.5		31.0	31.0	31.0	9.5	16.0	
Total Split (s)	20.0	20.0		20.0	20.0		80.0	80.0	80.0	20.0	100.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%		66.7%	66.7%	66.7%	16.7%	83.3%	
Maximum Green (s)	16.0	16.0		15.5	15.5		74.0	74.0	74.0	16.0	94.0	
Yellow Time (s)	3.0	3.0		3.5	3.5		5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	19.0	19.0		17.0	17.0		20.0	20.0	20.0		5.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 94.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SW Roy Rogers Rd & SW Beef Bend Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	155	1	240	1	795	70	210	890	1
Future Volume (veh/h)	1	1	1	155	1	240	1	795	70	210	890	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	1	1	1	161	1	250	1	828	73	219	927	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	0	0	2	2	1	3	3	3
Cap, veh/h	69	67	40	244	1	288	42	948	810	257	1296	1
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.51	0.51	0.51	0.15	0.70	0.70
Sat Flow, veh/h	77	372	224	1404	6	1605	0	1870	1598	1767	1853	2
Grp Volume(v), veh/h	3	0	0	161	0	251	829	0	73	219	0	928
Grp Sat Flow(s),veh/h/ln	674	0	0	1404	0	1611	1870	0	1598	1767	0	1855
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	13.1	0.0	0.0	2.0	10.4	0.0	26.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0	15.5	0.0	13.1	33.9	0.0	2.0	10.4	0.0	26.0
Prop In Lane	0.33		0.33	1.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	176	0	0	244	0	289	990	0	810	257	0	1297
V/C Ratio(X)	0.02	0.00	0.00	0.66	0.00	0.87	0.84	0.00	0.09	0.85	0.00	0.72
Avail Cap(c_a), veh/h	185	0	0	244	0	289	1641	0	1368	327	0	2017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	0.0	36.2	0.0	34.5	18.8	0.0	11.0	36.0	0.0	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.5	0.0	23.5	2.0	0.0	0.0	15.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.8	0.0	6.9	13.9	0.0	0.7	5.5	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	0.0	0.0	42.6	0.0	57.9	20.9	0.0	11.0	51.6	0.0	8.6
LnGrp LOS	C	A	A	D	A	E	C	A	B	D	A	A
Approach Vol, veh/h		3			412			902			1147	
Approach Delay, s/veh		29.7			52.0			20.1			16.8	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.6	49.9		20.0		66.4		20.0				
Change Period (Y+Rc), s	4.0	6.0		* 4.5		6.0		4.5				
Max Green Setting (Gmax), s	16.0	74.0		* 16		94.0		15.5				
Max Q Clear Time (g_c+I1), s	12.4	35.9		15.1		28.0		17.5				
Green Ext Time (p_c), s	0.2	7.9		0.0		10.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		23.9	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	280	1	5	380	1	5	1	25	1	1	1
Future Vol, veh/h	1	280	1	5	380	1	5	1	25	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	298	1	5	404	1	5	1	27	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	405	0	0	299	0	0	717	716	299	730	716	405
Stage 1	-	-	-	-	-	-	301	301	-	415	415	-
Stage 2	-	-	-	-	-	-	416	415	-	315	301	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1165	-	-	1274	-	-	347	358	745	340	358	650
Stage 1	-	-	-	-	-	-	712	669	-	619	596	-
Stage 2	-	-	-	-	-	-	618	596	-	700	669	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1165	-	-	1274	-	-	344	356	745	326	356	650
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	356	-	326	356	-
Stage 1	-	-	-	-	-	-	711	668	-	618	593	-
Stage 2	-	-	-	-	-	-	613	593	-	673	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	11.3	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	1165	-	-	1274	-	-	405
HCM Lane V/C Ratio	0.054	0.001	-	-	0.004	-	-	0.008
HCM Control Delay (s)	11.3	8.1	0	-	7.8	0	-	14
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	30	265	1	5	335	70	1	1	1	60	1	45
Future Vol, veh/h	30	265	1	5	335	70	1	1	1	60	1	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	0	0	1	0	0	0	0	2	0	6
Mvmt Flow	31	273	1	5	345	72	1	1	1	62	1	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	417	0	0	274	0	0	751	763	274	728	727	381
Stage 1	-	-	-	-	-	-	336	336	-	391	391	-
Stage 2	-	-	-	-	-	-	415	427	-	337	336	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.518	4	3.354
Pot Cap-1 Maneuver	1137	-	-	1301	-	-	330	337	770	339	353	657
Stage 1	-	-	-	-	-	-	682	645	-	633	611	-
Stage 2	-	-	-	-	-	-	619	589	-	677	645	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1137	-	-	1301	-	-	297	325	770	328	340	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	325	-	328	340	-
Stage 1	-	-	-	-	-	-	660	624	-	613	608	-
Stage 2	-	-	-	-	-	-	571	586	-	653	624	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	14.4	16.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	387	1137	-	-	1301	-	-	417
HCM Lane V/C Ratio	0.008	0.027	-	-	0.004	-	-	0.262
HCM Control Delay (s)	14.4	8.3	0	-	7.8	0	-	16.7
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	380	5	10	580	5	5
Future Vol, veh/h	380	5	10	580	5	5
Conflicting Peds, #/hr	0	4	2	0	4	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	384	5	10	586	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	393	0	1001	393
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	610	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1177	-	271	660
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	546	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1173	-	265	656
Mov Cap-2 Maneuver	-	-	-	-	265	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	544	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	378	-	-	1173	-
HCM Lane V/C Ratio	0.027	-	-	0.009	-
HCM Control Delay (s)	14.8	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	230	225	180	460	235	80
Future Volume (vph)	230	225	180	460	235	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1564	1804	1881	1787	1599
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1881	1564	854	1881	1787	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	245	239	191	489	250	85
RTOR Reduction (vph)	0	111	0	0	0	40
Lane Group Flow (vph)	245	128	191	489	250	45
Confl. Peds. (#/hr)		3	2		3	2
Heavy Vehicles (%)	1%	2%	0%	1%	1%	1%
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov
Protected Phases	2	8	1	6	8	1 4
Permitted Phases		2	6			8
Actuated Green, G (s)	12.9	25.1	25.8	25.8	12.2	25.1
Effective Green, g (s)	12.9	25.1	25.8	25.8	12.2	25.1
Actuated g/C Ratio	0.27	0.53	0.55	0.55	0.26	0.53
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	516	835	648	1032	463	853
v/s Ratio Prot	0.13	0.04	0.06	c0.26	c0.14	0.03
v/s Ratio Perm		0.04	0.11			
v/c Ratio	0.47	0.15	0.29	0.47	0.54	0.05
Uniform Delay, d1	14.2	5.6	5.6	6.5	15.0	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.3	0.3	1.2	0.0
Delay (s)	14.9	5.6	5.8	6.8	16.2	5.3
Level of Service	B	A	A	A	B	A
Approach Delay (s)	10.3			6.5	13.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	230	225	180	460	235	80	
Future Volume (vph)	230	225	180	460	235	80	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		225	225		250	0	
Storage Lanes		1	1		1	1	
Taper Length (ft)			25		25		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	30			30	30		
Link Distance (ft)	1753			1355	2620		
Travel Time (s)	39.8			30.8	59.5		
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov	
Protected Phases	2	8	1	6	8	1 4	4
Permitted Phases		2	6			8	
Detector Phase	2	8	1	6	8	1 4	
Switch Phase							
Minimum Initial (s)	10.0	5.0	5.0	10.0	5.0		5.0
Minimum Split (s)	28.0	22.5	9.5	15.0	22.5		22.0
Total Split (s)	55.0	30.0	20.0	75.0	30.0		30.0
Total Split (%)	52.4%	28.6%	19.0%	71.4%	28.6%		29%
Maximum Green (s)	50.0	26.0	16.0	70.0	26.0		26.0
Yellow Time (s)	4.0	3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Min	None	None	Min	None		None
Walk Time (s)	6.0	5.0			5.0		7.0
Flash Dont Walk (s)	17.0	13.0			13.0		11.0
Pedestrian Calls (#/hr)	0	0			0		0

Intersection Summary	
Area Type:	Other
Cycle Length: 105	
Actuated Cycle Length: 47.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	230	225	180	460	235	80
Future Volume (vph)	230	225	180	460	235	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1564	1804	1881	1787	1599
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1881	1564	854	1881	1787	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	245	239	191	489	250	85
RTOR Reduction (vph)	0	111	0	0	0	40
Lane Group Flow (vph)	245	128	191	489	250	45
Confl. Peds. (#/hr)		3	2		3	2
Heavy Vehicles (%)	1%	2%	0%	1%	1%	1%
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov
Protected Phases	2	8	1	6	8	1 4
Permitted Phases		2	6			8
Actuated Green, G (s)	12.9	25.1	25.8	25.8	12.2	25.1
Effective Green, g (s)	12.9	25.1	25.8	25.8	12.2	25.1
Actuated g/C Ratio	0.27	0.53	0.55	0.55	0.26	0.53
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	516	835	648	1032	463	853
v/s Ratio Prot	0.13	0.04	0.06	c0.26	c0.14	0.03
v/s Ratio Perm		0.04	0.11			
v/c Ratio	0.47	0.15	0.29	0.47	0.54	0.05
Uniform Delay, d1	14.2	5.6	5.6	6.5	15.0	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.3	0.3	1.2	0.0
Delay (s)	14.9	5.6	5.8	6.8	16.2	5.3
Level of Service	B	A	A	A	B	A
Approach Delay (s)	10.3			6.5	13.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	1	5	1	1	1	830	20	1	1075	1
Future Vol, veh/h	1	1	1	5	1	1	1	830	20	1	1075	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	2	0
Mvmt Flow	1	1	1	5	1	1	1	883	21	1	1144	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2044	2053	1145	2044	2043	894	1145	0	0	904	0	0
Stage 1	1147	1147	-	896	896	-	-	-	-	-	-	-
Stage 2	897	906	-	1148	1147	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	42	56	245	42	57	343	618	-	-	761	-	-
Stage 1	244	276	-	338	362	-	-	-	-	-	-	-
Stage 2	337	358	-	244	276	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	56	245	41	57	343	618	-	-	761	-	-
Mov Cap-2 Maneuver	41	56	-	41	57	-	-	-	-	-	-	-
Stage 1	243	275	-	337	361	-	-	-	-	-	-	-
Stage 2	334	357	-	241	275	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.2	91.2	0	0
HCM LOS	F	F		

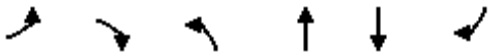
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	618	-	-	65	49	761	-	-
HCM Lane V/C Ratio	0.002	-	-	0.049	0.152	0.001	-	-
HCM Control Delay (s)	10.8	0	-	63.2	91.2	9.7	0	-
HCM Lane LOS	B	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0	-	-

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	30	1	70	70	240	1	25	40	215	55	45
Future Vol, veh/h	20	30	1	70	70	240	1	25	40	215	55	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	5	7	0	0	0	1	0	0	0	3	2	0
Mvmt Flow	21	31	1	72	72	247	1	26	41	222	57	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	12.4	8.8	12.8
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	39%	18%	68%
Vol Thru, %	38%	59%	18%	17%
Vol Right, %	61%	2%	63%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	66	51	380	315
LT Vol	1	20	70	215
Through Vol	25	30	70	55
RT Vol	40	1	240	45
Lane Flow Rate	68	53	392	325
Geometry Grp	1	1	1	1
Degree of Util (X)	0.098	0.083	0.504	0.472
Departure Headway (Hd)	5.174	5.681	4.633	5.235
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	631	768	692
Service Time	3.188	3.707	2.733	3.235
HCM Lane V/C Ratio	0.098	0.084	0.51	0.47
HCM Control Delay	8.8	9.2	12.4	12.8
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.3	2.9	2.5



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	120	235	1660	1560	420
Future Volume (vph)	170	120	235	1660	1560	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1752	1535	1770	3539	3471	1562
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1752	1535	1770	3539	3471	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	183	129	253	1785	1677	452
RTOR Reduction (vph)	0	113	0	0	0	169
Lane Group Flow (vph)	183	16	253	1785	1677	283
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	3%	3%	2%	2%	4%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	16.9	16.9	21.5	113.8	87.8	87.8
Effective Green, g (s)	16.9	16.9	21.5	113.8	87.8	87.8
Actuated g/C Ratio	0.12	0.12	0.15	0.81	0.63	0.63
Clearance Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	185	271	2876	2176	979
v/s Ratio Prot	c0.10		c0.14	0.50	c0.48	
v/s Ratio Perm		0.01				0.18
v/c Ratio	0.87	0.08	0.93	0.62	0.77	0.29
Uniform Delay, d1	60.4	54.7	58.5	4.9	18.8	11.9
Progression Factor	1.00	1.00	1.06	0.83	1.00	1.00
Incremental Delay, d2	29.1	0.2	24.2	0.5	2.7	0.7
Delay (s)	89.5	54.9	86.1	4.6	21.5	12.6
Level of Service	F	D	F	A	C	B
Approach Delay (s)	75.2			14.7	19.7	
Approach LOS	E			B	B	

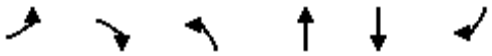
Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	120	235	1660	1560	420
Future Volume (vph)	170	120	235	1660	1560	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350	0	200			325
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	953			2701	1036	
Travel Time (s)	21.7			61.4	23.5	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	10.0	10.0	10.0
Minimum Split (s)	53.5	53.5	9.5	23.3	29.8	29.8
Total Split (s)	20.0	20.0	24.0	120.0	96.0	96.0
Total Split (%)	14.3%	14.3%	17.1%	85.7%	68.6%	68.6%
Maximum Green (s)	15.5	15.5	19.5	115.2	91.2	91.2
Yellow Time (s)	4.0	4.0	4.0	4.3	4.3	4.3
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.8	2.8	2.8
Time Before Reduce (s)	8.0	8.0	8.0	10.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	20.0	20.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	10.0	10.0			7.0	7.0
Flash Dont Walk (s)	39.0	39.0			18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 80 (57%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: OR 99 W & SW Beef Bend Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	120	235	1660	1560	420
Future Volume (veh/h)	170	120	235	1660	1560	420
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1841	1885
Adj Flow Rate, veh/h	183	129	253	1785	1677	452
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	2	2	4	1
Cap, veh/h	196	174	248	2924	2278	1017
Arrive On Green	0.11	0.11	0.28	1.00	0.65	0.65
Sat Flow, veh/h	1767	1572	1781	3647	3589	1561
Grp Volume(v), veh/h	183	129	253	1785	1677	452
Grp Sat Flow(s),veh/h/ln	1767	1572	1781	1777	1749	1561
Q Serve(g_s), s	14.4	11.1	19.5	0.0	45.0	19.9
Cycle Q Clear(g_c), s	14.4	11.1	19.5	0.0	45.0	19.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	196	174	248	2924	2278	1017
V/C Ratio(X)	0.94	0.74	1.02	0.61	0.74	0.44
Avail Cap(c_a), veh/h	196	174	248	2924	2278	1017
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.19	0.19	1.00	1.00
Uniform Delay (d), s/veh	61.8	60.3	50.5	0.0	16.3	12.0
Incr Delay (d2), s/veh	46.2	15.5	30.0	0.2	2.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	10.2	9.7	0.1	17.9	7.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	108.0	75.8	80.5	0.2	18.5	13.4
LnGrp LOS	F	E	F	A	B	B
Approach Vol, veh/h	312			2038	2129	
Approach Delay, s/veh	94.7			10.2	17.4	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		120.0		20.0	24.0	96.0
Change Period (Y+Rc), s		4.8		4.5	4.5	4.8
Max Green Setting (Gmax), s		115.2		15.5	19.5	91.2
Max Q Clear Time (g_c+I1), s		2.0		16.4	21.5	47.0
Green Ext Time (p_c), s		30.9		0.0	0.0	24.7

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	40	125	95	610	110	365	35	95	1350	205	10	325
Future Volume (vph)	40	125	95	610	110	365	35	95	1350	205	10	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lane Util. Factor		0.95		0.95	0.95	1.00		1.00	0.95	1.00		0.97
Frpb, ped/bikes		0.99		1.00	1.00	0.96		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.95		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		3300		1698	1732	1522		1795	3539	1529		3466
Flt Permitted		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		3300		1698	1732	1522		1795	3539	1529		3466
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	41	129	98	629	113	376	36	98	1392	211	10	335
RTOR Reduction (vph)	0	60	0	0	0	174	0	0	0	79	0	0
Lane Group Flow (vph)	0	208	0	371	371	202	0	134	1392	132	0	345
Confl. Peds. (#/hr)	18		1	9		26		1		9		26
Heavy Vehicles (%)	3%	1%	2%	1%	0%	2%	2%	0%	2%	3%	2%	1%
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Actuated Green, G (s)		13.9		35.3	35.3	35.3		14.4	53.3	53.3		18.5
Effective Green, g (s)		13.9		35.3	35.3	35.3		14.4	53.3	53.3		18.5
Actuated g/C Ratio		0.10		0.25	0.25	0.25		0.10	0.38	0.38		0.13
Clearance Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		327		428	436	383		184	1347	582		458
v/s Ratio Prot		c0.06		c0.22	0.21			0.07	c0.39			c0.10
v/s Ratio Perm						0.13				0.09		
v/c Ratio		0.64		0.87	0.85	0.53		0.73	1.03	0.23		0.75
Uniform Delay, d1		60.6		50.1	49.8	45.2		60.9	43.4	29.4		58.6
Progression Factor		1.00		1.00	1.00	1.00		0.89	1.19	1.65		0.83
Incremental Delay, d2		4.0		16.6	14.7	1.3		10.5	30.6	0.7		4.8
Delay (s)		64.6		66.7	64.5	46.5		64.6	82.2	49.1		53.6
Level of Service		E		E	E	D		E	F	D		D
Approach Delay (s)		64.6			59.2				76.9			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

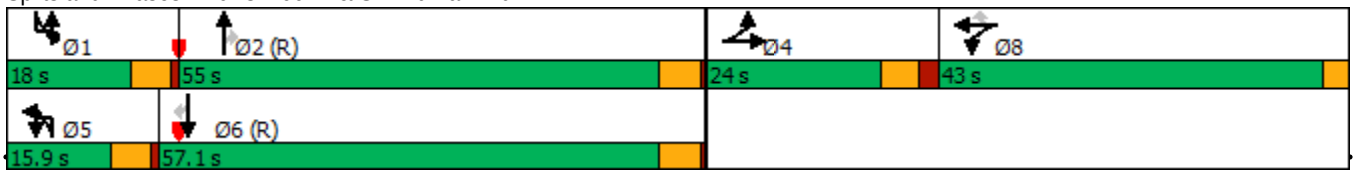
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	40	125	95	610	110	365	35	95	1350	205	10	325
Future Volume (vph)	40	125	95	610	110	365	35	95	1350	205	10	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	325		0		550		250		300
Storage Lanes	1		0	1		1		1		1		2
Taper Length (ft)	25			25				25				25
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			
Link Distance (ft)		869			1937				2415			
Travel Time (s)		19.8			44.0				54.9			
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Detector Phase	4	4		8	8	8	5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	4.0
Minimum Split (s)	24.0	24.0		43.0	43.0	43.0	9.5	9.5	34.0	34.0	9.5	9.5
Total Split (s)	24.0	24.0		43.0	43.0	43.0	15.9	15.9	55.0	55.0	18.0	18.0
Total Split (%)	17.1%	17.1%		30.7%	30.7%	30.7%	11.4%	11.4%	39.3%	39.3%	12.9%	12.9%
Maximum Green (s)	18.0	18.0		40.0	40.0	40.0	10.9	10.9	50.0	50.0	13.0	13.0
Yellow Time (s)	4.0	4.0		3.0	3.0	3.0	4.0	4.0	4.3	4.3	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	0.0	0.0	1.0	1.0	0.7	0.7	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lead/Lag							Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	2.5	2.5	0.5	0.5
Time Before Reduce (s)	8.0	8.0		1.0	1.0	1.0	8.0	8.0	10.0	10.0	8.0	8.0
Time To Reduce (s)	3.0	3.0		1.0	1.0	1.0	3.0	3.0	20.0	20.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	None
Walk Time (s)				5.0	5.0	5.0			7.0	7.0		
Flash Dont Walk (s)				35.0	35.0	35.0			22.0	22.0		
Pedestrian Calls (#/hr)				0	0	0			0	0		

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 49 (35%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 9: OR 99 W & SW Durham Rd



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1245	30
Future Volume (vph)	1245	30
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	5.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.93
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3438	1496
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3438	1496
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1284	31
RTOR Reduction (vph)	0	18
Lane Group Flow (vph)	1284	13
Confl. Peds. (#/hr)		18
Heavy Vehicles (%)	5%	0%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	57.4	57.4
Effective Green, g (s)	57.4	57.4
Actuated g/C Ratio	0.41	0.41
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1409	613
v/s Ratio Prot	c0.37	
v/s Ratio Perm		0.01
v/c Ratio	0.91	0.02
Uniform Delay, d1	38.9	24.6
Progression Factor	0.84	1.00
Incremental Delay, d2	7.5	0.0
Delay (s)	40.2	24.6
Level of Service	D	C
Approach Delay (s)	42.7	
Approach LOS	D	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	40	125	95	610	110	365	35	95	1350	205	10	325
Future Volume (veh/h)	40	125	95	610	110	365	35	95	1350	205	10	325
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.97		1.00		0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1900	1870		1900	1870	1856		1885
Adj Flow Rate, veh/h	41	129	98	710	0	376		98	1392	211		335
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97		0.97
Percent Heavy Veh, %	1	1	1	1	0	2		0	2	3		1
Cap, veh/h	50	158	120	980	0	420		120	1426	627		323
Arrive On Green	0.10	0.10	0.10	0.27	0.00	0.27		0.07	0.40	0.40		0.09
Sat Flow, veh/h	518	1628	1229	3591	0	1540		1810	3554	1562		3483
Grp Volume(v), veh/h	147	0	121	710	0	376		98	1392	211		335
Grp Sat Flow(s),veh/h/ln	1859	0	1516	1795	0	1540		1810	1777	1562		1742
Q Serve(g_s), s	10.9	0.0	10.9	25.1	0.0	32.9		7.5	54.0	13.1		13.0
Cycle Q Clear(g_c), s	10.9	0.0	10.9	25.1	0.0	32.9		7.5	54.0	13.1		13.0
Prop In Lane	0.28		0.81	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	181	0	147	980	0	420		120	1426	627		323
V/C Ratio(X)	0.81	0.00	0.82	0.72	0.00	0.89		0.82	0.98	0.34		1.04
Avail Cap(c_a), veh/h	239	0	195	1026	0	440		141	1426	627		323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		0.72	0.72	0.72		0.58
Uniform Delay (d), s/veh	62.0	0.0	62.0	46.1	0.0	49.0		64.5	41.3	29.0		63.5
Incr Delay (d2), s/veh	14.8	0.0	18.3	2.4	0.0	19.8		20.0	15.3	1.0		47.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	5.0	11.6	0.0	14.9		4.1	26.4	5.2		7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.7	0.0	80.3	48.6	0.0	68.8		84.6	56.6	30.1		111.2
LnGrp LOS	E	A	F	D	A	E		F	E	C		F
Approach Vol, veh/h		268			1086				1701			
Approach Delay, s/veh		78.3			55.6				54.9			
Approach LOS		E			E				D			

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	61.2		19.6	14.3	64.9		41.2				
Change Period (Y+Rc), s	5.0	* 5		6.0	5.0	* 5		3.0				
Max Green Setting (Gmax), s	13.0	* 50		18.0	10.9	* 52		40.0				
Max Q Clear Time (g_c+I1), s	15.0	56.0		12.9	9.5	49.1		34.9				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	2.2		2.1				

Intersection Summary		
HCM 6th Ctrl Delay		56.3
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1245	30
Future Volume (veh/h)	1245	30
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.97
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1826	1900
Adj Flow Rate, veh/h	1284	31
Peak Hour Factor	0.97	0.97
Percent Heavy Veh, %	5	0
Cap, veh/h	1484	668
Arrive On Green	0.43	0.43
Sat Flow, veh/h	3469	1561
Grp Volume(v), veh/h	1284	31
Grp Sat Flow(s),veh/h/ln	1735	1561
Q Serve(g_s), s	47.1	1.6
Cycle Q Clear(g_c), s	47.1	1.6
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	1484	668
V/C Ratio(X)	0.87	0.05
Avail Cap(c_a), veh/h	1484	668
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	0.58	0.58
Uniform Delay (d), s/veh	36.4	23.4
Incr Delay (d2), s/veh	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.6	0.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	40.6	23.5
LnGrp LOS	D	C
Approach Vol, veh/h	1650	
Approach Delay, s/veh	54.6	
Approach LOS	D	
Timer - Assigned Phs		

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	125	295	330	1670	30	1785	260
Future Volume (vph)	125	295	330	1670	30	1785	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1524	1770	3539	1805	3471	1557
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1524	1770	3539	1805	3471	1557
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	130	307	344	1740	31	1859	271
RTOR Reduction (vph)	0	244	0	0	0	0	104
Lane Group Flow (vph)	130	63	344	1740	31	1859	167
Confl. Peds. (#/hr)	2	8	8				2
Heavy Vehicles (%)	1%	4%	2%	2%	0%	4%	1%
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Actuated Green, G (s)	13.7	13.7	29.2	105.4	5.4	80.6	80.6
Effective Green, g (s)	13.7	13.7	29.2	105.4	5.4	80.6	80.6
Actuated g/C Ratio	0.10	0.10	0.21	0.75	0.04	0.58	0.58
Clearance Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	174	149	369	2664	69	1998	896
v/s Ratio Prot	c0.07		c0.19	0.49	0.02	c0.54	
v/s Ratio Perm		0.04					0.11
v/c Ratio	0.75	0.42	0.93	0.65	0.45	0.93	0.19
Uniform Delay, d1	61.5	59.4	54.4	8.4	65.8	27.1	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.02	0.67	0.95
Incremental Delay, d2	16.0	1.9	30.0	1.3	2.7	5.9	0.3
Delay (s)	77.4	61.3	84.5	9.7	70.1	24.0	13.6
Level of Service	E	E	F	A	E	C	B
Approach Delay (s)	66.1			22.0		23.3	
Approach LOS	E			C		C	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	125	295	330	1670	30	1785	260
Future Volume (vph)	125	295	330	1670	30	1785	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275	0	450		300		350
Storage Lanes	1	1	1		1		2
Taper Length (ft)	25		25		25		
Right Turn on Red		Yes					Yes
Link Speed (mph)	30			30		30	
Link Distance (ft)	3472			3888		2415	
Travel Time (s)	78.9			88.4		54.9	
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Detector Phase	4	4	5	2	1	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	55.0	55.0	9.5	24.0	9.5	29.0	29.0
Total Split (s)	20.0	20.0	35.0	100.0	20.0	85.0	85.0
Total Split (%)	14.3%	14.3%	25.0%	71.4%	14.3%	60.7%	60.7%
Maximum Green (s)	15.0	15.0	29.5	94.0	15.5	79.0	79.0
Yellow Time (s)	3.5	3.5	4.0	5.0	3.5	5.0	5.0
All-Red Time (s)	1.5	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.5	0.5	2.5	2.5
Time Before Reduce (s)	8.0	8.0	8.0	10.0	8.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	3.0	20.0	20.0
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min
Walk Time (s)	7.0	7.0				7.0	7.0
Flash Dont Walk (s)	43.0	43.0				16.0	16.0
Pedestrian Calls (#/hr)	0	0				0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 81 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 10: OR 99 W & SW Fischer Rd

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	125	295	330	1670	30	1785	260
Future Volume (veh/h)	125	295	330	1670	30	1785	260
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1885	1841	1870	1870		1841	1885
Adj Flow Rate, veh/h	130	307	344	1740		1859	271
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96
Percent Heavy Veh, %	1	4	2	2		4	1
Cap, veh/h	192	167	366	2894		1992	909
Arrive On Green	0.11	0.11	0.21	0.81		1.00	1.00
Sat Flow, veh/h	1795	1560	1781	3647		3589	1595
Grp Volume(v), veh/h	130	307	344	1740		1859	271
Grp Sat Flow(s),veh/h/ln	1795	1560	1781	1777		1749	1595
Q Serve(g_s), s	9.8	15.0	26.6	24.9		0.0	0.0
Cycle Q Clear(g_c), s	9.8	15.0	26.6	24.9		0.0	0.0
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	192	167	366	2894		1992	909
V/C Ratio(X)	0.68	1.84	0.94	0.60		0.93	0.30
Avail Cap(c_a), veh/h	192	167	375	2894		1992	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00		2.00	2.00
Upstream Filter(I)	1.00	1.00	0.77	0.77		0.31	0.31
Uniform Delay (d), s/veh	60.2	62.5	54.8	4.7		0.0	0.0
Incr Delay (d2), s/veh	9.0	398.9	26.3	0.7		3.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	30.8	14.6	7.7		1.0	0.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	69.2	461.4	81.1	5.4		3.5	0.3
LnGrp LOS	E	F	F	A		A	A
Approach Vol, veh/h	437			2084		2130	
Approach Delay, s/veh	344.7			17.9		3.1	
Approach LOS	F			B		A	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		120.0		20.0	34.2	85.8	
Change Period (Y+Rc), s		6.0		5.0	5.5	6.0	
Max Green Setting (Gmax), s		94.0		15.0	29.5	79.0	
Max Q Clear Time (g_c+I1), s		26.9		17.0	28.6	2.0	
Green Ext Time (p_c), s		26.0		0.0	0.1	34.9	

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

Notes
User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	490	650	900	155	650	1390
Future Volume (vph)	490	650	900	155	650	1390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	5.0	6.0	6.0	5.6	6.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467	2814	3505	1462	3303	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467	2814	3505	1462	3303	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	521	691	957	165	691	1479
RTOR Reduction (vph)	0	172	0	100	0	0
Lane Group Flow (vph)	521	519	957	65	691	1479
Confl. Peds. (#/hr)	2	8		2	8	
Heavy Vehicles (%)	1%	1%	3%	9%	6%	3%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	4 1	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	17.6	38.3	32.4	32.4	14.7	52.7
Effective Green, g (s)	17.6	38.3	32.4	32.4	14.7	52.7
Actuated g/C Ratio	0.21	0.47	0.39	0.39	0.18	0.64
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	741	1309	1379	575	589	2244
v/s Ratio Prot	c0.15	0.18	0.27		c0.21	c0.42
v/s Ratio Perm				0.04		
v/c Ratio	0.70	0.40	0.69	0.11	1.17	0.66
Uniform Delay, d1	29.9	14.4	20.8	15.8	33.8	9.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2	1.5	0.1	94.9	0.7
Delay (s)	33.0	14.6	22.3	15.9	128.7	9.9
Level of Service	C	B	C	B	F	A
Approach Delay (s)	22.5		21.4			47.8
Approach LOS	C		C			D

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	20.6
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	490	650	900	155	650	1390		
Future Volume (vph)	490	650	900	155	650	1390		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	325		225	675			
Storage Lanes	2	2		1	2			
Taper Length (ft)	25				25			
Right Turn on Red		Yes		Yes				
Link Speed (mph)	30		30			30		
Link Distance (ft)	2010		1506			3888		
Travel Time (s)	45.7		34.2			88.4		
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA		
Protected Phases	8	4 1	2		1	6	3	4
Permitted Phases				2				
Detector Phase	8	4 1	2	2	1	6		
Switch Phase								
Minimum Initial (s)	6.0		10.0	10.0	4.0	10.0	4.0	5.0
Minimum Split (s)	41.0		37.0	37.0	9.6	25.0	15.0	10.0
Total Split (s)	30.0		50.0	50.0	20.0	70.0	10.0	20.0
Total Split (%)	30.0%		50.0%	50.0%	20.0%	70.0%	10%	20%
Maximum Green (s)	24.0		44.0	44.0	14.4	64.0	6.0	15.0
Yellow Time (s)	4.0		5.0	5.0	4.5	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	1.0	1.1	1.0	0.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0		6.0	6.0	5.6	6.0		
Lead/Lag			Lag	Lag	Lead		Lead	Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5		3.4	3.4	0.5	3.4	0.2	0.5
Time Before Reduce (s)	8.0		10.0	10.0	8.0	10.0	0.0	8.0
Time To Reduce (s)	3.0		20.0	20.0	3.0	20.0	0.0	3.0
Recall Mode	None		Min	Min	None	Min	None	None
Walk Time (s)	8.0		9.0	9.0			5.0	
Flash Dont Walk (s)	27.0		22.0	22.0			6.0	
Pedestrian Calls (#/hr)	0		0	0			0	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 82.5
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: OR 99 W & SW 124th Ave

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	490	650	900	155	650	1390
Future Volume (vph)	490	650	900	155	650	1390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	5.0	6.0	6.0	5.6	6.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467	2814	3505	1462	3303	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467	2814	3505	1462	3303	3505
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	521	691	957	165	691	1479
RTOR Reduction (vph)	0	172	0	100	0	0
Lane Group Flow (vph)	521	519	957	65	691	1479
Confl. Peds. (#/hr)	2	8		2	8	
Heavy Vehicles (%)	1%	1%	3%	9%	6%	3%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	4 1	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	17.6	38.3	32.4	32.4	14.7	52.7
Effective Green, g (s)	17.6	38.3	32.4	32.4	14.7	52.7
Actuated g/C Ratio	0.21	0.47	0.39	0.39	0.18	0.64
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	741	1309	1379	575	589	2244
v/s Ratio Prot	c0.15	0.18	0.27		c0.21	c0.42
v/s Ratio Perm				0.04		
v/c Ratio	0.70	0.40	0.69	0.11	1.17	0.66
Uniform Delay, d1	29.9	14.4	20.8	15.8	33.8	9.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.2	1.5	0.1	94.9	0.7
Delay (s)	33.0	14.6	22.3	15.9	128.7	9.9
Level of Service	C	B	C	B	F	A
Approach Delay (s)	22.5		21.4			47.8
Approach LOS	C		C			D

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	20.6
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	115	420	95	465	355	70	10	170	695	330	120	1325
Future Volume (vph)	115	420	95	465	355	70	10	170	695	330	120	1325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	0.95	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.97
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1645	3324		3400	1827	1443		1719	3471	1568	1687	4897
Flt Permitted	0.55	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	944	3324		3400	1827	1443		1719	3471	1568	1687	4897
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	117	429	97	474	362	71	10	173	709	337	122	1352
RTOR Reduction (vph)	0	15	0	0	0	43	0	0	0	209	0	34
Lane Group Flow (vph)	117	511	0	474	362	28	0	183	709	128	122	1660
Confl. Peds. (#/hr)	12		6			6	6	6			6	
Heavy Vehicles (%)	9%	5%	6%	3%	4%	10%	5%	5%	4%	3%	7%	2%
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Actuated Green, G (s)	23.5	23.5		20.9	50.4	50.4		15.5	49.5	49.5	13.6	47.6
Effective Green, g (s)	23.5	23.5		20.9	50.4	50.4		15.5	49.5	49.5	13.6	47.6
Actuated g/C Ratio	0.18	0.18		0.16	0.39	0.39		0.12	0.38	0.38	0.10	0.37
Clearance Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	170	600		546	708	559		204	1321	597	176	1793
v/s Ratio Prot		c0.15		c0.14	0.20			c0.11	0.20		0.07	c0.34
v/s Ratio Perm	0.12					0.02				0.08		
v/c Ratio	0.69	0.85		0.87	0.51	0.05		0.90	0.54	0.21	0.69	0.93
Uniform Delay, d1	49.8	51.6		53.2	30.4	24.8		56.5	31.3	27.1	56.2	39.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.0	11.2		13.7	0.6	0.0		35.8	1.6	0.8	11.2	9.7
Delay (s)	60.8	62.8		66.9	31.0	24.9		92.2	32.9	28.0	67.4	49.2
Level of Service	E	E		E	C	C		F	C	C	E	D
Approach Delay (s)		62.4			49.3				40.4			50.5
Approach LOS		E			D				D			D

Intersection Summary			
HCM 2000 Control Delay	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR
Lane Configurations	
Traffic Volume (vph)	335
Future Volume (vph)	335
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	342
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	12
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

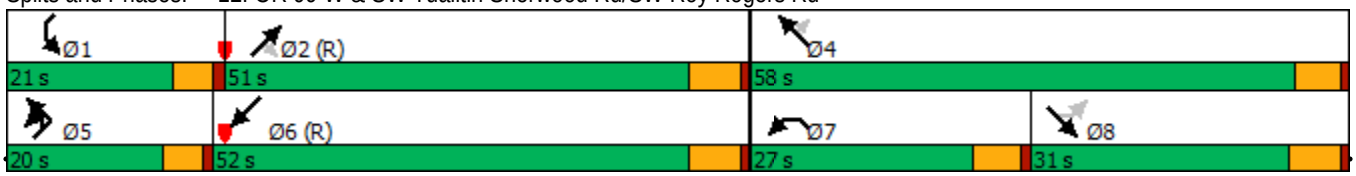
Intersection Summary

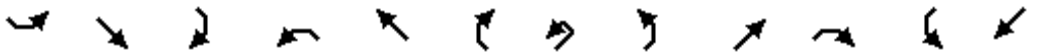
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	115	420	95	465	355	70	10	170	695	330	120	1325
Future Volume (vph)	115	420	95	465	355	70	10	170	695	330	120	1325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		350	275		275		675		275	300	
Storage Lanes	1		1	2		1		1		1	1	
Taper Length (ft)	25			25				25			25	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		30			30				30			30
Link Distance (ft)		1104			1161				1334			1923
Travel Time (s)		25.1			26.4				30.3			43.7
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Detector Phase	8	8		7	4	4	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.0	24.0		11.5	48.5	48.5	9.5	9.5	42.0	42.0	9.5	37.0
Total Split (s)	31.0	31.0		27.0	58.0	58.0	20.0	20.0	51.0	51.0	21.0	52.0
Total Split (%)	23.8%	23.8%		20.8%	44.6%	44.6%	15.4%	15.4%	39.2%	39.2%	16.2%	40.0%
Maximum Green (s)	25.0	25.0		21.5	52.5	52.5	15.0	15.0	45.0	45.0	16.0	46.0
Yellow Time (s)	5.0	5.0		4.5	4.5	4.5	4.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lag	Lag		Lead			Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.2	0.2	1.0	1.0	2.4	2.4	2.0	2.4
Time Before Reduce (s)	8.0	8.0		8.0	0.0	0.0	8.0	8.0	10.0	10.0	8.0	10.0
Time To Reduce (s)	3.0	3.0		3.0	0.0	0.0	3.0	3.0	20.0	20.0	3.0	20.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)					10.0	10.0			8.0	8.0		9.0
Flash Dont Walk (s)					33.0	33.0			28.0	28.0		22.0
Pedestrian Calls (#/hr)					0	0			0	0		0

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 74 (57%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd





Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (veh/h)	115	420	95	465	355	70	10	170	695	330	120	1325
Future Volume (veh/h)	115	420	95	465	355	70	10	170	695	330	120	1325
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No
Adj Sat Flow, veh/h/ln	1767	1826	1826	1856	1841	1752		1826	1841	1856	1796	1870
Adj Flow Rate, veh/h	117	429	97	474	362	71		173	709	337	122	1352
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	5	5	3	4	10		5	4	3	7	2
Cap, veh/h	213	493	110	528	685	550		197	1440	643	146	1557
Arrive On Green	0.18	0.18	0.18	0.15	0.37	0.37		0.11	0.41	0.41	0.09	0.38
Sat Flow, veh/h	897	2804	628	3428	1841	1477		1739	3497	1561	1711	4055
Grp Volume(v), veh/h	117	264	262	474	362	71		173	709	337	122	1134
Grp Sat Flow(s),veh/h/ln	897	1735	1697	1714	1841	1477		1739	1749	1561	1711	1702
Q Serve(g_s), s	16.1	19.2	19.6	17.6	20.0	4.1		12.7	19.4	21.1	9.1	40.0
Cycle Q Clear(g_c), s	16.1	19.2	19.6	17.6	20.0	4.1		12.7	19.4	21.1	9.1	40.0
Prop In Lane	1.00		0.37	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	213	305	298	528	685	550		197	1440	643	146	1307
V/C Ratio(X)	0.55	0.87	0.88	0.90	0.53	0.13		0.88	0.49	0.52	0.83	0.87
Avail Cap(c_a), veh/h	228	334	326	567	743	597		201	1440	643	211	1307
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	52.1	52.2	54.0	31.9	26.9		56.8	28.2	28.7	58.5	37.0
Incr Delay (d2), s/veh	2.4	19.4	21.6	16.4	0.6	0.1		32.5	1.2	3.0	17.2	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	10.0	10.1	8.8	9.0	1.5		7.4	8.4	8.4	4.7	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	71.4	73.8	70.4	32.5	27.0		89.3	29.4	31.7	75.8	45.0
LnGrp LOS	D	E	E	E	C	C		F	C	C	E	D
Approach Vol, veh/h		643			907				1219			1816
Approach Delay, s/veh		69.1			51.9				38.6			49.2
Approach LOS		E			D				D			D

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	59.5		54.4	19.7	55.9	25.5	28.9
Change Period (Y+Rc), s	5.0	6.0		* 6	5.0	6.0	5.5	6.0
Max Green Setting (Gmax), s	16.0	45.0		* 53	15.0	46.0	21.5	25.0
Max Q Clear Time (g_c+I1), s	11.1	23.1		22.0	14.7	42.2	19.6	21.6
Green Ext Time (p_c), s	0.1	6.4		2.6	0.0	3.1	0.4	1.3

Intersection Summary		
HCM 6th Ctrl Delay		49.7
HCM 6th LOS		D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SWR
Lane Configurations	
Traffic Volume (veh/h)	335
Future Volume (veh/h)	335
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	342
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	393
Arrive On Green	0.38
Sat Flow, veh/h	1023
Grp Volume(v), veh/h	560
Grp Sat Flow(s),veh/h/ln	1675
Q Serve(g_s), s	40.2
Cycle Q Clear(g_c), s	40.2
Prop In Lane	0.61
Lane Grp Cap(c), veh/h	643
V/C Ratio(X)	0.87
Avail Cap(c_a), veh/h	643
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	37.1
Incr Delay (d2), s/veh	15.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	18.9
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	52.0
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Queuing and Blocking Report

Intersection: 1: SW Roy Rogers Rd & SW Beef Bend Rd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	R	L	TR
Maximum Queue (ft)	30	124	284	441	175	200	822
Average Queue (ft)	2	95	123	245	55	144	222
95th Queue (ft)	16	142	246	386	169	218	538
Link Distance (ft)	820		2532	3917			1157
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		100			150	175	
Storage Blk Time (%)		13	11	18	0	10	3
Queuing Penalty (veh)		31	17	12	0	87	6

Intersection: 2: SW Elsner Rd/SW Taylor Ln & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	5	15	44	28
Average Queue (ft)	0	2	21	2
95th Queue (ft)	4	14	44	14
Link Distance (ft)	2532	2697	1074	1032
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SW 150th Ave & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	79	22	25	82
Average Queue (ft)	11	1	3	40
95th Queue (ft)	48	9	19	66
Link Distance (ft)	2697	3207	1237	1071
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

Intersection: 4: SW 137th Ave & SW Beef Bend Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	11	53	28
Average Queue (ft)	1	3	8
95th Queue (ft)	11	22	29
Link Distance (ft)	3207	1693	1323
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	170	100	129	170	159	72
Average Queue (ft)	76	42	54	81	80	22
95th Queue (ft)	138	81	95	142	140	51
Link Distance (ft)	1693			1323		2536
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	225		250	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: SW Roy Rogers Rd & SW Elsner Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	44	37	15
Average Queue (ft)	5	8	2	1
95th Queue (ft)	23	32	22	11
Link Distance (ft)	986	1118	1308	3917
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

Intersection: 7: SW 131st Ave & SW Fischer Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	70	206	59	169
Average Queue (ft)	30	94	32	78
95th Queue (ft)	59	168	52	127
Link Distance (ft)	824	3372	1052	2536
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: OR 99 W & SW Beef Bend Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	289	135	225	564	586	492	477	316
Average Queue (ft)	149	65	186	220	206	259	225	91
95th Queue (ft)	257	117	263	521	498	410	389	203
Link Distance (ft)		887		2603	2603	1006	1006	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	350		200					325
Storage Blk Time (%)	0		25	0			1	0
Queuing Penalty (veh)	0		210	1			3	0

Queuing and Blocking Report

Intersection: 9: OR 99 W & SW Durham Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	LT	R	UL	T	T	R	UL	L	T
Maximum Queue (ft)	226	274	350	530	292	434	811	827	275	262	325	928
Average Queue (ft)	106	160	244	282	147	159	452	462	164	152	270	584
95th Queue (ft)	204	249	352	424	244	434	804	824	362	236	403	944
Link Distance (ft)		805		1874	1874		2330	2330				2603
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		325			550			250	300	300	
Storage Blk Time (%)	0	1	0	4			9	31	0	0	0	29
Queuing Penalty (veh)	0	1	2	11			11	63	1	0	0	98

Intersection: 9: OR 99 W & SW Durham Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	940	425
Average Queue (ft)	590	61
95th Queue (ft)	947	289
Link Distance (ft)	2603	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		400
Storage Blk Time (%)	26	0
Queuing Penalty (veh)	8	0

Intersection: 10: OR 99 W & SW Fischer Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	U	T	T	R
Maximum Queue (ft)	300	630	475	3366	3336	270	895	919	375
Average Queue (ft)	169	321	464	1991	1971	57	365	370	95
95th Queue (ft)	333	652	517	3868	3865	188	760	780	293
Link Distance (ft)		3372		3820	3820		2330	2330	
Upstream Blk Time (%)				8	7				
Queuing Penalty (veh)				62	57				
Storage Bay Dist (ft)	275		450			300			350
Storage Blk Time (%)	0	23	80	3			12	8	0
Queuing Penalty (veh)	1	29	666	9			4	22	0

Queuing and Blocking Report

Intersection: 11: OR 99 W & SW 124th Ave

Movement	NW	NW	NW	NW	NE	NE	NE	SW	SW	SW	SW
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	444	467	233	222	503	512	132	524	518	519	505
Average Queue (ft)	180	175	123	85	227	211	56	340	349	155	153
95th Queue (ft)	499	542	245	226	699	682	142	536	541	469	422
Link Distance (ft)	1950	1950			1459	1459				3820	3820
Upstream Blk Time (%)					3	3					
Queuing Penalty (veh)					0	0					
Storage Bay Dist (ft)			325	325			225	675	675		
Storage Blk Time (%)		0	5	3		6	0	0	2	0	
Queuing Penalty (veh)		0	12	8		10	0	2	11	2	

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

Movement	SE	SE	SE	NW	NW	NW	NW	NE	NE	NE	NE	SW
Directions Served	L	T	TR	L	L	T	R	UL	T	T	R	L
Maximum Queue (ft)	262	387	340	287	300	535	211	305	321	297	238	325
Average Queue (ft)	137	213	182	204	237	243	36	175	187	169	76	136
95th Queue (ft)	255	318	279	304	325	456	116	287	274	255	155	300
Link Distance (ft)		1046				1106			1282	1282		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		350	275	275		275	675			275	300
Storage Blk Time (%)	2	4	0	1	4	1	0			0	0	0
Queuing Penalty (veh)	12	16	0	2	19	7	0			1	0	0

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

Movement	SW	SW	SW
Directions Served	T	T	TR
Maximum Queue (ft)	527	540	375
Average Queue (ft)	327	329	295
95th Queue (ft)	484	491	400
Link Distance (ft)	1865	1865	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			350
Storage Blk Time (%)	10	3	3
Queuing Penalty (veh)	12	26	13

Network Summary

Network wide Queuing Penalty: 1567

APPENDIX D
TRAFFIC FORECASTING WORKSHEETS

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment: 1.0038

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**	BACKGROUND GROWTH	Volume Adjustments	**BACKGROUND 2035 VOLUMES**	With Project Growth	Volume Adjustments	**With Project 2035 Volumes**
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
1		L	153	0	**153**	59	-40	**172**	-6		**165**
SW Roy Rogers Rd	WB	T	0	0	**0**	0		**0**	0		**0**
SW Beef Bend Rd		R	242	0	**242**	92	40	**374**	-14		**360**
		L	1	0	**1**	0		**1**	0		**1**
TMC Date: 02/13/2018	NB	T	795	0	**795**	607	-25	**1,377**	-189	-25	**1,163**
		R	70	0	**70**	53	25	**148**	-21	25	**152**
Peak Hour: 4:35 - 5:35 PM		L	208	0	**208**	110	62	**380**	-23	-175	**182**
PHF: .96	SB	T	891	0	**891**	470	-62	**1,299**	-77	175	**1,397**
		R	0	0	**0**	0		**0**	0		**0**
			2,360								
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	280	0	**280**	159		**439**	-35	-200	**204**
		R	0	0	**0**	0		**0**	0	50	**50**
2		L	6	0	**6**	12		**18**	-5		**12**
SW Elsner Rd/SW April Ln	WB	T	379	0	**379**	568		**947**	-55		**893**
SW Beef Bend Rd		R	0	0	**0**	0		**0**	0		**0**
		L	6	0	**6**	36		**42**	11		**52**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0		**0**	0		**0**
		R	23	0	**23**	134		**157**	40		**197**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .94	SB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
			694								
		L	31	0	**31**	7		**38**	-15	50	**73**
	EB	T	266	0	**266**	63		**329**	-135	-150	**44**
		R	0	0	**0**	0		**0**	0	100	**100**
3		L	2	0	**2**	0		**2**	0	250	**252**
SW 150th Ave	WB	T	337	0	**337**	418	25	**780**	-179		**602**
SW Beef Bend Rd		R	71	0	**71**	87	-25	**133**	-32	50	**151**
		L	0	0	**0**	0		**0**	0	100	**100**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0		**0**	0	50	**50**
		R	1	0	**1**	0		**1**	300	-150	**151**
Peak Hour: 4:35 - 5:35 PM		L	59	0	**59**	90	-40	**109**	-25		**84**
PHF: .97	SB	T	0	0	**0**	0		**0**	0		**0**
		R	47	0	**47**	70	40	**157**	-35		**122**
			814								

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment: 1.0038

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**	BACKGROUND GROWTH	Volume Adjustments	**BACKGROUND 2035 VOLUMES**	With Project Growth	Volume Adjustments	**With Project 2035 Volumes**
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	379	0	**379**	99		**478**	-158	-50	**270**
		R	5	0	**5**	1		**6**	-2	50	**54**
4		L	11	0	**11**	11		**22**	-5		**17**
SW 137th Ave	WB	T	580	0	**580**	539		**1,119**	-235	50	**934**
SW Beef Bend Rd		R	0	0	**0**	0		**0**	0		**0**
		L	3	0	**3**	0		**3**	30		**33**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0		**0**	0		**0**
		R	7	0	**7**	0		**7**	70		**77**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .99	SB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
			985								
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	229	0	**229**	45	100	**374**	-104	100	**371**
		R	226	0	**226**	45	-100	**171**	-47	-100	**25**
5		L	179	0	**179**	115	-170	**124**	12	-25	**111**
SW 131st Ave	WB	T	458	0	**458**	295	170	**923**	88	25	**1,036**
SW Beef Bend Rd		R	0	0	**0**	0		**0**	0		**0**
		L	236	0	**236**	7		**243**	-289	70	**25**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0		**0**	0		**0**
		R	82	0	**82**	3		**85**	-101	42	**25**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .94	SB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
			1,410								
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
6		L	6	0	**6**	60		**66**	-9		**58**
SW Roy Rogers Rd	WB	T	0	0	**0**	0		**0**	0		**0**
SW Elsner Rd		R	1	0	**1**	10		**11**	-1		**9**
		L	0	0	**0**	0		**0**	0		**0**
TMC Date: 02/13/2018	NB	T	830	0	**830**	795	-150	**1,475**	0		**1,475**
		R	22	0	**22**	25	150	**197**	0		**197**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .94	SB	T	1,075	0	**1,075**	330		**1,405**	-30		**1,375**
		R	0	0	**0**	0		**0**	0		**0**
			1,934								

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment: 1.0038

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**	BACKGROUND GROWTH	Volume Adjustments	**BACKGROUND 2035 VOLUMES**	With Project Growth	Volume Adjustments	**With Project 2035 Volumes**
		L	20	0	**20**	0		**20**	160	-155	**25**
	EB	T	29	0	**29**	0		**29**	232	155	**416**
		R	1	0	**1**	0		**1**	8		**9**
7		L	68	0	**68**	5		**73**	54	-50	**77**
SW 131st Ave	WB	T	72	0	**72**	6		**78**	57	471	**606**
SW Fischer Rd		R	238	0	**238**	19		**257**	189	-421	**25**
		L	1	0	**1**	0		**1**	0		**1**
TMC Date: 02/13/2018	NB	T	25	0	**25**	0		**25**	0		**25**
		R	39	0	**39**	0		**39**	0		**39**
Peak Hour: 4:35 - 5:35 PM		L	213	0	**213**	-177		**36**	-40	9	**5**
PHF: .97	SB	T	54	0	**54**	-44		**10**	-11	6	**5**
		R	47	0	**47**	-39		**8**	-9	6	**5**
			807								
		L	170	1	**171**	77		**248**	100		**348**
	EB	T	0	0	**0**	0		**0**	0		**0**
		R	118	0	**118**	53		**171**	70		**241**
8		L	0	0	**0**	0		**0**	0		**0**
SR 99 W	WB	T	0	0	**0**	0		**0**	0		**0**
SW Beef Bend Rd		R	0	0	**0**	0		**0**	0		**0**
		L	236	1	**237**	49	150	**436**	6	150	**592**
TMC Date: 02/13/2018	NB	T	1,654	6	**1,660**	361	-150	**1,871**	24	-150	**1,745**
		R	0	0	**0**	0		**0**	0		**0**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .93	SB	T	1,554	6	**1,560**	213	-150	**1,623**	0	-150	**1,473**
		R	416	2	**418**	57	150	**625**	0	150	**775**
			4,148								
		L	38	0	**38**	0	10	**48**	0		**48**
	EB	T	126	0	**126**	0	50	**176**	0		**176**
		R	96	0	**96**	0	10	**106**	0		**106**
9		L	608	2	**610**	392	-100	**902**	26		**928**
SR 99 W	WB	T	108	0	**108**	70	100	**278**	8		**286**
SW Durham Rd		R	363	1	**364**	238		**602**	17		**619**
		L	97	0	**97**	19		**116**	0		**116**
TMC Date: 02/13/2018	NB	T	1,345	5	**1,350**	256	-100	**1,506**	0		**1,506**
		R	202	1	**203**	38	100	**341**	0		**341**
		U	35	0	**35**	6		**41**	0		**41**
Peak Hour: 4:35 - 5:35 PM		L	323	1	**324**	20		**344**	-18		**326**
PHF: .97	SB	T	1,242	5	**1,247**	78		**1,325**	-70		**1,255**
		R	30	0	**30**	2		**32**	-2		**30**
		U	8	0	**8**	0		**8**	0		**8**
			4,621								

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment: 1.0038

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**	BACKGROUND GROWTH	Volume Adjustments	**BACKGROUND 2035 VOLUMES**	With Project Growth	Volume Adjustments	**With Project 2035 Volumes**
		L	124	0	**124**	-17		**107**	75	-50	**132**
	EB	T	0	0	**0**	0		**0**	0		**0**
		R	296	1	**297**	-43		**254**	175	50	**479**
10		L	0	0	**0**	0		**0**	0		**0**
SR 99 W	WB	T	0	0	**0**	0		**0**	0		**0**
SW Fischer Rd		R	0	0	**0**	0		**0**	0		**0**
		L	331	1	**332**	58	-40	**350**	24	125	**499**
TMC Date: 02/13/2018	NB	T	1,663	6	**1,669**	282	40	**1,991**	136	-125	**2,002**
		R	0	0	**0**	0		**0**	0		**0**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .96	SB	T	1,776	7	**1,783**	292	10	**2,085**	-9	-150	**1,927**
		R	258	1	**259**	44	-10	**293**	-1	150	**442**
		U	28	0	**28**	3		**31**	0		**31**
			4,476								
		L	0	0	**0**	0		**0**	0		**0**
	EB	T	898	3	**901**	94	80	**1,075**	18		**1,093**
		R	155	1	**156**	17	-80	**93**	2		**94**
11		L	648	2	**650**	67		**717**	19		**736**
SR 99 W	WB	T	1,383	5	**1,388**	143		**1,531**	41		**1,572**
SW 124th Ave		R	0	0	**0**	0		**0**	0		**0**
		L	487	2	**489**	-22	-100	**368**	17	-50	**335**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0		**0**	0		**0**
		R	649	2	**651**	-29	100	**723**	33	50	**806**
Peak Hour: 4:35 - 5:35 PM		L	0	0	**0**	0		**0**	0		**0**
PHF: .94	SB	T	0	0	**0**	0		**0**	0		**0**
		R	0	0	**0**	0		**0**	0		**0**
			4,220								
		L	114	0	**114**	65	50	**229**	-14	-40	**175**
	EB	T	419	0	**419**	241	-100	**560**	-34	40	**566**
		R	93	0	**93**	54	50	**197**	-12		**185**
12		L	464	2	**466**	213	-200	**479**	4		**483**
SR 99 W	WB	T	356	0	**356**	164	200	**720**	6		**726**
SW Roy Rogers Rd		R	69	0	**69**	33		**102**	1		**103**
		L	167	1	**168**	43	125	**336**	-3		**333**
TMC Date: 02/13/2018	NB	T	691	3	**694**	180	-75	**799**	-8		**791**
		R	330	1	**331**	87	-50	**368**	-4		**364**
		U	10	0	**10**	3		**13**	0		**13**
Peak Hour: 4:35 - 5:35 PM		L	121	0	**121**	15		**136**	-2		**134**
PHF: .98	SB	T	1,320	5	**1,325**	163	-125	**1,363**	-20		**1,342**
		R	336	1	**337**	42	125	**504**	-8		**496**
			4,490								

SCJ ALLIANCE
ENGINEERING AND PLANNING SERVICES

Traffic Volume Calculation Worksheet

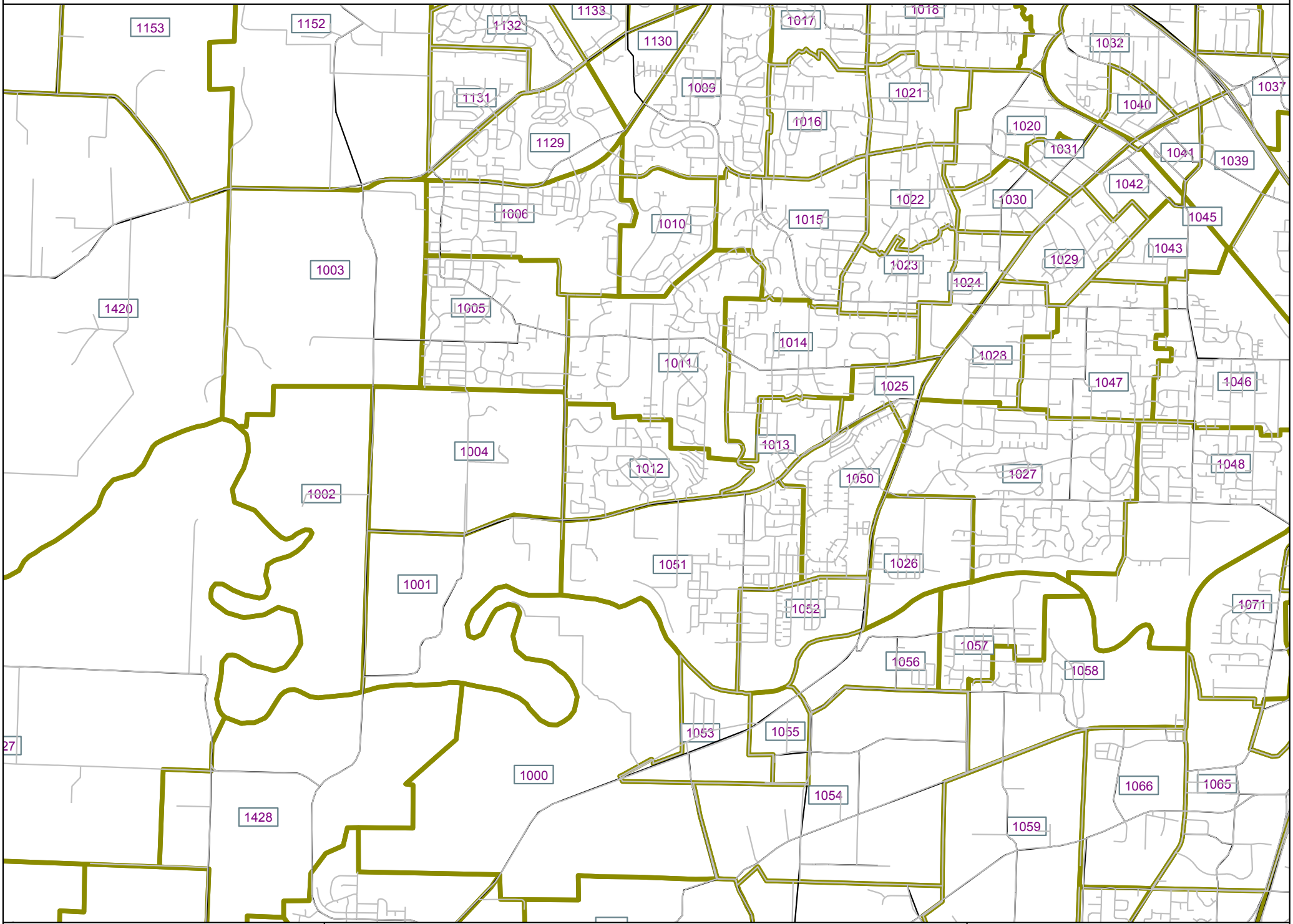
King City URA 6D Concept Plan

PM Peak Hour Volumes

Seasonal Adjustment: 1.0038

Intersection	Movement		Existing 2018 Volumes	Seasonal Adjustment	**Adjusted 2018 Volumes**	BACKGROUND GROWTH	Volume Adjustments	**BACKGROUND 2035 VOLUMES**	With Project Growth	Volume Adjustments	**With Project 2035 Volumes**
		L	0	0	**0**	0	0	**0**	0	0	**0**
	EB	T	278	0	**278**	163	87	**528**	-44	-250	**234**
		R	0	0	**0**	0	0	**0**	0	130	**130**
13		L	0	0	**0**	0	0	**0**	0	40	**40**
West URA 6D Access	WB	T	395	0	**395**	150	0	**545**	-20	-50	**475**
SW Beef Bend Rd		R	0	0	**0**	0	0	**0**	0	50	**50**
		L	0	0	**0**	0	0	**0**	0	55	**55**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0	0	**0**	0	15	**15**
		R	0	0	**0**	0	0	**0**	0	170	**170**
		L	0	0	**0**	0	0	**0**	0	0	**0**
	SB	T	0	0	**0**	0	0	**0**	0	0	**0**
		R	0	0	**0**	0	0	**0**	0	0	**0**
			673								
		L	0	0	**0**	0	0	**0**	0	0	**0**
	EB	T	303	0	**303**	294	0	**597**	5	-360	**241**
		R	0	0	**0**	0	0	**0**	0	160	**160**
14		L	0	0	**0**	0	0	**0**	0	5	**5**
West URA 6D Access	WB	T	385	0	**385**	580	0	**965**	-60	-5	**900**
SW Beef Bend Rd		R	0	0	**0**	0	0	**0**	0	0	**0**
		L	0	0	**0**	0	0	**0**	0	170	**170**
TMC Date: 02/13/2018	NB	T	0	0	**0**	0	0	**0**	0	0	**0**
		R	0	0	**0**	0	0	**0**	0	5	**5**
		L	0	0	**0**	0	0	**0**	0	0	**0**
	SB	T	0	0	**0**	0	0	**0**	0	0	**0**
		R	0	0	**0**	0	0	**0**	0	0	**0**
			688								
		L	0	0	**0**	0	0	**0**	0	0	**0**
	EB	T	0	0	**0**	0	0	**0**	0	0	**0**
		R	0	0	**0**	0	0	**0**	0	0	**0**
15		L	0	0	**0**	0	0	**0**	0	60	**60**
SW Roy Rogers Rd	WB	T	0	0	**0**	0	0	**0**	0	0	**0**
Fischer Road Extension		R	0	0	**0**	0	0	**0**	0	30	**30**
		L	0	0	**0**	0	0	**0**	0	0	**0**
TMC Date: 02/13/2018	NB	T	831	0	**831**	805	-150	**1,486**	-1	-220	**1,265**
		R	0	0	**0**	0	0	**0**	0	220	**220**
		L	0	0	**0**	0	0	**0**	0	180	**180**
	SB	T	1,075	0	**1,075**	330	0	**1,405**	-30	-180	**1,195**
		R	0	0	**0**	0	0	**0**	0	0	**0**
			1,906								

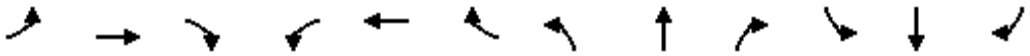
Regional & Westside model Zone System



Washington County	Westside Focus Model	2010 PM 1-Hour
Steve L Kelley	2010 PM 2-hour total vehicles.ver	30.11.2016

APPENDIX E

2035 BACKGROUND OPERATIONS ANALYSIS WORKSHEETS



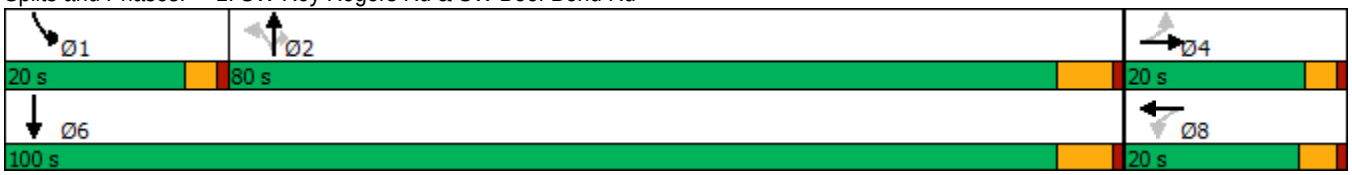
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	170	1	375	1	1375	150	380	1300	1
Future Volume (vph)	1	1	1	170	1	375	1	1375	150	380	1300	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frt		0.95		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1785		1752	1584			3539	1599	1752	3505	
Flt Permitted		0.69		0.76	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (perm)		1256		1394	1584			3378	1599	1752	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1	1	177	1	391	1	1432	156	396	1354	1
RTOR Reduction (vph)	0	1	0	0	195	0	0	0	55	0	0	0
Lane Group Flow (vph)	0	2	0	177	197	0	0	1433	101	396	1355	0
Heavy Vehicles (%)	0%	0%	0%	3%	0%	2%	0%	2%	1%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Actuated Green, G (s)		16.2		15.7	15.7			49.0	49.0	16.2	69.2	
Effective Green, g (s)		16.2		15.7	15.7			49.0	49.0	16.2	69.2	
Actuated g/C Ratio		0.17		0.16	0.16			0.51	0.51	0.17	0.73	
Clearance Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		213		229	260			1735	821	297	2542	
v/s Ratio Prot					0.12					c0.23	0.39	
v/s Ratio Perm		0.00		c0.13				c0.42	0.06			
v/c Ratio		0.01		0.77	0.76			0.83	0.12	1.33	0.53	
Uniform Delay, d1		32.9		38.1	38.0			19.6	12.0	39.6	5.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		14.9	11.8			3.4	0.1	171.2	0.2	
Delay (s)		33.0		53.0	49.8			23.0	12.1	210.8	6.1	
Level of Service		C		D	D			C	B	F	A	
Approach Delay (s)		33.0			50.8			21.9			52.4	
Approach LOS		C			D			C			D	

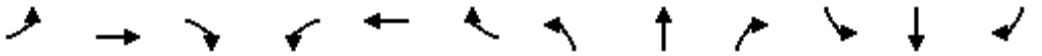
Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	14.5
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	170	1	375	1	1375	150	380	1300	1
Future Volume (vph)	1	1	1	170	1	375	1	1375	150	380	1300	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		150	175		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			55			55	
Link Distance (ft)		854			2607			3980			1191	
Travel Time (s)		23.3			39.5			49.3			14.8	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	28.0	28.0		26.5	26.5		31.0	31.0	31.0	9.5	16.0	
Total Split (s)	20.0	20.0		20.0	20.0		80.0	80.0	80.0	20.0	100.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%		66.7%	66.7%	66.7%	16.7%	83.3%	
Maximum Green (s)	16.0	16.0		15.5	15.5		74.0	74.0	74.0	16.0	94.0	
Yellow Time (s)	3.0	3.0		3.5	3.5		5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	19.0	19.0		17.0	17.0		20.0	20.0	20.0		5.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 95.6	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SW Roy Rogers Rd & SW Beef Bend Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	170	1	375	1	1375	150	380	1300	1
Future Volume (veh/h)	1	1	1	170	1	375	1	1375	150	380	1300	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	1	1	1	177	1	391	1	1432	156	396	1354	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	0	0	2	2	1	3	3	3
Cap, veh/h	52	49	25	205	1	276	39	1743	799	304	2585	2
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.50	0.50	0.50	0.17	0.71	0.71
Sat Flow, veh/h	0	287	144	1404	4	1607	0	3486	1598	1767	3615	3
Grp Volume(v), veh/h	3	0	0	177	0	392	768	665	156	396	660	695
Grp Sat Flow(s),veh/h/ln	431	0	0	1404	0	1611	1869	1617	1598	1767	1763	1855
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.0	0.0	32.4	5.0	16.0	15.9	15.9
Cycle Q Clear(g_c), s	16.0	0.0	0.0	16.0	0.0	16.0	32.4	32.4	5.0	16.0	15.9	15.9
Prop In Lane	0.33		0.33	1.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	126	0	0	205	0	277	973	808	799	304	1260	1326
V/C Ratio(X)	0.02	0.00	0.00	0.86	0.00	1.41	0.79	0.82	0.20	1.30	0.52	0.52
Avail Cap(c_a), veh/h	126	0	0	205	0	277	1524	1287	1272	304	1782	1875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	0.0	40.7	0.0	38.5	19.7	19.7	12.9	38.5	6.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	29.6	0.0	206.4	1.5	2.4	0.1	158.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	5.6	0.0	21.9	12.0	10.6	1.6	19.7	3.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	0.0	70.3	0.0	244.9	21.3	22.2	13.0	196.4	6.4	6.4
LnGrp LOS	C	A	A	E	A	F	C	C	B	F	A	A
Approach Vol, veh/h		3			569			1589			1751	
Approach Delay, s/veh		32.8			190.6			20.8			49.4	
Approach LOS		C			F			C			D	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.0	52.5		20.5		72.5		20.5				
Change Period (Y+Rc), s	4.0	6.0		* 4.5		6.0		4.5				
Max Green Setting (Gmax), s	16.0	74.0		* 16		94.0		15.5				
Max Q Clear Time (g_c+I1), s	18.0	34.4		18.0		17.9		18.0				
Green Ext Time (p_c), s	0.0	12.0		0.0		10.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		58.3	
HCM 6th LOS		E	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	440	1	20	945	1	40	1	155	1	1	1
Future Vol, veh/h	1	440	1	20	945	1	40	1	155	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	463	1	21	995	1	42	1	163	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	996	0	0	464	0	0	1505	1504	464	1586	1504	996
Stage 1	-	-	-	-	-	-	466	466	-	1038	1038	-
Stage 2	-	-	-	-	-	-	1039	1038	-	548	466	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	703	-	-	1108	-	-	101	123	602	88	123	299
Stage 1	-	-	-	-	-	-	581	566	-	281	311	-
Stage 2	-	-	-	-	-	-	281	311	-	524	566	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	703	-	-	1108	-	-	97	118	602	62	118	299
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	118	-	62	118	-
Stage 1	-	-	-	-	-	-	580	565	-	280	298	-
Stage 2	-	-	-	-	-	-	267	298	-	381	565	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	43.3	39.7
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	289	703	-	-	1108	-	-	107
HCM Lane V/C Ratio	0.714	0.001	-	-	0.019	-	-	0.03
HCM Control Delay (s)	43.3	10.1	0	-	8.3	0	-	39.7
HCM Lane LOS	E	B	A	-	A	A	-	E
HCM 95th %tile Q(veh)	5	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	40.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↑			↕			↕	
Traffic Vol, veh/h	40	330	1	5	780	135	1	1	1	110	1	155
Future Vol, veh/h	40	330	1	5	780	135	1	1	1	110	1	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	0	0	1	0	0	0	0	2	0	6
Mvmt Flow	41	340	1	5	804	139	1	1	1	113	1	160

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	341	0	0	1387	1376	341	1308	1307	874
Stage 1	-	-	-	-	-	-	423	423	-	884	884	-
Stage 2	-	-	-	-	-	-	964	953	-	424	423	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.518	4	3.354
Pot Cap-1 Maneuver	723	-	-	1229	-	-	122	146	706	136	161	343
Stage 1	-	-	-	-	-	-	613	591	-	340	366	-
Stage 2	-	-	-	-	-	-	309	340	-	608	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	723	-	-	1229	-	-	61	135	706	127	149	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	135	-	127	149	-
Stage 1	-	-	-	-	-	-	570	550	-	316	365	-
Stage 2	-	-	-	-	-	-	164	339	-	564	550	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0	36.1	238
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	119	723	-	-	1229	-	-	201
HCM Lane V/C Ratio	0.026	0.057	-	-	0.004	-	-	1.364
HCM Control Delay (s)	36.1	10.3	0	-	7.9	-	-	238
HCM Lane LOS	E	B	A	-	A	-	-	F
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	15.7

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	480	5	20	1120	5	5
Future Vol, veh/h	480	5	20	1120	5	5
Conflicting Peds, #/hr	0	4	2	0	4	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	485	5	20	1131	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	494	0	1667	494
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	1175	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1080	-	107	579
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	296	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1076	-	104	576
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	295	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	26.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	176	-	-	1076	-
HCM Lane V/C Ratio	0.057	-	-	0.019	-
HCM Control Delay (s)	26.7	-	-	8.4	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	375	170	125	925	245	85	
Future Volume (vph)	375	170	125	925	245	85	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		225	225		250	0	
Storage Lanes		1	1		1	1	
Taper Length (ft)			25		25		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	35			35	25		
Link Distance (ft)	1753			1355	2620		
Travel Time (s)	34.1			26.4	71.5		
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov	
Protected Phases	2	8	1	6	8	1 4	4
Permitted Phases		2	6			8	
Detector Phase	2	8	1	6	8	1 4	
Switch Phase							
Minimum Initial (s)	10.0	5.0	5.0	10.0	5.0		5.0
Minimum Split (s)	28.0	22.5	9.5	15.0	22.5		22.0
Total Split (s)	55.0	30.0	20.0	75.0	30.0		30.0
Total Split (%)	52.4%	28.6%	19.0%	71.4%	28.6%		29%
Maximum Green (s)	50.0	26.0	16.0	70.0	26.0		26.0
Yellow Time (s)	4.0	3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Min	None	None	Min	None		None
Walk Time (s)	6.0	5.0			5.0		7.0
Flash Dont Walk (s)	17.0	13.0			13.0		11.0
Pedestrian Calls (#/hr)	0	0			0		0

Intersection Summary	
Area Type:	Other
Cycle Length: 105	
Actuated Cycle Length: 70.1	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	375	170	125	925	245	85
Future Volume (vph)	375	170	125	925	245	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1557	1804	1881	1787	1599
Flt Permitted	1.00	1.00	0.39	1.00	0.95	1.00
Satd. Flow (perm)	1881	1557	732	1881	1787	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	179	132	974	258	89
RTOR Reduction (vph)	0	55	0	0	0	52
Lane Group Flow (vph)	395	124	132	974	258	37
Confl. Peds. (#/hr)		3	2		3	2
Heavy Vehicles (%)	1%	2%	0%	1%	1%	1%
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov
Protected Phases	2	8	1	6	8	1 4
Permitted Phases		2	6			8
Actuated Green, G (s)	31.4	47.9	43.6	43.6	16.5	28.7
Effective Green, g (s)	31.4	47.9	43.6	43.6	16.5	28.7
Actuated g/C Ratio	0.45	0.69	0.63	0.63	0.24	0.42
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	854	1079	589	1186	426	664
v/s Ratio Prot	0.21	0.03	0.03	c0.52	c0.14	0.02
v/s Ratio Perm		0.05	0.11			
v/c Ratio	0.46	0.11	0.22	0.82	0.61	0.06
Uniform Delay, d1	13.0	3.5	5.8	9.8	23.4	12.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.2	4.7	2.4	0.0
Delay (s)	13.4	3.6	6.0	14.5	25.8	12.1
Level of Service	B	A	A	B	C	B
Approach Delay (s)	10.4			13.5	22.3	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	47.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	1	65	1	10	1	1475	195	1	1405	1
Future Vol, veh/h	1	1	1	65	1	10	1	1475	195	1	1405	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	0	1	0	2	2	0	2	0
Mvmt Flow	1	1	1	68	1	11	1	1553	205	1	1479	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2261	3242	740	2400	3140	879	1480	0	0	1758	0	0
Stage 1	1482	1482	-	1658	1658	-	-	-	-	-	-	-
Stage 2	779	1760	-	742	1482	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	23	10	364	~ 18	11	293	461	-	-	361	-	-
Stage 1	134	191	-	103	156	-	-	-	-	-	-	-
Stage 2	359	139	-	376	191	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	20	10	364	~ 16	11	293	461	-	-	361	-	-
Mov Cap-2 Maneuver	20	10	-	~ 16	11	-	-	-	-	-	-	-
Stage 1	134	190	-	103	156	-	-	-	-	-	-	-
Stage 2	343	139	-	372	190	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	216.2	$ 1980.3	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	461	-	-	20	18	361	-	-
HCM Lane V/C Ratio	0.002	-	-	0.158	4.444	0.003	-	-
HCM Control Delay (s)	12.8	-	-	216.2	$ 1980.3	15	-	-
HCM Lane LOS	B	-	-	F	F	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	10.6	0	-	-

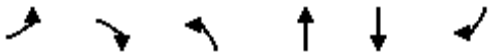
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	30	1	75	80	255	1	25	40	160	40	35
Future Vol, veh/h	20	30	1	75	80	255	1	25	40	160	40	35
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	5	7	0	0	0	1	0	0	0	3	2	0
Mvmt Flow	21	31	1	77	82	263	1	26	41	165	41	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	12.2	8.6	11
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	39%	18%	68%
Vol Thru, %	38%	59%	20%	17%
Vol Right, %	61%	2%	62%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	66	51	410	235
LT Vol	1	20	75	160
Through Vol	25	30	80	40
RT Vol	40	1	255	35
Lane Flow Rate	68	53	423	242
Geometry Grp	1	1	1	1
Degree of Util (X)	0.096	0.078	0.52	0.348
Departure Headway (Hd)	5.072	5.351	4.428	5.164
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	711	661	807	688
Service Time	3.072	3.451	2.49	3.252
HCM Lane V/C Ratio	0.096	0.08	0.524	0.352
HCM Control Delay	8.6	8.9	12.2	11
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.3	3.1	1.6



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	170	435	1870	1625	625
Future Volume (vph)	250	170	435	1870	1625	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1752	1538	1770	3539	3471	1561
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1752	1538	1770	3539	3471	1561
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	179	458	1968	1711	658
RTOR Reduction (vph)	0	150	0	0	0	248
Lane Group Flow (vph)	263	29	458	1968	1711	410
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	3%	3%	2%	2%	4%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	22.8	22.8	31.2	107.9	72.2	72.2
Effective Green, g (s)	22.8	22.8	31.2	107.9	72.2	72.2
Actuated g/C Ratio	0.16	0.16	0.22	0.77	0.52	0.52
Clearance Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	250	394	2727	1790	805
v/s Ratio Prot	c0.15		c0.26	0.56	c0.49	
v/s Ratio Perm		0.02				0.26
v/c Ratio	0.92	0.12	1.16	0.72	0.96	0.51
Uniform Delay, d1	57.7	50.0	54.4	8.3	32.4	22.3
Progression Factor	1.00	1.00	1.07	0.71	1.00	1.00
Incremental Delay, d2	33.5	0.2	75.9	0.2	13.1	2.3
Delay (s)	91.2	50.2	134.3	6.1	45.5	24.6
Level of Service	F	D	F	A	D	C
Approach Delay (s)	74.6			30.3	39.7	
Approach LOS	E			C	D	

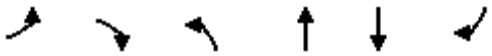
Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	170	435	1870	1625	625
Future Volume (vph)	250	170	435	1870	1625	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350	0	200			325
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	953			2701	1036	
Travel Time (s)	18.6			46.0	17.7	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	10.0	10.0	10.0
Minimum Split (s)	53.5	53.5	9.5	23.3	29.8	29.8
Total Split (s)	28.0	28.0	35.0	112.0	77.0	77.0
Total Split (%)	20.0%	20.0%	25.0%	80.0%	55.0%	55.0%
Maximum Green (s)	23.5	23.5	30.5	107.2	72.2	72.2
Yellow Time (s)	4.0	4.0	4.0	4.3	4.3	4.3
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.8	2.8	2.8
Time Before Reduce (s)	8.0	8.0	8.0	10.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	20.0	20.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	10.0	10.0			7.0	7.0
Flash Dont Walk (s)	39.0	39.0			18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 72 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: OR 99 W & SW Beef Bend Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	250	170	435	1870	1625	625
Future Volume (veh/h)	250	170	435	1870	1625	625
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1841	1885
Adj Flow Rate, veh/h	263	179	458	1968	1711	658
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	2	4	1
Cap, veh/h	286	255	388	2742	1824	814
Arrive On Green	0.16	0.16	0.44	1.00	0.52	0.52
Sat Flow, veh/h	1767	1572	1781	3647	3589	1560
Grp Volume(v), veh/h	263	179	458	1968	1711	658
Grp Sat Flow(s),veh/h/ln	1767	1572	1781	1777	1749	1560
Q Serve(g_s), s	20.5	15.1	30.5	0.0	64.2	48.9
Cycle Q Clear(g_c), s	20.5	15.1	30.5	0.0	64.2	48.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	286	255	388	2742	1824	814
V/C Ratio(X)	0.92	0.70	1.18	0.72	0.94	0.81
Avail Cap(c_a), veh/h	297	264	388	2742	1824	814
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	57.7	55.5	39.5	0.0	31.4	27.7
Incr Delay (d2), s/veh	31.4	7.8	83.7	0.2	10.8	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	13.3	19.5	0.1	28.3	19.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.1	63.3	123.2	0.2	42.2	36.2
LnGrp LOS	F	E	F	A	D	D
Approach Vol, veh/h	442			2426	2369	
Approach Delay, s/veh	78.7			23.4	40.5	
Approach LOS	E			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.8		27.2	35.0	77.8
Change Period (Y+Rc), s		4.8		4.5	4.5	4.8
Max Green Setting (Gmax), s		107.2		23.5	30.5	72.2
Max Q Clear Time (g_c+I1), s		2.0		22.5	32.5	66.2
Green Ext Time (p_c), s		34.2		0.2	0.0	5.3

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	50	175	105	900	280	600	40	115	1505	340	10	345
Future Volume (vph)	50	175	105	900	280	600	40	115	1505	340	10	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lane Util. Factor		0.95		0.95	0.95	1.00		1.00	0.95	1.00		0.97
Frpb, ped/bikes		1.00		1.00	1.00	0.96		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.95		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		3342		1698	1749	1522		1796	3539	1529		3466
Flt Permitted		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		3342		1698	1749	1522		1796	3539	1529		3466
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	180	108	928	289	619	41	119	1552	351	10	356
RTOR Reduction (vph)	0	40	0	0	0	150	0	0	0	122	0	0
Lane Group Flow (vph)	0	300	0	603	614	469	0	160	1552	230	0	366
Confl. Peds. (#/hr)	18		1	9		26		1		9		26
Heavy Vehicles (%)	3%	1%	2%	1%	0%	2%	2%	0%	2%	3%	2%	1%
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Actuated Green, G (s)		16.4		41.6	41.6	41.6		11.0	50.0	50.0		13.0
Effective Green, g (s)		16.4		41.6	41.6	41.6		11.0	50.0	50.0		13.0
Actuated g/C Ratio		0.12		0.30	0.30	0.30		0.08	0.36	0.36		0.09
Clearance Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		391		504	519	452		141	1263	546		321
v/s Ratio Prot		c0.09		c0.36	0.35			0.09	c0.44			c0.11
v/s Ratio Perm						0.31				0.15		
v/c Ratio		0.77		1.20	1.18	1.04		1.13	1.23	0.42		1.14
Uniform Delay, d1		60.0		49.2	49.2	49.2		64.5	45.0	34.0		63.5
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.04	1.29		1.25
Incremental Delay, d2		8.8		106.5	100.7	52.1		102.2	107.7	1.5		77.9
Delay (s)		68.7		155.7	149.9	101.3		166.6	154.5	45.3		157.5
Level of Service		E		F	F	F		F	F	D		F
Approach Delay (s)		68.7			135.4				136.9			
Approach LOS		E			F				F			

Intersection Summary			
HCM 2000 Control Delay	114.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	117.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1325	30
Future Volume (vph)	1325	30
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	5.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.93
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3438	1496
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3438	1496
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1366	31
RTOR Reduction (vph)	0	19
Lane Group Flow (vph)	1366	12
Confl. Peds. (#/hr)		18
Heavy Vehicles (%)	5%	0%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	52.0	52.0
Effective Green, g (s)	52.0	52.0
Actuated g/C Ratio	0.37	0.37
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1276	555
v/s Ratio Prot	0.40	
v/s Ratio Perm		0.01
v/c Ratio	1.07	0.02
Uniform Delay, d1	44.0	27.9
Progression Factor	0.35	1.00
Incremental Delay, d2	38.8	0.0
Delay (s)	54.2	27.9
Level of Service	D	C
Approach Delay (s)	75.2	
Approach LOS	E	

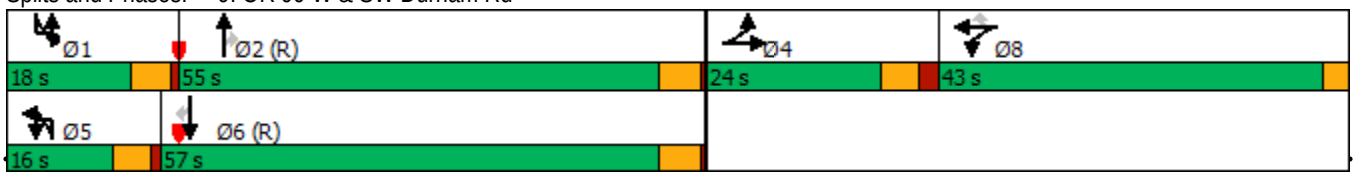
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	50	175	105	900	280	600	40	115	1505	340	10	345
Future Volume (vph)	50	175	105	900	280	600	40	115	1505	340	10	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	325		0		550		250		300
Storage Lanes	0		0	1		1		1		1		2
Taper Length (ft)	25			25				25				25
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		25			35				45			
Link Distance (ft)		869			1937				2415			
Travel Time (s)		23.7			37.7				36.6			
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Detector Phase	4	4		8	8	8	5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	4.0
Minimum Split (s)	24.0	24.0		43.0	43.0	43.0	9.5	9.5	34.0	34.0	9.5	9.5
Total Split (s)	24.0	24.0		43.0	43.0	43.0	16.0	16.0	55.0	55.0	18.0	18.0
Total Split (%)	17.1%	17.1%		30.7%	30.7%	30.7%	11.4%	11.4%	39.3%	39.3%	12.9%	12.9%
Maximum Green (s)	18.0	18.0		40.0	40.0	40.0	11.0	11.0	50.0	50.0	13.0	13.0
Yellow Time (s)	4.0	4.0		3.0	3.0	3.0	4.0	4.0	4.3	4.3	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	0.0	0.0	1.0	1.0	0.7	0.7	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lead/Lag							Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	2.5	2.5	0.5	0.5
Time Before Reduce (s)	8.0	8.0		1.0	1.0	1.0	8.0	8.0	10.0	10.0	8.0	8.0
Time To Reduce (s)	3.0	3.0		1.0	1.0	1.0	3.0	3.0	20.0	20.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	None
Walk Time (s)				5.0	5.0	5.0			7.0	7.0		
Flash Dont Walk (s)				35.0	35.0	35.0			22.0	22.0		
Pedestrian Calls (#/hr)				0	0	0			0	0		

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 9: OR 99 W & SW Durham Rd



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1325	30
Future Volume (vph)	1325	30
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		400
Storage Lanes		1
Taper Length (ft)		
Right Turn on Red		Yes
Link Speed (mph)	40	
Link Distance (ft)	2701	
Travel Time (s)	46.0	
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Detector Phase	6	6
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	28.0	28.0
Total Split (s)	57.0	57.0
Total Split (%)	40.7%	40.7%
Maximum Green (s)	52.0	52.0
Yellow Time (s)	4.3	4.3
All-Red Time (s)	0.7	0.7
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Minimum Gap (s)	2.5	2.5
Time Before Reduce (s)	10.0	10.0
Time To Reduce (s)	20.0	20.0
Recall Mode	C-Min	C-Min
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	16.0	16.0
Pedestrian Calls (#/hr)	0	0

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	105	255	350	1990	30	2085	295
Future Volume (vph)	105	255	350	1990	30	2085	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1524	1770	3539	1805	3471	1557
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1524	1770	3539	1805	3471	1557
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	266	365	2073	31	2172	307
RTOR Reduction (vph)	0	242	0	0	0	0	102
Lane Group Flow (vph)	109	24	365	2073	31	2172	205
Confl. Peds. (#/hr)	2	8	8				2
Heavy Vehicles (%)	1%	4%	2%	2%	0%	4%	1%
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Actuated Green, G (s)	12.8	12.8	30.8	106.3	5.4	79.9	79.9
Effective Green, g (s)	12.8	12.8	30.8	106.3	5.4	79.9	79.9
Actuated g/C Ratio	0.09	0.09	0.22	0.76	0.04	0.57	0.57
Clearance Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	139	389	2687	69	1980	888
v/s Ratio Prot	c0.06		c0.21	0.59	0.02	c0.63	
v/s Ratio Perm		0.02					0.13
v/c Ratio	0.67	0.17	0.94	0.77	0.45	1.10	0.23
Uniform Delay, d1	61.5	58.7	53.7	9.8	65.8	30.0	14.9
Progression Factor	1.00	1.00	1.00	1.00	1.13	0.55	0.65
Incremental Delay, d2	9.9	0.6	30.0	2.2	0.4	44.5	0.1
Delay (s)	71.5	59.3	83.7	12.0	74.7	61.2	9.7
Level of Service	E	E	F	B	E	E	A
Approach Delay (s)	62.9			22.7		55.0	
Approach LOS	E			C		E	

Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	105	255	350	1990	30	2085	295
Future Volume (vph)	105	255	350	1990	30	2085	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275	0	450		300		350
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25		25		25		
Right Turn on Red		Yes					Yes
Link Speed (mph)	25			45		45	
Link Distance (ft)	3472			3888		2415	
Travel Time (s)	94.7			58.9		36.6	
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Detector Phase	4	4	5	2	1	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	55.0	55.0	9.5	24.0	9.5	29.0	29.0
Total Split (s)	20.0	20.0	35.0	100.0	20.0	85.0	85.0
Total Split (%)	14.3%	14.3%	25.0%	71.4%	14.3%	60.7%	60.7%
Maximum Green (s)	15.0	15.0	29.5	94.0	15.5	79.0	79.0
Yellow Time (s)	3.5	3.5	4.0	5.0	3.5	5.0	5.0
All-Red Time (s)	1.5	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.5	0.5	2.5	2.5
Time Before Reduce (s)	8.0	8.0	8.0	10.0	8.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	3.0	20.0	20.0
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min
Walk Time (s)	7.0	7.0				7.0	7.0
Flash Dont Walk (s)	43.0	43.0				16.0	16.0
Pedestrian Calls (#/hr)	0	0				0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 7 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 10: OR 99 W & SW Fischer Rd

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	105	255	350	1990	30	2085	295
Future Volume (veh/h)	105	255	350	1990	30	2085	295
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1885	1841	1870	1870		1841	1885
Adj Flow Rate, veh/h	109	266	365	2073		2172	307
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96
Percent Heavy Veh, %	1	4	2	2		4	1
Cap, veh/h	192	167	375	2894		1974	900
Arrive On Green	0.11	0.11	0.21	0.81		1.00	1.00
Sat Flow, veh/h	1795	1560	1781	3647		3589	1595
Grp Volume(v), veh/h	109	266	365	2073		2172	307
Grp Sat Flow(s),veh/h/ln	1795	1560	1781	1777		1749	1595
Q Serve(g_s), s	8.1	15.0	28.5	36.4		79.0	0.0
Cycle Q Clear(g_c), s	8.1	15.0	28.5	36.4		79.0	0.0
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	192	167	375	2894		1974	900
V/C Ratio(X)	0.57	1.59	0.97	0.72		1.10	0.34
Avail Cap(c_a), veh/h	192	167	375	2894		1974	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00		2.00	2.00
Upstream Filter(I)	1.00	1.00	0.69	0.69		0.09	0.09
Uniform Delay (d), s/veh	59.4	62.5	54.8	5.8		0.0	0.0
Incr Delay (d2), s/veh	3.8	292.5	31.5	1.1		46.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	25.9	15.7	9.5		12.6	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	63.3	355.0	86.4	6.9		46.1	0.1
LnGrp LOS	E	F	F	A		F	A
Approach Vol, veh/h	375			2438		2479	
Approach Delay, s/veh	270.2			18.8		40.4	
Approach LOS	F			B		D	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		120.0		20.0	35.0	85.0	
Change Period (Y+Rc), s		6.0		5.0	5.5	6.0	
Max Green Setting (Gmax), s		94.0		15.0	29.5	79.0	
Max Q Clear Time (g_c+I1), s		38.4		17.0	30.5	81.0	
Green Ext Time (p_c), s		29.3		0.0	0.0	0.0	

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	370	725	1075	95	715	1530
Future Volume (vph)	370	725	1075	95	715	1530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	5.0	6.0	6.0	5.6	6.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467	2814	3505	1461	3303	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467	2814	3505	1461	3303	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	389	763	1132	100	753	1611
RTOR Reduction (vph)	0	220	0	47	0	0
Lane Group Flow (vph)	389	543	1132	53	753	1611
Confl. Peds. (#/hr)	2	8		2	8	
Heavy Vehicles (%)	1%	1%	3%	9%	6%	3%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	4 1	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	16.4	40.1	37.8	37.8	17.7	61.1
Effective Green, g (s)	16.4	40.1	37.8	37.8	17.7	61.1
Actuated g/C Ratio	0.18	0.45	0.42	0.42	0.20	0.68
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	635	1260	1480	617	653	2392
v/s Ratio Prot	c0.11	0.19	c0.32		c0.23	0.46
v/s Ratio Perm				0.04		
v/c Ratio	0.61	0.43	0.76	0.09	1.15	0.67
Uniform Delay, d1	33.6	16.9	22.1	15.5	35.9	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.2	2.4	0.1	85.6	0.8
Delay (s)	35.4	17.1	24.5	15.6	121.5	9.1
Level of Service	D	B	C	B	F	A
Approach Delay (s)	23.3		23.7			44.9
Approach LOS	C		C			D

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	20.6
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	370	725	1075	95	715	1530		
Future Volume (vph)	370	725	1075	95	715	1530		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	325		225	675			
Storage Lanes	2	2		1	2			
Taper Length (ft)	25				25			
Right Turn on Red		Yes		Yes				
Link Speed (mph)	45		55			45		
Link Distance (ft)	2010		1506			3888		
Travel Time (s)	30.5		18.7			58.9		
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA		
Protected Phases	8	4 1	2		1	6	3	4
Permitted Phases				2				
Detector Phase	8	4 1	2	2	1	6		
Switch Phase								
Minimum Initial (s)	6.0		10.0	10.0	4.0	10.0	4.0	5.0
Minimum Split (s)	41.0		37.0	37.0	9.6	25.0	15.0	10.0
Total Split (s)	45.0		72.0	72.0	23.0	95.0	18.0	27.0
Total Split (%)	32.1%		51.4%	51.4%	16.4%	67.9%	13%	19%
Maximum Green (s)	39.0		66.0	66.0	17.4	89.0	14.0	22.0
Yellow Time (s)	4.0		5.0	5.0	4.5	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	1.0	1.1	1.0	0.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0		6.0	6.0	5.6	6.0		
Lead/Lag			Lag	Lag	Lead		Lead	Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5		3.4	3.4	0.5	3.4	0.2	0.5
Time Before Reduce (s)	8.0		10.0	10.0	8.0	10.0	0.0	8.0
Time To Reduce (s)	3.0		20.0	20.0	3.0	20.0	0.0	3.0
Recall Mode	None		Min	Min	None	Min	None	None
Walk Time (s)	8.0		9.0	9.0			5.0	
Flash Dont Walk (s)	27.0		22.0	22.0			6.0	
Pedestrian Calls (#/hr)	0		0	0			0	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 89.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: OR 99 W & SW 124th Ave

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	230	560	195	480	720	100	15	335	800	370	135	1365
Future Volume (vph)	230	560	195	480	720	100	15	335	800	370	135	1365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00		1.00	0.95	1.00	1.00	0.91
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1649	3280		3400	3471	1442		1719	3471	1568	1687	4855
Flt Permitted	0.36	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	624	3280		3400	3471	1442		1719	3471	1568	1687	4855
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	235	571	199	490	735	102	15	342	816	378	138	1393
RTOR Reduction (vph)	0	25	0	0	0	65	0	0	0	174	0	38
Lane Group Flow (vph)	235	745	0	490	735	37	0	357	816	204	138	1870
Confl. Peds. (#/hr)	12		6			6	6	6			6	
Heavy Vehicles (%)	9%	5%	6%	3%	4%	10%	5%	5%	4%	3%	7%	2%
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Actuated Green, G (s)	31.7	31.7		12.5	50.2	50.2		20.0	58.9	58.9	14.4	53.3
Effective Green, g (s)	31.7	31.7		12.5	50.2	50.2		20.0	58.9	58.9	14.4	53.3
Actuated g/C Ratio	0.23	0.23		0.09	0.36	0.36		0.14	0.42	0.42	0.10	0.38
Clearance Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	742		303	1244	517		245	1460	659	173	1848
v/s Ratio Prot		0.23		c0.14	0.21			c0.21	0.24		0.08	c0.39
v/s Ratio Perm	c0.38					0.03				0.13		
v/c Ratio	1.67	1.00		1.62	0.59	0.07		1.46	0.56	0.31	0.80	1.01
Uniform Delay, d1	54.1	54.1		63.8	36.5	29.5		60.0	30.7	27.0	61.4	43.4
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	329.1	34.1		292.5	0.8	0.1		226.9	1.6	1.2	22.0	23.9
Delay (s)	383.2	88.3		356.3	37.3	29.6		286.9	32.3	28.2	83.4	67.3
Level of Service	F	F		F	D	C		F	C	C	F	E
Approach Delay (s)		157.2			154.5				89.9			68.4
Approach LOS		F			F				F			E

Intersection Summary			
HCM 2000 Control Delay	108.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	111.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR
Lane Configurations	
Traffic Volume (vph)	505
Future Volume (vph)	505
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	515
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	12
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

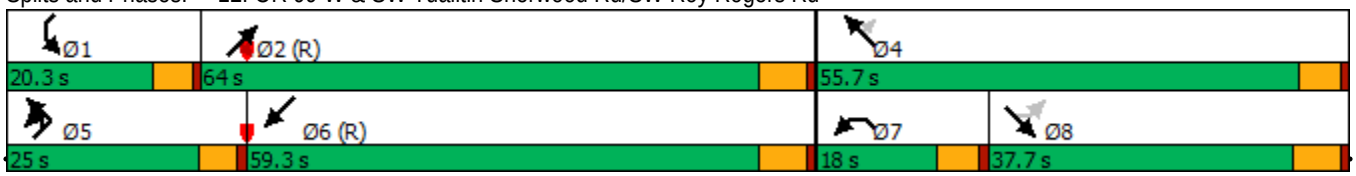
Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	230	560	195	480	720	100	15	335	800	370	135	1365
Future Volume (vph)	230	560	195	480	720	100	15	335	800	370	135	1365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		275		675		275	300	
Storage Lanes	1		0	2		1		1		1	1	
Taper Length (ft)	25			25				25			25	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		35			35				45			45
Link Distance (ft)		1104			1161				1334			1923
Travel Time (s)		21.5			22.6				20.2			29.1
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Detector Phase	8	8		7	4	4	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.0	24.0		11.5	48.5	48.5	9.5	9.5	42.0	42.0	9.5	37.0
Total Split (s)	37.7	37.7		18.0	55.7	55.7	25.0	25.0	64.0	64.0	20.3	59.3
Total Split (%)	26.9%	26.9%		12.9%	39.8%	39.8%	17.9%	17.9%	45.7%	45.7%	14.5%	42.4%
Maximum Green (s)	31.7	31.7		12.5	50.2	50.2	20.0	20.0	58.0	58.0	15.3	53.3
Yellow Time (s)	5.0	5.0		4.5	4.5	4.5	4.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lag	Lag		Lead			Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.2	0.2	1.0	1.0	2.4	2.4	2.0	2.4
Time Before Reduce (s)	8.0	8.0		8.0	0.0	0.0	8.0	8.0	10.0	10.0	8.0	10.0
Time To Reduce (s)	3.0	3.0		3.0	0.0	0.0	3.0	3.0	20.0	20.0	3.0	20.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)					10.0	10.0			8.0	8.0		9.0
Flash Dont Walk (s)					33.0	33.0			28.0	28.0		22.0
Pedestrian Calls (#/hr)					0	0			0	0		0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd



Lane Group	SWR
Lane Configurations	
Traffic Volume (vph)	505
Future Volume (vph)	505
Ideal Flow (vphpl)	1900
Storage Length (ft)	350
Storage Lanes	1
Taper Length (ft)	
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Minimum Gap (s)	
Time Before Reduce (s)	
Time To Reduce (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (veh/h)	230	560	195	480	720	100	15	335	800	370	135	1365
Future Volume (veh/h)	230	560	195	480	720	100	15	335	800	370	135	1365
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No
Adj Sat Flow, veh/h/ln	1767	1826	1826	1856	1841	1752		1826	1841	1856	1796	1870
Adj Flow Rate, veh/h	235	571	199	490	735	102		342	816	378	138	1393
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	5	5	3	4	10		5	4	3	7	2
Cap, veh/h	165	569	198	306	1242	524		248	1503	673	160	1399
Arrive On Green	0.23	0.23	0.23	0.09	0.36	0.36		0.14	0.43	0.43	0.09	0.38
Sat Flow, veh/h	619	2513	873	3428	3497	1477		1739	3497	1566	1711	3675
Grp Volume(v), veh/h	235	394	376	490	735	102		342	816	378	138	1289
Grp Sat Flow(s),veh/h/ln	619	1735	1652	1714	1749	1477		1739	1749	1566	1711	1702
Q Serve(g_s), s	25.7	31.7	31.7	12.5	24.0	6.7		20.0	24.3	25.4	11.1	52.8
Cycle Q Clear(g_c), s	31.7	31.7	31.7	12.5	24.0	6.7		20.0	24.3	25.4	11.1	52.8
Prop In Lane	1.00		0.53	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	165	393	374	306	1242	524		248	1503	673	160	1296
V/C Ratio(X)	1.43	1.00	1.01	1.60	0.59	0.19		1.38	0.54	0.56	0.86	0.99
Avail Cap(c_a), veh/h	165	393	374	306	1254	530		248	1503	673	187	1296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	54.2	54.2	63.7	36.9	31.3		60.0	29.7	30.0	62.5	43.2
Incr Delay (d2), s/veh	222.7	45.9	48.1	285.2	0.7	0.2		192.8	1.4	3.4	28.1	23.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	18.7	18.0	17.6	10.3	2.4		21.9	10.2	9.9	6.0	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	283.9	100.1	102.3	349.0	37.6	31.5		252.8	31.1	33.4	90.6	67.0
LnGrp LOS	F	F	F	F	D	C		F	C	C	F	E
Approach Vol, veh/h		1005			1327				1536			2046
Approach Delay, s/veh		143.9			152.1				81.0			73.0
Approach LOS		F			F				F			E

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	66.2		55.7	25.0	59.3	18.0	37.7
Change Period (Y+Rc), s	5.0	6.0		* 6	5.0	6.0	5.5	6.0
Max Green Setting (Gmax), s	15.3	58.0		* 50	20.0	53.3	12.5	31.7
Max Q Clear Time (g_c+I1), s	13.1	27.4		26.0	22.0	55.3	14.5	33.7
Green Ext Time (p_c), s	0.1	7.5		5.6	0.0	0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		104.9
HCM 6th LOS		F

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SWR
Lane Configurations	
Traffic Volume (veh/h)	505
Future Volume (veh/h)	505
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	515
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	511
Arrive On Green	0.38
Sat Flow, veh/h	1342
Grp Volume(v), veh/h	619
Grp Sat Flow(s),veh/h/ln	1614
Q Serve(g_s), s	53.3
Cycle Q Clear(g_c), s	53.3
Prop In Lane	0.83
Lane Grp Cap(c), veh/h	614
V/C Ratio(X)	1.01
Avail Cap(c_a), veh/h	614
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	43.4
Incr Delay (d2), s/veh	38.2
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	26.9
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	81.6
LnGrp LOS	F
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Queuing and Blocking Report

Intersection: 1: SW Roy Rogers Rd & SW Beef Bend Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	LT	T	R	L	T	TR
Maximum Queue (ft)	18	124	437	304	324	175	200	1207	1187
Average Queue (ft)	2	113	216	196	206	80	199	1103	1052
95th Queue (ft)	12	150	393	281	302	194	201	1424	1423
Link Distance (ft)	808		2520	3917	3917			1157	1157
Upstream Blk Time (%)								72	7
Queuing Penalty (veh)								0	0
Storage Bay Dist (ft)		100				150	175		
Storage Blk Time (%)		20	30		12	0	87	2	
Queuing Penalty (veh)		74	51		18	0	567	6	

Intersection: 2: SW Elsner Rd/SW Taylor Ln & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	5	105	142	27
Average Queue (ft)	0	13	60	2
95th Queue (ft)	4	58	110	14
Link Distance (ft)	2520	2697	1074	1032
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SW 150th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	142	23	12	31	650
Average Queue (ft)	33	2	0	4	344
95th Queue (ft)	97	12	5	20	862
Link Distance (ft)	2697		3206	1231	1065
Upstream Blk Time (%)					5
Queuing Penalty (veh)					0
Storage Bay Dist (ft)		150			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Intersection: 4: SW 137th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	42	31	90	28
Average Queue (ft)	2	5	4	8
95th Queue (ft)	18	23	35	29
Link Distance (ft)	3206		1693	1317
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150		
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	184	55	126	338	208	60
Average Queue (ft)	81	18	43	158	96	25
95th Queue (ft)	145	48	85	272	171	52
Link Distance (ft)	1693			1323		2536
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	225		250	
Storage Blk Time (%)	0			1	0	
Queuing Penalty (veh)	0			2	0	

Intersection: 6: SW Roy Rogers Rd & SW Elsner Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	31	339	5	19	5
Average Queue (ft)	4	177	0	1	0
95th Queue (ft)	19	362	5	13	3
Link Distance (ft)	968	1100		1308	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Intersection: 7: SW 131st Ave & SW Fischer Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	70	203	54	112
Average Queue (ft)	31	86	30	56
95th Queue (ft)	61	153	49	88
Link Distance (ft)	824	3372	1052	2536
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: OR 99 W & SW Beef Bend Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	356	408	225	1709	1735	825	863	350
Average Queue (ft)	227	137	223	1208	1195	440	426	234
95th Queue (ft)	359	388	236	2000	2010	808	838	415
Link Distance (ft)		887		2603	2603	1006	1006	
Upstream Blk Time (%)						1	3	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)	350		200					325
Storage Blk Time (%)	5		84	3			10	1
Queuing Penalty (veh)	9		788	12			61	6

Queuing and Blocking Report

Intersection: 9: OR 99 W & SW Durham Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	LT	R	UL	T	T	R	UL	L	T
Maximum Queue (ft)	273	274	350	1919	1913	574	1324	1338	275	312	325	2292
Average Queue (ft)	152	129	346	1840	1793	294	859	874	204	246	307	1521
95th Queue (ft)	237	229	367	2100	2277	614	2053	2069	371	362	381	2675
Link Distance (ft)	805	805		1874	1874		2329	2329				2603
Upstream Blk Time (%)				70	57		1	1				0
Queuing Penalty (veh)				0	0		11	11				1
Storage Bay Dist (ft)			325			550			250	300	300	
Storage Blk Time (%)			8	47		0	23	41	0	5	28	35
Queuing Penalty (veh)			58	213		0	36	139	2	34	182	124

Intersection: 9: OR 99 W & SW Durham Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	2481	425
Average Queue (ft)	1527	87
95th Queue (ft)	2687	353
Link Distance (ft)	2603	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		400
Storage Blk Time (%)	45	0
Queuing Penalty (veh)	13	0

Intersection: 10: OR 99 W & SW Fischer Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	U	T	T	R
Maximum Queue (ft)	299	435	475	3611	3577	324	926	920	375
Average Queue (ft)	106	198	473	2732	2723	54	430	429	160
95th Queue (ft)	227	338	482	4356	4345	202	778	782	421
Link Distance (ft)		3372		3820	3820		2329	2329	
Upstream Blk Time (%)				25	28				
Queuing Penalty (veh)				229	250				
Storage Bay Dist (ft)	275		450			300			350
Storage Blk Time (%)	0	5	84	3			18	13	0
Queuing Penalty (veh)	0	5	832	9			5	38	1

Queuing and Blocking Report

Intersection: 11: OR 99 W & SW 124th Ave

Movement	NW	NW	NW	NW	NE	NE	NE	SW	SW	SW	SW
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	1142	1302	343	334	793	791	178	687	700	2311	2286
Average Queue (ft)	358	424	245	223	377	354	70	560	574	777	695
95th Queue (ft)	1147	1336	379	385	967	948	221	808	817	2139	2015
Link Distance (ft)	1950	1950			1459	1459				3820	3820
Upstream Blk Time (%)	0	1			4	4					
Queuing Penalty (veh)	0	0			0	0					
Storage Bay Dist (ft)			325	325			225	675	675		
Storage Blk Time (%)		0	20	14		22	0	5	31	2	
Queuing Penalty (veh)		0	37	25		21	0	42	237	14	

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

Movement	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE	NE
Directions Served	L	T	TR	L	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	275	1102	1089	287	300	1155	1153	298	700	1334	1313	298
Average Queue (ft)	273	1049	999	284	299	1093	1044	63	684	1179	1132	103
95th Queue (ft)	294	1181	1278	296	301	1282	1338	187	776	1682	1677	235
Link Distance (ft)		1046	1046			1106	1106			1282	1282	
Upstream Blk Time (%)		74	32			82	14			66	14	
Queuing Penalty (veh)		0	0			0	0			0	0	
Storage Bay Dist (ft)	250			275	275			275	675			275
Storage Blk Time (%)	88	16		12	80	2	6	0	87	3	2	0
Queuing Penalty (veh)	247	36		44	288	10	6	0	346	9	6	0

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

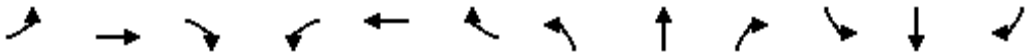
Movement	SW	SW	SW	SW
Directions Served	L	T	T	TR
Maximum Queue (ft)	324	670	688	375
Average Queue (ft)	214	421	425	345
95th Queue (ft)	386	609	627	418
Link Distance (ft)		1853	1853	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300			350
Storage Blk Time (%)	0	23	9	10
Queuing Penalty (veh)	1	31	83	48

Network Summary

Network wide Queuing Penalty: 5321

APPENDIX F

2035 URA 6D OPERATIONS ANALYSIS WORKSHEETS



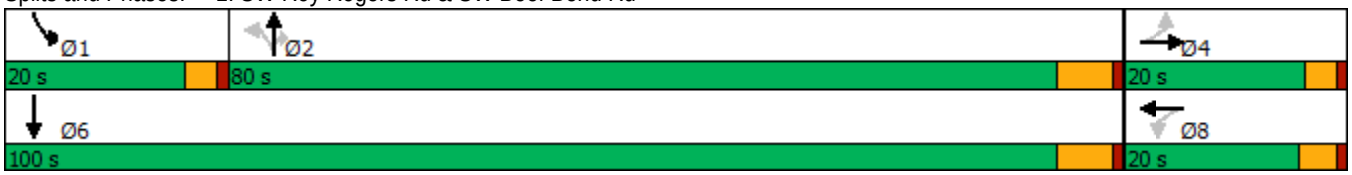
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	165	1	360	1	1165	150	180	1395	1
Future Volume (vph)	1	1	1	165	1	360	1	1165	150	180	1395	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frt		0.95		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1785		1752	1584			3539	1599	1752	3505	
Flt Permitted		0.81		0.76	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (perm)		1470		1394	1584			3377	1599	1752	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1	1	172	1	375	1	1214	156	188	1453	1
RTOR Reduction (vph)	0	1	0	0	210	0	0	0	72	0	0	0
Lane Group Flow (vph)	0	2	0	172	166	0	0	1215	84	188	1454	0
Heavy Vehicles (%)	0%	0%	0%	3%	0%	2%	0%	2%	1%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Actuated Green, G (s)		16.0		15.5	15.5			38.1	38.1	13.9	56.0	
Effective Green, g (s)		16.0		15.5	15.5			38.1	38.1	13.9	56.0	
Actuated g/C Ratio		0.20		0.19	0.19			0.46	0.46	0.17	0.68	
Clearance Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		286		263	299			1569	742	296	2393	
v/s Ratio Prot					0.10					0.11	c0.41	
v/s Ratio Perm		0.00		c0.12				c0.36	0.05			
v/c Ratio		0.01		0.65	0.56			0.77	0.11	0.64	0.61	
Uniform Delay, d1		26.6		30.8	30.1			18.4	12.4	31.7	7.0	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		5.7	2.2			2.5	0.1	4.4	0.4	
Delay (s)		26.6		36.5	32.4			20.8	12.5	36.1	7.5	
Level of Service		C		D	C			C	B	D	A	
Approach Delay (s)		26.6			33.7			19.9			10.8	
Approach LOS		C			C			B			B	

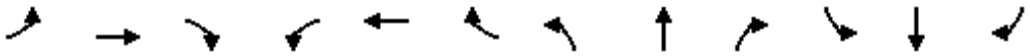
Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	165	1	360	1	1165	150	180	1395	1
Future Volume (vph)	1	1	1	165	1	360	1	1165	150	180	1395	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		150	175		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			55			55	
Link Distance (ft)		854			1330			2100			1191	
Travel Time (s)		23.3			20.2			26.0			14.8	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	28.0	28.0		26.5	26.5		31.0	31.0	31.0	9.5	16.0	
Total Split (s)	20.0	20.0		20.0	20.0		80.0	80.0	80.0	20.0	100.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%		66.7%	66.7%	66.7%	16.7%	83.3%	
Maximum Green (s)	16.0	16.0		15.5	15.5		74.0	74.0	74.0	16.0	94.0	
Yellow Time (s)	3.0	3.0		3.5	3.5		5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	19.0	19.0		17.0	17.0		20.0	20.0	20.0		5.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 82.2	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SW Roy Rogers Rd & SW Beef Bend Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	165	1	360	1	1165	150	180	1395	1
Future Volume (veh/h)	1	1	1	165	1	360	1	1165	150	180	1395	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	1	1	1	172	1	375	1	1214	156	188	1453	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	0	0	2	2	1	3	3	3
Cap, veh/h	66	63	31	261	1	352	50	1572	721	232	2303	2
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.45	0.45	0.45	0.13	0.64	0.64
Sat Flow, veh/h	0	287	144	1404	4	1607	0	3486	1598	1767	3615	2
Grp Volume(v), veh/h	3	0	0	172	0	376	651	564	156	188	708	746
Grp Sat Flow(s),veh/h/ln	431	0	0	1404	0	1611	1869	1617	1598	1767	1763	1855
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	16.0	0.0	21.4	4.3	7.6	17.8	17.8
Cycle Q Clear(g_c), s	16.0	0.0	0.0	16.0	0.0	16.0	21.4	21.4	4.3	7.6	17.8	17.8
Prop In Lane	0.33		0.33	1.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	160	0	0	261	0	353	892	729	721	232	1123	1182
V/C Ratio(X)	0.02	0.00	0.00	0.66	0.00	1.07	0.73	0.77	0.22	0.81	0.63	0.63
Avail Cap(c_a), veh/h	160	0	0	261	0	353	1938	1639	1619	387	2270	2389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	0.0	29.0	0.0	28.5	16.9	16.9	12.2	30.8	8.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.0	0.0	66.2	1.2	1.8	0.1	6.7	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.2	0.0	12.0	7.4	6.5	1.3	3.3	4.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	0.0	34.9	0.0	94.7	18.0	18.7	12.3	37.5	8.6	8.6
LnGrp LOS	C	A	A	C	A	F	B	B	B	D	A	A
Approach Vol, veh/h		3			548			1371			1642	
Approach Delay, s/veh		23.4			75.9			17.7			11.9	
Approach LOS		C			E			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.6	38.9		20.5		52.5		20.5				
Change Period (Y+Rc), s	4.0	6.0		* 4.5		6.0		4.5				
Max Green Setting (Gmax), s	16.0	74.0		* 16		94.0		15.5				
Max Q Clear Time (g_c+I1), s	9.6	23.4		18.0		19.8		18.0				
Green Ext Time (p_c), s	0.2	9.5		0.0		12.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		24.0
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	205	50	10	895	1	50	1	195	1	1	1
Future Vol, veh/h	1	205	50	10	895	1	50	1	195	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	216	53	11	942	1	53	1	205	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	943	0	0	269	0	0	1211	1210	243	1313	1236	943
Stage 1	-	-	-	-	-	-	245	245	-	965	965	-
Stage 2	-	-	-	-	-	-	966	965	-	348	271	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	736	-	-	1306	-	-	161	184	801	137	178	321
Stage 1	-	-	-	-	-	-	763	707	-	309	336	-
Stage 2	-	-	-	-	-	-	309	336	-	672	689	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	736	-	-	1306	-	-	157	180	801	100	174	321
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	180	-	100	174	-
Stage 1	-	-	-	-	-	-	761	706	-	308	330	-
Stage 2	-	-	-	-	-	-	301	330	-	498	688	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	24.8	28.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	434	736	-	-	1306	-	-	159
HCM Lane V/C Ratio	0.597	0.001	-	-	0.008	-	-	0.02
HCM Control Delay (s)	24.8	9.9	0	-	7.8	0	-	28.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	3.8	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	268.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	45	100	250	600	150	100	50	150	85	1	120
Future Vol, veh/h	75	45	100	250	600	150	100	50	150	85	1	120
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	0	0	1	0	0	0	0	2	0	6
Mvmt Flow	77	46	103	258	619	155	103	52	155	88	1	124

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	774	0	0	149	0	0	1527	1542	98	1568	1516	697
Stage 1	-	-	-	-	-	-	252	252	-	1213	1213	-
Stage 2	-	-	-	-	-	-	1275	1290	-	355	303	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.518	4	3.354
Pot Cap-1 Maneuver	837	-	-	1445	-	-	~ 97	116	963	90	121	434
Stage 1	-	-	-	-	-	-	757	702	-	222	257	-
Stage 2	-	-	-	-	-	-	207	236	-	662	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	837	-	-	1445	-	-	~ 55	85	963	~ 32	89	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 55	85	-	~ 32	89	-
Stage 1	-	-	-	-	-	-	680	630	-	199	211	-
Stage 2	-	-	-	-	-	-	121	194	-	458	599	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	2	$ 821.9	$ 1042.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	117	837	-	-	1445	-	-	70
HCM Lane V/C Ratio	2.643	0.092	-	-	0.178	-	-	3.034
HCM Control Delay (s)	$ 821.9	9.7	0	-	8	-	-	$ 1042.9
HCM Lane LOS	F	A	A	-	A	-	-	F
HCM 95th %tile Q(veh)	28.2	0.3	-	-	0.6	-	-	21.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	55	15	935	35	75
Future Vol, veh/h	270	55	15	935	35	75
Conflicting Peds, #/hr	0	4	2	0	4	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	273	56	15	944	35	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	333	0	1283	307
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	978	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1238	-	184	738
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1233	-	180	734
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	371	-	-	1233	-
HCM Lane V/C Ratio	0.299	-	-	0.012	-
HCM Control Delay (s)	18.8	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	370	25	110	1035	25	25	
Future Volume (vph)	370	25	110	1035	25	25	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		225	225		250	0	
Storage Lanes		1	1		1	1	
Taper Length (ft)			25		25		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	35			35	25		
Link Distance (ft)	1753			1355	2620		
Travel Time (s)	34.1			26.4	71.5		
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov	
Protected Phases	2	8	1	6	8	1 4	4
Permitted Phases		2	6			8	
Detector Phase	2	8	1	6	8	1 4	
Switch Phase							
Minimum Initial (s)	10.0	5.0	5.0	10.0	5.0		5.0
Minimum Split (s)	28.0	22.5	9.5	15.0	22.5		22.0
Total Split (s)	55.0	30.0	20.0	75.0	30.0		30.0
Total Split (%)	52.4%	28.6%	19.0%	71.4%	28.6%		29%
Maximum Green (s)	50.0	26.0	16.0	70.0	26.0		26.0
Yellow Time (s)	4.0	3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Min	None	None	Min	None		None
Walk Time (s)	6.0	5.0			5.0		7.0
Flash Dont Walk (s)	17.0	13.0			13.0		11.0
Pedestrian Calls (#/hr)	0	0			0		0

Intersection Summary	
Area Type:	Other
Cycle Length: 105	
Actuated Cycle Length: 53.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	370	25	110	1035	25	25
Future Volume (vph)	370	25	110	1035	25	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1548	1804	1881	1787	1599
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1881	1548	874	1881	1787	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	389	26	116	1089	26	26
RTOR Reduction (vph)	0	9	0	0	0	20
Lane Group Flow (vph)	389	17	116	1089	26	6
Confl. Peds. (#/hr)		3	2		3	2
Heavy Vehicles (%)	1%	2%	0%	1%	1%	1%
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov
Protected Phases	2	8	1	6	8	1 4
Permitted Phases		2	6			8
Actuated Green, G (s)	33.4	37.1	42.6	42.6	3.7	12.9
Effective Green, g (s)	33.4	37.1	42.6	42.6	3.7	12.9
Actuated g/C Ratio	0.60	0.67	0.77	0.77	0.07	0.23
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1136	1038	760	1449	119	373
v/s Ratio Prot	0.21	0.00	0.01	c0.58	c0.01	0.00
v/s Ratio Perm		0.01	0.10			
v/c Ratio	0.34	0.02	0.15	0.75	0.22	0.02
Uniform Delay, d1	5.5	3.0	1.8	3.5	24.4	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	2.2	0.9	0.0
Delay (s)	5.6	3.0	1.9	5.7	25.4	16.3
Level of Service	A	A	A	A	C	B
Approach Delay (s)	5.5			5.3	20.8	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	41.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	1	60	1	10	1	1475	195	1	1405	1
Future Vol, veh/h	1	1	1	60	1	10	1	1475	195	1	1405	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	0	1	0	2	2	0	2	0
Mvmt Flow	1	1	1	63	1	11	1	1553	205	1	1479	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2261	3242	740	2400	3140	879	1480	0	0	1758	0	0
Stage 1	1482	1482	-	1658	1658	-	-	-	-	-	-	-
Stage 2	779	1760	-	742	1482	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	23	10	364	~ 18	11	293	461	-	-	361	-	-
Stage 1	134	191	-	103	156	-	-	-	-	-	-	-
Stage 2	359	139	-	376	191	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	20	10	364	~ 16	11	293	461	-	-	361	-	-
Mov Cap-2 Maneuver	20	10	-	~ 16	11	-	-	-	-	-	-	-
Stage 1	134	190	-	103	156	-	-	-	-	-	-	-
Stage 2	343	139	-	372	190	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	216.2	$ 1850.5	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	461	-	-	20	18	361	-	-
HCM Lane V/C Ratio	0.002	-	-	0.158	4.152	0.003	-	-
HCM Control Delay (s)	12.8	-	-	216.2	$ 1850.5	15	-	-
HCM Lane LOS	B	-	-	F	F	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	9.9	0	-	-

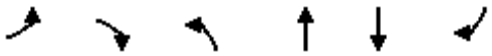
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	64.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	415	10	75	605	25	1	25	40	125	35	30
Future Vol, veh/h	25	415	10	75	605	25	1	25	40	125	35	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	5	7	0	0	0	1	0	0	0	3	2	0
Mvmt Flow	26	428	10	77	624	26	1	26	41	129	36	31
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	27	106.2	11.8	15.1
HCM LOS	D	F	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	6%	11%	66%
Vol Thru, %	38%	92%	86%	18%
Vol Right, %	61%	2%	4%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	66	450	705	190
LT Vol	1	25	75	125
Through Vol	25	415	605	35
RT Vol	40	10	25	30
Lane Flow Rate	68	464	727	196
Geometry Grp	1	1	1	1
Degree of Util (X)	0.136	0.769	1.149	0.385
Departure Headway (Hd)	7.644	6.245	5.69	7.482
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	472	585	640	484
Service Time	5.644	4.245	3.739	5.482
HCM Lane V/C Ratio	0.144	0.793	1.136	0.405
HCM Control Delay	11.8	27	106.2	15.1
HCM Lane LOS	B	D	F	C
HCM 95th-tile Q	0.5	7	23.3	1.8



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	350	240	590	1745	1475	775
Future Volume (vph)	350	240	590	1745	1475	775
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1752	1539	1770	3539	3471	1561
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1752	1539	1770	3539	3471	1561
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	368	253	621	1837	1553	816
RTOR Reduction (vph)	0	193	0	0	0	239
Lane Group Flow (vph)	368	60	621	1837	1553	577
Confl. Bikes (#/hr)		5				5
Heavy Vehicles (%)	3%	3%	2%	2%	4%	1%
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	24.3	24.3	30.5	106.4	71.4	71.4
Effective Green, g (s)	24.3	24.3	30.5	106.4	71.4	71.4
Actuated g/C Ratio	0.17	0.17	0.22	0.76	0.51	0.51
Clearance Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	267	385	2689	1770	796
v/s Ratio Prot	c0.21		c0.35	0.52	c0.45	
v/s Ratio Perm		0.04				0.37
v/c Ratio	1.21	0.22	1.61	0.68	0.88	0.73
Uniform Delay, d1	57.9	49.7	54.8	8.4	30.4	26.7
Progression Factor	1.00	1.00	1.07	0.60	1.00	1.00
Incremental Delay, d2	121.3	0.4	276.9	0.1	6.5	5.7
Delay (s)	179.2	50.2	335.4	5.1	36.9	32.4
Level of Service	F	D	F	A	D	C
Approach Delay (s)	126.6			88.6	35.4	
Approach LOS	F			F	D	

Intersection Summary			
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

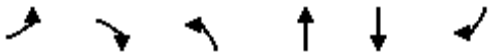
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	350	240	590	1745	1475	775
Future Volume (vph)	350	240	590	1745	1475	775
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350	0	200			325
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	40	
Link Distance (ft)	953			2701	1036	
Travel Time (s)	18.6			46.0	17.7	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	4.0	10.0	10.0	10.0
Minimum Split (s)	53.5	53.5	9.5	23.3	29.8	29.8
Total Split (s)	28.0	28.0	35.0	112.0	77.0	77.0
Total Split (%)	20.0%	20.0%	25.0%	80.0%	55.0%	55.0%
Maximum Green (s)	23.5	23.5	30.5	107.2	72.2	72.2
Yellow Time (s)	4.0	4.0	4.0	4.3	4.3	4.3
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.8	4.8	4.8
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.8	2.8	2.8
Time Before Reduce (s)	8.0	8.0	8.0	10.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	20.0	20.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	10.0	10.0			7.0	7.0
Flash Dont Walk (s)	39.0	39.0			18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 72 (51%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 8: OR 99 W & SW Beef Bend Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	350	240	590	1745	1475	775
Future Volume (veh/h)	350	240	590	1745	1475	775
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1841	1885
Adj Flow Rate, veh/h	368	253	621	1837	1553	816
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	2	4	1
Cap, veh/h	297	264	388	2721	1804	804
Arrive On Green	0.17	0.17	0.44	1.00	0.52	0.52
Sat Flow, veh/h	1767	1572	1781	3647	3589	1560
Grp Volume(v), veh/h	368	253	621	1837	1553	816
Grp Sat Flow(s),veh/h/ln	1767	1572	1781	1777	1749	1560
Q Serve(g_s), s	23.5	22.3	30.5	0.0	54.2	72.2
Cycle Q Clear(g_c), s	23.5	22.3	30.5	0.0	54.2	72.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	297	264	388	2721	1804	804
V/C Ratio(X)	1.24	0.96	1.60	0.68	0.86	1.01
Avail Cap(c_a), veh/h	297	264	388	2721	1804	804
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	58.3	57.8	39.5	0.0	29.5	33.9
Incr Delay (d2), s/veh	133.6	43.9	271.2	0.1	5.7	35.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.4	21.2	39.7	0.0	23.1	33.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	191.9	101.7	310.7	0.1	35.2	69.2
LnGrp LOS	F	F	F	A	D	F
Approach Vol, veh/h	621			2458	2369	
Approach Delay, s/veh	155.1			78.6	46.9	
Approach LOS	F			E	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		28.0	35.0	77.0
Change Period (Y+Rc), s		4.8		4.5	4.5	4.8
Max Green Setting (Gmax), s		107.2		23.5	30.5	72.2
Max Q Clear Time (g_c+I1), s		2.0		25.5	32.5	74.2
Green Ext Time (p_c), s		28.6		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	73.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	50	175	105	930	285	620	40	115	1505	340	10	345
Future Volume (vph)	50	175	105	930	285	620	40	115	1505	340	10	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lane Util. Factor		0.95		0.95	0.95	1.00		1.00	0.95	1.00		0.97
Frpb, ped/bikes		1.00		1.00	1.00	0.96		1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.95		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		3342		1698	1749	1522		1796	3539	1529		3466
Flt Permitted		0.99		0.95	0.97	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		3342		1698	1749	1522		1796	3539	1529		3466
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	180	108	959	294	639	41	119	1552	351	10	356
RTOR Reduction (vph)	0	40	0	0	0	150	0	0	0	122	0	0
Lane Group Flow (vph)	0	300	0	623	630	489	0	160	1552	230	0	366
Confl. Peds. (#/hr)	18		1	9		26		1		9		26
Heavy Vehicles (%)	3%	1%	2%	1%	0%	2%	2%	0%	2%	3%	2%	1%
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Actuated Green, G (s)		16.4		41.6	41.6	41.6		11.0	50.0	50.0		13.0
Effective Green, g (s)		16.4		41.6	41.6	41.6		11.0	50.0	50.0		13.0
Actuated g/C Ratio		0.12		0.30	0.30	0.30		0.08	0.36	0.36		0.09
Clearance Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		391		504	519	452		141	1263	546		321
v/s Ratio Prot		c0.09		c0.37	0.36			0.09	c0.44			c0.11
v/s Ratio Perm						0.32				0.15		
v/c Ratio		0.77		1.24	1.21	1.08		1.13	1.23	0.42		1.14
Uniform Delay, d1		60.0		49.2	49.2	49.2		64.5	45.0	34.0		63.5
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.03	1.28		1.23
Incremental Delay, d2		8.8		122.5	113.0	65.8		100.8	107.5	1.5		82.0
Delay (s)		68.7		171.7	162.2	115.0		165.0	153.7	45.1		160.1
Level of Service		E		F	F	F		F	F	D		F
Approach Delay (s)		68.7			149.4				136.1			
Approach LOS		E			F				F			

Intersection Summary			
HCM 2000 Control Delay	116.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	118.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1255	30
Future Volume (vph)	1255	30
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	5.0
Lane Util. Factor	0.95	1.00
Frpb, ped/bikes	1.00	0.93
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	3438	1496
Flt Permitted	1.00	1.00
Satd. Flow (perm)	3438	1496
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1294	31
RTOR Reduction (vph)	0	19
Lane Group Flow (vph)	1294	12
Confl. Peds. (#/hr)		18
Heavy Vehicles (%)	5%	0%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	52.0	52.0
Effective Green, g (s)	52.0	52.0
Actuated g/C Ratio	0.37	0.37
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	1276	555
v/s Ratio Prot	0.38	
v/s Ratio Perm		0.01
v/c Ratio	1.01	0.02
Uniform Delay, d1	44.0	27.9
Progression Factor	0.43	1.00
Incremental Delay, d2	22.1	0.0
Delay (s)	40.8	27.9
Level of Service	D	C
Approach Delay (s)	66.4	
Approach LOS	E	

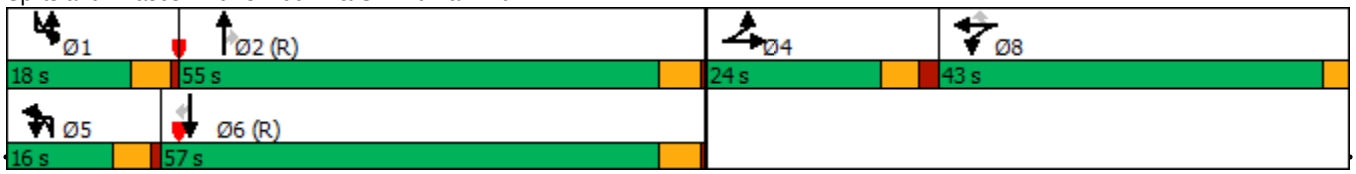
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	50	175	105	930	285	620	40	115	1505	340	10	345
Future Volume (vph)	50	175	105	930	285	620	40	115	1505	340	10	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	325		0		550		250		300
Storage Lanes	0		0	1		1		1		1		2
Taper Length (ft)	25			25				25				25
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		25			35				45			
Link Distance (ft)		869			1937				2415			
Travel Time (s)		23.7			37.7				36.6			
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	4	4		8	8		5	5	2		1	1
Permitted Phases						8				2		
Detector Phase	4	4		8	8	8	5	5	2	2	1	1
Switch Phase												
Minimum Initial (s)	6.0	6.0		4.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	4.0
Minimum Split (s)	24.0	24.0		43.0	43.0	43.0	9.5	9.5	34.0	34.0	9.5	9.5
Total Split (s)	24.0	24.0		43.0	43.0	43.0	16.0	16.0	55.0	55.0	18.0	18.0
Total Split (%)	17.1%	17.1%		30.7%	30.7%	30.7%	11.4%	11.4%	39.3%	39.3%	12.9%	12.9%
Maximum Green (s)	18.0	18.0		40.0	40.0	40.0	11.0	11.0	50.0	50.0	13.0	13.0
Yellow Time (s)	4.0	4.0		3.0	3.0	3.0	4.0	4.0	4.3	4.3	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	0.0	0.0	1.0	1.0	0.7	0.7	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		6.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lead/Lag							Lead	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	2.5	2.5	0.5	0.5
Time Before Reduce (s)	8.0	8.0		1.0	1.0	1.0	8.0	8.0	10.0	10.0	8.0	8.0
Time To Reduce (s)	3.0	3.0		1.0	1.0	1.0	3.0	3.0	20.0	20.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	None
Walk Time (s)				5.0	5.0	5.0			7.0	7.0		
Flash Dont Walk (s)				35.0	35.0	35.0			22.0	22.0		
Pedestrian Calls (#/hr)				0	0	0			0	0		

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 9: OR 99 W & SW Durham Rd



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1255	30
Future Volume (vph)	1255	30
Ideal Flow (vphpl)	1900	1900
Storage Length (ft)		400
Storage Lanes		1
Taper Length (ft)		
Right Turn on Red		Yes
Link Speed (mph)	40	
Link Distance (ft)	2701	
Travel Time (s)	46.0	
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Detector Phase	6	6
Switch Phase		
Minimum Initial (s)	10.0	10.0
Minimum Split (s)	28.0	28.0
Total Split (s)	57.0	57.0
Total Split (%)	40.7%	40.7%
Maximum Green (s)	52.0	52.0
Yellow Time (s)	4.3	4.3
All-Red Time (s)	0.7	0.7
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Minimum Gap (s)	2.5	2.5
Time Before Reduce (s)	10.0	10.0
Time To Reduce (s)	20.0	20.0
Recall Mode	C-Min	C-Min
Walk Time (s)	7.0	7.0
Flash Dont Walk (s)	16.0	16.0
Pedestrian Calls (#/hr)	0	0

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	130	480	500	2000	30	1925	440
Future Volume (vph)	130	480	500	2000	30	1925	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1524	1770	3539	1805	3471	1557
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1524	1770	3539	1805	3471	1557
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	135	500	521	2083	31	2005	458
RTOR Reduction (vph)	0	239	0	0	0	0	167
Lane Group Flow (vph)	135	261	521	2083	31	2005	291
Confl. Peds. (#/hr)	2	8	8				2
Heavy Vehicles (%)	1%	4%	2%	2%	0%	4%	1%
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Actuated Green, G (s)	15.0	15.0	29.5	104.1	5.4	79.0	79.0
Effective Green, g (s)	15.0	15.0	29.5	104.1	5.4	79.0	79.0
Actuated g/C Ratio	0.11	0.11	0.21	0.74	0.04	0.56	0.56
Clearance Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	191	163	372	2631	69	1958	878
v/s Ratio Prot	0.08		c0.29	0.59	0.02	c0.58	
v/s Ratio Perm		c0.17					0.19
v/c Ratio	0.71	1.60	1.40	0.79	0.45	1.02	0.33
Uniform Delay, d1	60.4	62.5	55.2	11.2	65.8	30.5	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.13	0.60	0.93
Incremental Delay, d2	11.3	296.6	195.8	2.5	0.4	13.6	0.1
Delay (s)	71.7	359.1	251.1	13.7	74.9	32.0	15.3
Level of Service	E	F	F	B	E	C	B
Approach Delay (s)	298.0			61.2		29.5	
Approach LOS	F			E		C	

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	130	480	500	2000	30	1925	440
Future Volume (vph)	130	480	500	2000	30	1925	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275	0	450		300		350
Storage Lanes	1	1	1		1		1
Taper Length (ft)	25		25		25		
Right Turn on Red		Yes					Yes
Link Speed (mph)	25			45		45	
Link Distance (ft)	3472			3888		2415	
Travel Time (s)	94.7			58.9		36.6	
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Detector Phase	4	4	5	2	1	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	55.0	55.0	9.5	24.0	9.5	29.0	29.0
Total Split (s)	20.0	20.0	35.0	100.0	20.0	85.0	85.0
Total Split (%)	14.3%	14.3%	25.0%	71.4%	14.3%	60.7%	60.7%
Maximum Green (s)	15.0	15.0	29.5	94.0	15.5	79.0	79.0
Yellow Time (s)	3.5	3.5	4.0	5.0	3.5	5.0	5.0
All-Red Time (s)	1.5	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.5	0.5	2.5	2.5
Time Before Reduce (s)	8.0	8.0	8.0	10.0	8.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	3.0	20.0	20.0
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min
Walk Time (s)	7.0	7.0				7.0	7.0
Flash Dont Walk (s)	43.0	43.0				16.0	16.0
Pedestrian Calls (#/hr)	0	0				0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 7 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 10: OR 99 W & SW Fischer Rd

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	130	480	500	2000	30	1925	440
Future Volume (veh/h)	130	480	500	2000	30	1925	440
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1885	1841	1870	1870		1841	1885
Adj Flow Rate, veh/h	135	500	521	2083		2005	458
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96
Percent Heavy Veh, %	1	4	2	2		4	1
Cap, veh/h	192	167	375	2894		1974	900
Arrive On Green	0.11	0.11	0.21	0.81		1.00	1.00
Sat Flow, veh/h	1795	1560	1781	3647		3589	1595
Grp Volume(v), veh/h	135	500	521	2083		2005	458
Grp Sat Flow(s),veh/h/ln	1795	1560	1781	1777		1749	1595
Q Serve(g_s), s	10.2	15.0	29.5	36.8		79.0	0.0
Cycle Q Clear(g_c), s	10.2	15.0	29.5	36.8		79.0	0.0
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	192	167	375	2894		1974	900
V/C Ratio(X)	0.70	2.99	1.39	0.72		1.02	0.51
Avail Cap(c_a), veh/h	192	167	375	2894		1974	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00		2.00	2.00
Upstream Filter(I)	1.00	1.00	0.67	0.67		0.09	0.09
Uniform Delay (d), s/veh	60.3	62.5	55.3	5.8		0.0	0.0
Incr Delay (d2), s/veh	10.8	912.1	185.4	1.1		10.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	54.6	32.2	9.6		2.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	71.2	974.6	240.7	6.9		10.7	0.2
LnGrp LOS	E	F	F	A		F	A
Approach Vol, veh/h	635			2604		2463	
Approach Delay, s/veh	782.5			53.7		8.7	
Approach LOS	F			D		A	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		120.0		20.0	35.0	85.0	
Change Period (Y+Rc), s		6.0		5.0	5.5	6.0	
Max Green Setting (Gmax), s		94.0		15.0	29.5	79.0	
Max Q Clear Time (g_c+I1), s		38.8		17.0	31.5	81.0	
Green Ext Time (p_c), s		29.5		0.0	0.0	0.0	

Intersection Summary	
HCM 6th Ctrl Delay	115.4
HCM 6th LOS	F

Notes
User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	335	805	1095	95	735	1570		
Future Volume (vph)	335	805	1095	95	735	1570		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	325		225	675			
Storage Lanes	2	2		1	2			
Taper Length (ft)	25				25			
Right Turn on Red		Yes		Yes				
Link Speed (mph)	45		55			45		
Link Distance (ft)	2010		1506			3888		
Travel Time (s)	30.5		18.7			58.9		
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA		
Protected Phases	8	4 1	2		1	6	3	4
Permitted Phases				2				
Detector Phase	8	4 1	2	2	1	6		
Switch Phase								
Minimum Initial (s)	6.0		10.0	10.0	4.0	10.0	4.0	5.0
Minimum Split (s)	41.0		37.0	37.0	9.6	25.0	15.0	10.0
Total Split (s)	45.0		72.0	72.0	23.0	95.0	18.0	27.0
Total Split (%)	32.1%		51.4%	51.4%	16.4%	67.9%	13%	19%
Maximum Green (s)	39.0		66.0	66.0	17.4	89.0	14.0	22.0
Yellow Time (s)	4.0		5.0	5.0	4.5	5.0	4.0	4.0
All-Red Time (s)	2.0		1.0	1.0	1.1	1.0	0.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0		6.0	6.0	5.6	6.0		
Lead/Lag			Lag	Lag	Lead		Lead	Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5		3.4	3.4	0.5	3.4	0.2	0.5
Time Before Reduce (s)	8.0		10.0	10.0	8.0	10.0	0.0	8.0
Time To Reduce (s)	3.0		20.0	20.0	3.0	20.0	0.0	3.0
Recall Mode	None		Min	Min	None	Min	None	None
Walk Time (s)	8.0		9.0	9.0			5.0	
Flash Dont Walk (s)	27.0		22.0	22.0			6.0	
Pedestrian Calls (#/hr)	0		0	0			0	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 90.1
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: OR 99 W & SW 124th Ave

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	335	805	1095	95	735	1570
Future Volume (vph)	335	805	1095	95	735	1570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	5.0	6.0	6.0	5.6	6.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3467	2814	3505	1461	3303	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3467	2814	3505	1461	3303	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	353	847	1153	100	774	1653
RTOR Reduction (vph)	0	219	0	46	0	0
Lane Group Flow (vph)	353	628	1153	54	774	1653
Confl. Peds. (#/hr)	2	8		2	8	
Heavy Vehicles (%)	1%	1%	3%	9%	6%	3%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	4 1	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	16.0	39.8	38.4	38.4	17.8	61.8
Effective Green, g (s)	16.0	39.8	38.4	38.4	17.8	61.8
Actuated g/C Ratio	0.18	0.44	0.43	0.43	0.20	0.69
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	617	1247	1498	624	654	2412
v/s Ratio Prot	0.10	c0.22	c0.33		c0.23	0.47
v/s Ratio Perm				0.04		
v/c Ratio	0.57	0.50	0.77	0.09	1.18	0.69
Uniform Delay, d1	33.8	17.9	21.9	15.3	36.0	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3	2.4	0.1	97.6	0.8
Delay (s)	35.1	18.2	24.4	15.3	133.6	9.1
Level of Service	D	B	C	B	F	A
Approach Delay (s)	23.2		23.7			48.8
Approach LOS	C		C			D

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	20.6
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	175	565	185	485	725	105	15	335	790	365	135	1340
Future Volume (vph)	175	565	185	485	725	105	15	335	790	365	135	1340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00		1.00	0.95	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.96
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1649	3287		3400	3471	1442		1719	3471	1568	1687	4856
Flt Permitted	0.36	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	617	3287		3400	3471	1442		1719	3471	1568	1687	4856
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	179	577	189	495	740	107	15	342	806	372	138	1367
RTOR Reduction (vph)	0	22	0	0	0	69	0	0	0	174	0	37
Lane Group Flow (vph)	179	744	0	495	740	38	0	357	806	198	138	1835
Confl. Peds. (#/hr)	12		6			6	6	6			6	
Heavy Vehicles (%)	9%	5%	6%	3%	4%	10%	5%	5%	4%	3%	7%	2%
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Actuated Green, G (s)	31.7	31.7		12.5	50.2	50.2		20.0	58.9	58.9	14.4	53.3
Effective Green, g (s)	31.7	31.7		12.5	50.2	50.2		20.0	58.9	58.9	14.4	53.3
Actuated g/C Ratio	0.23	0.23		0.09	0.36	0.36		0.14	0.42	0.42	0.10	0.38
Clearance Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	744		303	1244	517		245	1460	659	173	1848
v/s Ratio Prot		0.23		c0.15	0.21			c0.21	0.23		0.08	c0.38
v/s Ratio Perm	c0.29					0.03				0.13		
v/c Ratio	1.29	1.00		1.63	0.59	0.07		1.46	0.55	0.30	0.80	0.99
Uniform Delay, d1	54.1	54.1		63.8	36.6	29.6		60.0	30.6	26.9	61.4	43.2
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	172.9	32.6		299.7	0.8	0.1		226.9	1.5	1.2	22.0	19.3
Delay (s)	227.0	86.7		363.5	37.4	29.6		286.9	32.1	28.1	83.4	62.5
Level of Service	F	F		F	D	C		F	C	C	F	E
Approach Delay (s)		113.3			157.0				90.4			63.9
Approach LOS		F			F				F			E

Intersection Summary			
HCM 2000 Control Delay	100.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWR
Lane Configurations	
Traffic Volume (vph)	495
Future Volume (vph)	495
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	505
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	12
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

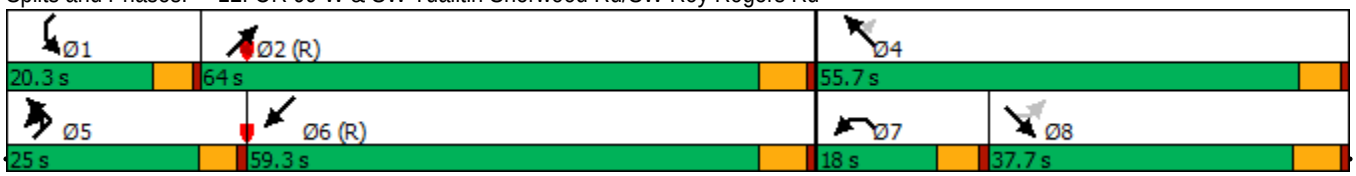
Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	175	565	185	485	725	105	15	335	790	365	135	1340
Future Volume (vph)	175	565	185	485	725	105	15	335	790	365	135	1340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	275		275		675		275	300	
Storage Lanes	1		0	2		1		1		1	1	
Taper Length (ft)	25			25				25			25	
Right Turn on Red			Yes			Yes				Yes		
Link Speed (mph)		35			35				45			45
Link Distance (ft)		1104			1161				1334			1923
Travel Time (s)		21.5			22.6				20.2			29.1
Turn Type	Perm	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA
Protected Phases		8		7	4		5	5	2		1	6
Permitted Phases	8					4				2		
Detector Phase	8	8		7	4	4	5	5	2	2	1	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	4.0	4.0	4.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	24.0	24.0		11.5	48.5	48.5	9.5	9.5	42.0	42.0	9.5	37.0
Total Split (s)	37.7	37.7		18.0	55.7	55.7	25.0	25.0	64.0	64.0	20.3	59.3
Total Split (%)	26.9%	26.9%		12.9%	39.8%	39.8%	17.9%	17.9%	45.7%	45.7%	14.5%	42.4%
Maximum Green (s)	31.7	31.7		12.5	50.2	50.2	20.0	20.0	58.0	58.0	15.3	53.3
Yellow Time (s)	5.0	5.0		4.5	4.5	4.5	4.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		5.5	5.5	5.5		5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lag	Lag		Lead			Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5		0.5	0.2	0.2	1.0	1.0	2.4	2.4	2.0	2.4
Time Before Reduce (s)	8.0	8.0		8.0	0.0	0.0	8.0	8.0	10.0	10.0	8.0	10.0
Time To Reduce (s)	3.0	3.0		3.0	0.0	0.0	3.0	3.0	20.0	20.0	3.0	20.0
Recall Mode	None	None		None	None	None	None	None	C-Min	C-Min	None	C-Min
Walk Time (s)					10.0	10.0			8.0	8.0		9.0
Flash Dont Walk (s)					33.0	33.0			28.0	28.0		22.0
Pedestrian Calls (#/hr)					0	0			0	0		0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NET and 6:SWT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd



Lane Group	SWR
Lane Configurations	
Traffic Volume (vph)	495
Future Volume (vph)	495
Ideal Flow (vphpl)	1900
Storage Length (ft)	350
Storage Lanes	1
Taper Length (ft)	
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Minimum Gap (s)	
Time Before Reduce (s)	
Time To Reduce (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	NEL	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (veh/h)	175	565	185	485	725	105	15	335	790	365	135	1340
Future Volume (veh/h)	175	565	185	485	725	105	15	335	790	365	135	1340
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No
Adj Sat Flow, veh/h/ln	1767	1826	1826	1856	1841	1752		1826	1841	1856	1796	1870
Adj Flow Rate, veh/h	179	577	189	495	740	107		342	806	372	138	1367
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	5	5	3	4	10		5	4	3	7	2
Cap, veh/h	163	579	189	306	1242	524		248	1503	673	160	1399
Arrive On Green	0.23	0.23	0.23	0.09	0.36	0.36		0.14	0.43	0.43	0.09	0.38
Sat Flow, veh/h	613	2558	836	3428	3497	1477		1739	3497	1566	1711	3674
Grp Volume(v), veh/h	179	391	375	495	740	107		342	806	372	138	1266
Grp Sat Flow(s),veh/h/ln	613	1735	1660	1714	1749	1477		1739	1749	1566	1711	1702
Q Serve(g_s), s	25.5	31.5	31.7	12.5	24.2	7.1		20.0	23.9	24.9	11.1	51.3
Cycle Q Clear(g_c), s	31.7	31.5	31.7	12.5	24.2	7.1		20.0	23.9	24.9	11.1	51.3
Prop In Lane	1.00		0.50	1.00		1.00		1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	163	393	376	306	1242	524		248	1503	673	160	1296
V/C Ratio(X)	1.10	0.99	1.00	1.62	0.60	0.20		1.38	0.54	0.55	0.86	0.98
Avail Cap(c_a), veh/h	163	393	376	306	1254	530		248	1503	673	187	1296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	54.1	54.1	63.7	36.9	31.4		60.0	29.6	29.9	62.5	42.7
Incr Delay (d2), s/veh	99.3	43.9	46.1	292.3	0.8	0.2		192.8	1.4	3.3	28.1	20.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	18.4	17.9	17.9	10.4	2.6		21.9	10.0	9.7	6.0	24.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.6	98.0	100.2	356.1	37.7	31.6		252.8	31.0	33.1	90.6	62.7
LnGrp LOS	F	F	F	F	D	C		F	C	C	F	E
Approach Vol, veh/h		945			1342				1520			2010
Approach Delay, s/veh		110.7			154.6				81.4			68.7
Approach LOS		F			F				F			E

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	66.2		55.7	25.0	59.3	18.0	37.7
Change Period (Y+Rc), s	5.0	6.0		* 6	5.0	6.0	5.5	6.0
Max Green Setting (Gmax), s	15.3	58.0		* 50	20.0	53.3	12.5	31.7
Max Q Clear Time (g_c+I1), s	13.1	26.9		26.2	22.0	54.2	14.5	33.7
Green Ext Time (p_c), s	0.1	7.4		5.6	0.0	0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		98.7
HCM 6th LOS		F

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SWR
Lane Configurations	
Traffic Volume (veh/h)	495
Future Volume (veh/h)	495
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	505
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	511
Arrive On Green	0.38
Sat Flow, veh/h	1343
Grp Volume(v), veh/h	606
Grp Sat Flow(s),veh/h/ln	1613
Q Serve(g_s), s	52.2
Cycle Q Clear(g_c), s	52.2
Prop In Lane	0.83
Lane Grp Cap(c), veh/h	614
V/C Ratio(X)	0.99
Avail Cap(c_a), veh/h	614
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	43.0
Incr Delay (d2), s/veh	33.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	25.6
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	76.4
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	235	130	40	475	55	170
Future Vol, veh/h	235	130	40	475	55	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	1	1	2	1	1
Mvmt Flow	247	137	42	500	58	179

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	384	0	900	316
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	584	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1180	-	310	727
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	559	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1180	-	295	727
Mov Cap-2 Maneuver	-	-	-	-	295	-
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	559	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	535	-	-	1180	-
HCM Lane V/C Ratio	0.443	-	-	0.036	-
HCM Control Delay (s)	17	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	14.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	160	5	900	170	5
Future Vol, veh/h	240	160	5	900	170	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	1	1	2	1	1
Mvmt Flow	253	168	5	947	179	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	421	0	1294	337
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	957	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1144	-	180	707
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	375	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1144	-	~ 178	707
Mov Cap-2 Maneuver	-	-	-	-	~ 178	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	375	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	122.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	182	-	-	1144	-
HCM Lane V/C Ratio	1.012	-	-	0.005	-
HCM Control Delay (s)	122.5	-	-	8.2	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	8.5	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	60.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	30	1265	220	180	1195
Future Vol, veh/h	60	30	1265	220	180	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	3	1	2	1
Mvmt Flow	63	32	1332	232	189	1258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2455	782	0	0	1564	0
Stage 1	1448	-	-	-	-	-
Stage 2	1007	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.14	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.22	-
Pot Cap-1 Maneuver	~ 26	339	-	-	418	-
Stage 1	184	-	-	-	-	-
Stage 2	316	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 14	339	-	-	418	-
Mov Cap-2 Maneuver	~ 14	-	-	-	-	-
Stage 1	101	-	-	-	-	-
Stage 2	316	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1952.5	0	2.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	21	418	-
HCM Lane V/C Ratio	-	-	4.511	0.453	-
HCM Control Delay (s)	-	-	$ 1952.5	20.6	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	12.1	2.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Queuing and Blocking Report

Intersection: 1: SW Roy Rogers Rd & SW Beef Bend Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	LT	T	R	L	T	TR
Maximum Queue (ft)	31	124	361	233	274	175	197	375	321
Average Queue (ft)	2	99	156	144	144	50	112	111	83
95th Queue (ft)	16	149	305	210	222	131	182	228	187
Link Distance (ft)	808		1242	2042	2042			1157	1157
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		100				150	175		
Storage Blk Time (%)		10	19		4	0	2	0	
Queuing Penalty (veh)		36	32		7	0	15	0	

Intersection: 2: SW Elsner Rd/SW Taylor Ln & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	26	49	176	27
Average Queue (ft)	1	3	68	3
95th Queue (ft)	11	24	124	17
Link Distance (ft)	1221	1335	1074	1030
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SW 150th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	141	57	45	1097	547
Average Queue (ft)	42	24	6	805	280
95th Queue (ft)	98	54	25	1350	623
Link Distance (ft)	1287		3206	1231	1065
Upstream Blk Time (%)				23	1
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)		150			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Intersection: 4: SW 137th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	11	31	41	92
Average Queue (ft)	0	4	3	41
95th Queue (ft)	6	22	23	73
Link Distance (ft)	3206		1693	1317
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	142	38	66	217	55	40
Average Queue (ft)	51	4	29	78	15	11
95th Queue (ft)	111	22	58	170	41	33
Link Distance (ft)	1693			1323		2536
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	225		250	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 6: SW Roy Rogers Rd & SW Elsner Rd

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	L
Maximum Queue (ft)	30	651	10	23	14
Average Queue (ft)	5	378	0	1	1
95th Queue (ft)	21	771	5	14	8
Link Distance (ft)	968	1100		1308	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Intersection: 7: SW 131st Ave & SW Fischer Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	261	322	73	123
Average Queue (ft)	125	157	31	62
95th Queue (ft)	210	288	57	100
Link Distance (ft)	824	3372	1052	2536
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: OR 99 W & SW Beef Bend Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	375	935	225	2548	2561	626	704	350
Average Queue (ft)	374	895	224	1834	1733	352	349	253
95th Queue (ft)	377	976	228	2701	2753	552	606	408
Link Distance (ft)		887		2603	2603	1006	1006	
Upstream Blk Time (%)		74		2	2		0	
Queuing Penalty (veh)		0		22	25		0	
Storage Bay Dist (ft)	350		200					325
Storage Blk Time (%)	80	0	88	1			3	3
Queuing Penalty (veh)	193	0	764	7			23	22

Queuing and Blocking Report

Intersection: 9: OR 99 W & SW Durham Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	TR	L	LT	R	UL	T	T	R	UL	L	T
Maximum Queue (ft)	271	262	350	1927	1918	412	679	681	275	312	325	1088
Average Queue (ft)	157	130	346	1832	1786	96	302	304	121	270	301	597
95th Queue (ft)	254	231	367	2151	2325	251	581	599	301	373	382	1067
Link Distance (ft)	805	805		1874	1874		2329	2329				2603
Upstream Blk Time (%)				71	58							
Queuing Penalty (veh)				0	0							
Storage Bay Dist (ft)			325			550			250	300	300	
Storage Blk Time (%)			9	48			2	17	0	9	38	13
Queuing Penalty (veh)			68	225			3	58	0	54	241	47

Intersection: 9: OR 99 W & SW Durham Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	1097	425
Average Queue (ft)	593	77
95th Queue (ft)	1071	333
Link Distance (ft)	2603	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		400
Storage Blk Time (%)	17	0
Queuing Penalty (veh)	5	0

Intersection: 10: OR 99 W & SW Fischer Rd

Movement	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	U	T	T	R
Maximum Queue (ft)	300	3071	475	3916	3888	274	1188	1228	375
Average Queue (ft)	245	1805	473	3540	3524	48	545	551	196
95th Queue (ft)	406	3133	477	4651	4630	181	1038	1074	449
Link Distance (ft)		3372		3820	3820		2329	2329	
Upstream Blk Time (%)		0		68	71				
Queuing Penalty (veh)		1		643	671				
Storage Bay Dist (ft)	275		450			300			350
Storage Blk Time (%)	0	79	91	1		0	23	18	0
Queuing Penalty (veh)	0	102	907	4		0	7	77	1

Intersection: 11: OR 99 W & SW 124th Ave

Movement	NW	NW	NW	NW	NE	NE	NE	SW	SW	SW	SW
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	1976	1987	350	338	1503	1508	250	687	700	2314	2281
Average Queue (ft)	1037	1147	318	305	996	989	121	539	553	881	796
95th Queue (ft)	2399	2453	422	414	1958	1970	314	852	860	2361	2231
Link Distance (ft)	1950	1950			1459	1459				3820	3820
Upstream Blk Time (%)	11	36			49	50					
Queuing Penalty (veh)	0	0			0	0					
Storage Bay Dist (ft)			325	325			225	675	675		
Storage Blk Time (%)		1	53	33		64	0	10	36	1	
Queuing Penalty (veh)		10	88	56		61	1	78	286	10	

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

Movement	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	NE	NE
Directions Served	L	T	TR	L	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	275	1085	1084	287	300	1164	1152	300	700	1338	1328	300
Average Queue (ft)	257	899	875	284	299	1118	1081	65	700	1292	1259	103
95th Queue (ft)	338	1219	1215	299	301	1202	1241	182	702	1398	1418	257
Link Distance (ft)		1046	1046			1106	1106			1282	1282	
Upstream Blk Time (%)		28	24			83	18			82	20	
Queuing Penalty (veh)		0	0			0	0			0	0	
Storage Bay Dist (ft)	250			275	275			275	675			275
Storage Blk Time (%)	47	45		12	79	2	4	0	95	6	2	0
Queuing Penalty (veh)	131	79		44	285	9	4	0	374	21	8	0

Intersection: 12: OR 99 W & SW Tualitin Sherwood Rd/SW Roy Rogers Rd

Movement	SW	SW	SW	SW
Directions Served	L	T	T	TR
Maximum Queue (ft)	325	708	715	375
Average Queue (ft)	219	421	423	329
95th Queue (ft)	388	642	665	427
Link Distance (ft)		1853	1853	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300			350
Storage Blk Time (%)	1	20	10	12
Queuing Penalty (veh)	4	28	92	52

Queuing and Blocking Report

Intersection: 13: West URA 6D Access/River Terrace Blvd & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	134	119	212	94
Average Queue (ft)	21	24	76	40
95th Queue (ft)	79	80	146	71
Link Distance (ft)	1242	1221	1082	641
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: East URA 6D Access & SW Beef Bend Rd

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	17	52	254
Average Queue (ft)	1	4	103
95th Queue (ft)	7	26	221
Link Distance (ft)	1335	1287	1835
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: SW Roy Rogers Rd & SW Fischer Rd Extension

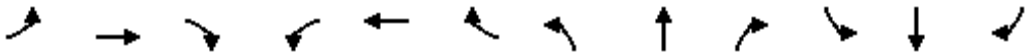
Movement	WB	NB	SB	SB	SB
Directions Served	LR	TR	L	T	T
Maximum Queue (ft)	1402	41	174	316	296
Average Queue (ft)	726	10	105	48	35
95th Queue (ft)	1448	32	182	228	193
Link Distance (ft)	1616	1818		2042	2042
Upstream Blk Time (%)	4				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)			150		
Storage Blk Time (%)			14	0	
Queuing Penalty (veh)			85	0	

Network Summary

Network wide Queuing Penalty: 6070

APPENDIX G

2035 URA 6D MITIGATION ANALYSIS WORKSHEETS



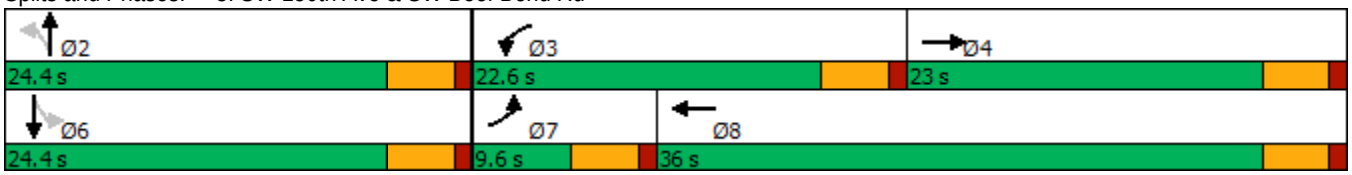
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	45	100	250	600	150	100	50	150	85	1	120
Future Volume (vph)	75	45	100	250	600	150	100	50	150	85	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.90		1.00	0.97		1.00	0.89			0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1752	1687		1805	1828		1805	1687			1644	
Flt Permitted	0.95	1.00		0.95	1.00		0.59	1.00			0.68	
Satd. Flow (perm)	1752	1687		1805	1828		1114	1687			1134	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	46	103	258	619	155	103	52	155	88	1	124
RTOR Reduction (vph)	0	69	0	0	12	0	0	124	0	0	80	0
Lane Group Flow (vph)	77	80	0	258	762	0	103	83	0	0	133	0
Heavy Vehicles (%)	3%	3%	0%	0%	1%	0%	0%	0%	0%	2%	0%	6%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	3.7	18.9		13.3	28.5		11.4	11.4			11.4	
Effective Green, g (s)	3.7	18.9		13.3	28.5		11.4	11.4			11.4	
Actuated g/C Ratio	0.06	0.33		0.23	0.50		0.20	0.20			0.20	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	113	558		420	912		222	336			226	
v/s Ratio Prot	0.04	0.05		c0.14	c0.42			0.05				
v/s Ratio Perm							0.09				c0.12	
v/c Ratio	0.68	0.14		0.61	0.84		0.46	0.25			0.59	
Uniform Delay, d1	26.1	13.4		19.6	12.3		20.2	19.2			20.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	15.6	0.1		2.7	6.7		1.5	0.4			3.9	
Delay (s)	41.7	13.5		22.3	19.0		21.7	19.6			24.6	
Level of Service	D	B		C	B		C	B			C	
Approach Delay (s)		23.1			19.8			20.3			24.6	
Approach LOS		C			B			C			C	

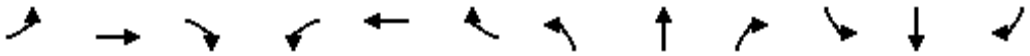
Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	45	100	250	600	150	100	50	150	85	1	120
Future Volume (vph)	75	45	100	250	600	150	100	50	150	85	1	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	100		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1338			3274			1265			1101	
Travel Time (s)		20.3			49.6			34.5			30.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	9.6	23.0		22.6	36.0		24.4	24.4		24.4	24.4	
Total Split (%)	13.7%	32.9%		32.3%	51.4%		34.9%	34.9%		34.9%	34.9%	
Maximum Green (s)	5.1	18.5		18.1	31.5		19.9	19.9		19.9	19.9	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 56.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: SW 150th Ave & SW Beef Bend Rd

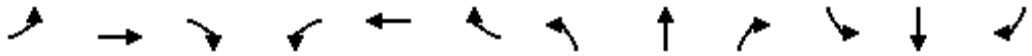




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	45	100	250	600	150	100	50	150	85	1	120
Future Volume (veh/h)	75	45	100	250	600	150	100	50	150	85	1	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1900	1885	1885	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	77	46	103	258	619	155	103	52	155	88	1	124
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	0	1	1	0	0	0	0	0	0
Cap, veh/h	107	181	406	318	685	172	367	101	300	163	35	155
Arrive On Green	0.06	0.36	0.36	0.18	0.47	0.47	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1767	509	1141	1810	1455	364	1286	421	1254	321	145	649
Grp Volume(v), veh/h	77	0	149	258	0	774	103	0	207	213	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1650	1810	0	1820	1286	0	1674	1115	0	0
Q Serve(g_s), s	2.5	0.0	3.8	8.1	0.0	23.1	0.0	0.0	6.3	5.1	0.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	3.8	8.1	0.0	23.1	5.4	0.0	6.3	11.5	0.0	0.0
Prop In Lane	1.00		0.69	1.00		0.20	1.00		0.75	0.41		0.58
Lane Grp Cap(c), veh/h	107	0	587	318	0	857	367	0	401	353	0	0
V/C Ratio(X)	0.72	0.00	0.25	0.81	0.00	0.90	0.28	0.00	0.52	0.60	0.00	0.00
Avail Cap(c_a), veh/h	153	0	587	556	0	972	493	0	565	491	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.2	0.0	13.5	23.4	0.0	14.4	19.1	0.0	19.5	21.6	0.0	0.0
Incr Delay (d2), s/veh	8.8	0.0	0.2	4.9	0.0	10.7	0.4	0.0	1.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.2	3.4	0.0	9.4	1.2	0.0	2.4	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	0.0	13.7	28.3	0.0	25.1	19.5	0.0	20.5	23.2	0.0	0.0
LnGrp LOS	D	A	B	C	A	C	B	A	C	C	A	A
Approach Vol, veh/h		226			1032			310			213	
Approach Delay, s/veh		21.3			25.9			20.2			23.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.6	14.9	25.5		18.6	8.1	32.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.9	18.1	18.5		19.9	5.1	31.5				
Max Q Clear Time (g_c+I1), s		8.3	10.1	5.8		13.5	4.5	25.1				
Green Ext Time (p_c), s		1.3	0.4	0.5		0.7	0.0	2.7				

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	415	10	75	605	25	1	25	40	125	35	30
Future Volume (vph)	25	415	10	75	605	25	1	25	40	125	35	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.97			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			1.00			0.92			0.98	
Flt Protected		1.00			0.99			1.00			0.97	
Satd. Flow (prot)		1768			1876			1699			1735	
Flt Permitted		0.95			0.91			1.00			0.76	
Satd. Flow (perm)		1684			1723			1693			1363	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	26	428	10	77	624	26	1	26	41	129	36	31
RTOR Reduction (vph)	0	1	0	0	2	0	0	30	0	0	12	0
Lane Group Flow (vph)	0	463	0	0	725	0	0	38	0	0	184	0
Confl. Peds. (#/hr)	7		13	18		12	13		18	12		7
Heavy Vehicles (%)	5%	7%	0%	0%	0%	1%	0%	0%	0%	3%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.8			24.8			11.9			11.9	
Effective Green, g (s)		24.8			24.8			11.9			11.9	
Actuated g/C Ratio		0.54			0.54			0.26			0.26	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		913			935			440			354	
v/s Ratio Prot												
v/s Ratio Perm		0.27			c0.42			0.02			c0.14	
v/c Ratio		0.51			0.78			0.09			0.52	
Uniform Delay, d1		6.6			8.2			12.8			14.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			4.1			0.1			1.4	
Delay (s)		7.0			12.3			12.9			15.8	
Level of Service		A			B			B			B	
Approach Delay (s)		7.0			12.3			12.9			15.8	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	45.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

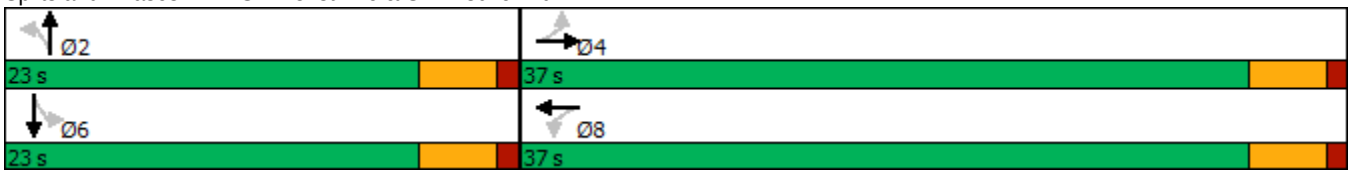
c Critical Lane Group

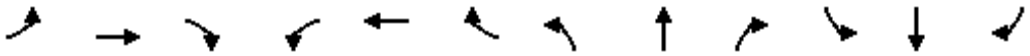
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	415	10	75	605	25	1	25	40	125	35	30
Future Volume (vph)	25	415	10	75	605	25	1	25	40	125	35	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		858			3046			1087			2620	
Travel Time (s)		23.4			83.1			29.6			71.5	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	37.0	37.0		37.0	37.0		23.0	23.0		23.0	23.0	
Total Split (%)	61.7%	61.7%		61.7%	61.7%		38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	32.5	32.5		32.5	32.5		18.5	18.5		18.5	18.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 46.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: SW 131st Ave & SW Fischer Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	415	10	75	605	25	1	25	40	125	35	30
Future Volume (veh/h)	25	415	10	75	605	25	1	25	40	125	35	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	0.98		0.96	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1900	1900	1900	1900	1900	1900	1870	1870	1870
Adj Flow Rate, veh/h	26	428	10	77	624	26	1	26	41	129	36	31
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	7	7	0	0	0	0	0	0	2	2	2
Cap, veh/h	123	869	20	167	836	33	100	154	236	353	96	54
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	39	1662	37	114	1599	64	7	656	1006	821	410	231
Grp Volume(v), veh/h	464	0	0	727	0	0	68	0	0	196	0	0
Grp Sat Flow(s),veh/h/ln	1738	0	0	1776	0	0	1669	0	0	1462	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.0	11.8	0.0	0.0	1.2	0.0	0.0	4.2	0.0	0.0
Prop In Lane	0.06		0.02	0.11		0.04	0.01		0.60	0.66		0.16
Lane Grp Cap(c), veh/h	1011	0	0	1036	0	0	489	0	0	504	0	0
V/C Ratio(X)	0.46	0.00	0.00	0.70	0.00	0.00	0.14	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1599	0	0	1643	0	0	930	0	0	877	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	6.9	0.0	0.0	11.3	0.0	0.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	2.9	0.0	0.0	0.4	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	0.0	0.0	7.8	0.0	0.0	11.5	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		464			727			68			196	
Approach Delay, s/veh		6.0			7.8			11.5			12.9	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.2		23.9		13.2		23.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		32.5		18.5		32.5				
Max Q Clear Time (g_c+I1), s		3.2		8.2		6.2		13.8				
Green Ext Time (p_c), s		0.2		3.4		0.9		5.6				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	130	480	500	2000	30	1925	440
Future Volume (vph)	130	480	500	2000	30	1925	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	0.88	0.97	0.95	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	2648	3433	3539	1805	3471	1574
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	2648	3433	3539	1805	3471	1574
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	135	500	521	2083	31	2005	458
RTOR Reduction (vph)	0	425	0	0	0	0	154
Lane Group Flow (vph)	135	75	521	2083	31	2005	304
Confl. Peds. (#/hr)	2	8	8				2
Heavy Vehicles (%)	1%	4%	2%	2%	0%	4%	1%
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Actuated Green, G (s)	13.8	13.8	25.8	105.3	5.4	83.9	83.9
Effective Green, g (s)	13.8	13.8	25.8	105.3	5.4	83.9	83.9
Actuated g/C Ratio	0.10	0.10	0.18	0.75	0.04	0.60	0.60
Clearance Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	176	261	632	2661	69	2080	943
v/s Ratio Prot	c0.08		c0.15	0.59	0.02	c0.58	
v/s Ratio Perm		0.03					0.19
v/c Ratio	0.77	0.29	0.82	0.78	0.45	0.96	0.32
Uniform Delay, d1	61.5	58.5	54.9	10.5	65.8	26.6	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.07	0.84	1.71
Incremental Delay, d2	17.9	0.6	8.6	2.4	0.4	1.9	0.1
Delay (s)	79.5	59.1	63.5	12.8	70.5	24.1	23.9
Level of Service	E	E	E	B	E	C	C
Approach Delay (s)	63.5			23.0		24.7	
Approach LOS	E			C		C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	130	480	500	2000	30	1925	440
Future Volume (vph)	130	480	500	2000	30	1925	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275	100	450		300		350
Storage Lanes	1	1	2		1		1
Taper Length (ft)	25		25		25		
Right Turn on Red		Yes					Yes
Link Speed (mph)	25			45		45	
Link Distance (ft)	404			3888		2415	
Travel Time (s)	11.0			58.9		36.6	
Turn Type	Prot	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	4		5	2	1	6	
Permitted Phases		4					6
Detector Phase	4	4	5	2	1	6	6
Switch Phase							
Minimum Initial (s)	6.0	6.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	55.0	55.0	9.5	24.0	9.5	29.0	29.0
Total Split (s)	20.0	20.0	35.0	100.0	20.0	85.0	85.0
Total Split (%)	14.3%	14.3%	25.0%	71.4%	14.3%	60.7%	60.7%
Maximum Green (s)	15.0	15.0	29.5	94.0	15.5	79.0	79.0
Yellow Time (s)	3.5	3.5	4.0	5.0	3.5	5.0	5.0
All-Red Time (s)	1.5	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.5	6.0	4.5	6.0	6.0
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	0.5	0.5	0.5	2.5	0.5	2.5	2.5
Time Before Reduce (s)	8.0	8.0	8.0	10.0	8.0	10.0	10.0
Time To Reduce (s)	3.0	3.0	3.0	20.0	3.0	20.0	20.0
Recall Mode	None	None	None	C-Min	None	C-Min	C-Min
Walk Time (s)	7.0	7.0				7.0	7.0
Flash Dont Walk (s)	43.0	43.0				16.0	16.0
Pedestrian Calls (#/hr)	0	0				0	0

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 76 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 10: OR 99 W & SW Fischer Rd

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	130	480	500	2000	30	1925	440
Future Volume (veh/h)	130	480	500	2000	30	1925	440
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1885	1841	1870	1870		1841	1885
Adj Flow Rate, veh/h	135	500	521	2083		2005	458
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96
Percent Heavy Veh, %	1	4	2	2		4	1
Cap, veh/h	192	294	586	2894		2117	965
Arrive On Green	0.11	0.11	0.17	0.81		0.81	0.81
Sat Flow, veh/h	1795	2745	3456	3647		3589	1595
Grp Volume(v), veh/h	135	500	521	2083		2005	458
Grp Sat Flow(s),veh/h/ln	1795	1373	1728	1777		1749	1595
Q Serve(g_s), s	10.2	15.0	20.6	36.8		65.9	12.7
Cycle Q Clear(g_c), s	10.2	15.0	20.6	36.8		65.9	12.7
Prop In Lane	1.00	1.00	1.00				1.00
Lane Grp Cap(c), veh/h	192	294	586	2894		2117	965
V/C Ratio(X)	0.70	1.70	0.89	0.72		0.95	0.47
Avail Cap(c_a), veh/h	192	294	728	2894		2117	965
HCM Platoon Ratio	1.00	1.00	1.00	1.00		1.33	1.33
Upstream Filter(I)	1.00	1.00	0.67	0.67		0.09	0.09
Uniform Delay (d), s/veh	60.3	62.5	56.8	5.8		11.8	6.6
Incr Delay (d2), s/veh	10.8	329.1	7.8	1.1		1.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	24.3	9.5	9.6		12.4	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	71.2	391.6	64.7	6.9		13.1	6.8
LnGrp LOS	E	F	E	A		B	A
Approach Vol, veh/h	635			2604		2463	
Approach Delay, s/veh	323.5			18.5		11.9	
Approach LOS	F			B		B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		120.0		20.0	29.3	90.7	
Change Period (Y+Rc), s		6.0		5.0	5.5	6.0	
Max Green Setting (Gmax), s		94.0		15.0	29.5	79.0	
Max Q Clear Time (g_c+I1), s		38.8		17.0	22.6	67.9	
Green Ext Time (p_c), s		29.5		0.0	1.1	9.6	

Intersection Summary	
HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes
User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	30	1265	220	180	1195
Future Volume (vph)	60	30	1265	220	180	1195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5		4.5	4.5
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.98		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1738		3437		1770	3574
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1738		3437		1770	3574
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	32	1332	232	189	1258
RTOR Reduction (vph)	23	0	14	0	0	0
Lane Group Flow (vph)	72	0	1550	0	189	1258
Heavy Vehicles (%)	1%	1%	3%	1%	2%	1%
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	7.2		42.8		11.8	59.1
Effective Green, g (s)	7.2		42.8		11.8	59.1
Actuated g/C Ratio	0.10		0.57		0.16	0.78
Clearance Time (s)	4.5		4.5		4.5	4.5
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	166		1953		277	2805
v/s Ratio Prot	c0.04		c0.45		c0.11	0.35
v/s Ratio Perm						
v/c Ratio	0.44		0.79		0.68	0.45
Uniform Delay, d1	32.1		12.8		30.0	2.7
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.8		2.3		6.8	0.1
Delay (s)	34.0		15.1		36.7	2.8
Level of Service	C		B		D	A
Approach Delay (s)	34.0		15.1			7.2
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	30	1265	220	180	1195
Future Volume (vph)	60	30	1265	220	180	1195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Right Turn on Red		Yes		Yes		
Link Speed (mph)	30		55			55
Link Distance (ft)	1662		1880			2100
Travel Time (s)	37.8		23.3			26.0
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	22.6		50.4		17.0	67.4
Total Split (%)	25.1%		56.0%		18.9%	74.9%
Maximum Green (s)	18.1		45.9		12.5	62.9
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		4.5		4.5	4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		None	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 74.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 15: SW Roy Rogers Rd & SW Fischer Rd Extension

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	30	1265	220	180	1195
Future Volume (veh/h)	60	30	1265	220	180	1195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1856	1856	1870	1885
Adj Flow Rate, veh/h	63	32	1332	232	189	1258
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	3	3	2	1
Cap, veh/h	82	42	1705	294	238	2780
Arrive On Green	0.07	0.07	0.57	0.57	0.13	0.78
Sat Flow, veh/h	1141	580	3100	518	1781	3676
Grp Volume(v), veh/h	96	0	775	789	189	1258
Grp Sat Flow(s),veh/h/ln	1739	0	1763	1762	1781	1791
Q Serve(g_s), s	3.2	0.0	20.2	20.8	6.1	7.2
Cycle Q Clear(g_c), s	3.2	0.0	20.2	20.8	6.1	7.2
Prop In Lane	0.66	0.33		0.29	1.00	
Lane Grp Cap(c), veh/h	125	0	999	999	238	2780
V/C Ratio(X)	0.77	0.00	0.78	0.79	0.80	0.45
Avail Cap(c_a), veh/h	530	0	1363	1363	375	3796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	9.9	10.1	24.9	2.3
Incr Delay (d2), s/veh	9.3	0.0	2.0	2.2	6.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	4.9	5.1	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.4	0.0	11.9	12.3	31.1	2.4
LnGrp LOS	D	A	B	B	C	A
Approach Vol, veh/h	96		1564			1447
Approach Delay, s/veh	36.4		12.1			6.1
Approach LOS	D		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.4	38.2			50.6	8.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	12.5	45.9			62.9	18.1
Max Q Clear Time (g_c+I1), s	8.1	22.8			9.2	5.2
Green Ext Time (p_c), s	0.2	10.8			10.6	0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Queuing and Blocking Report

Intersection: 2: SW Elsner Rd/SW Taylor Ln & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	5	28	141	26
Average Queue (ft)	0	2	67	4
95th Queue (ft)	4	14	114	18
Link Distance (ft)			1068	1024
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SW 150th Ave & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	97	106	174	811	117	146	223
Average Queue (ft)	47	42	147	337	52	66	103
95th Queue (ft)	87	80	211	712	97	117	186
Link Distance (ft)		1282		3200		1231	1065
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150		100		
Storage Blk Time (%)		0	5	22	1	2	
Queuing Penalty (veh)		0	34	56	2	2	

Intersection: 7: SW 131st Ave & SW Fischer Rd

Movement	EB	WB	B43	B43	NB	SB
Directions Served	LTR	LTR	T		LTR	LTR
Maximum Queue (ft)	277	480	357	277	65	152
Average Queue (ft)	121	189	36	14	29	76
95th Queue (ft)	227	382	208	124	61	130
Link Distance (ft)	824	2983	312	312	1058	2542
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			2	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Intersection: 10: OR 99 W & SW Fischer Rd

Movement	EB	EB	EB	B43	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	T	L	L	T	T	U	T	T	R
Maximum Queue (ft)	299	406	125	1178	462	475	3832	3794	324	2089	2099	375
Average Queue (ft)	183	266	106	159	396	457	2453	2422	62	1053	1068	216
95th Queue (ft)	328	460	158	762	573	547	4369	4373	222	2094	2125	487
Link Distance (ft)		312		2983			3806	3806		2319	2319	
Upstream Blk Time (%)	1	20					17	18		1	2	
Queuing Penalty (veh)	0	118					164	166		15	18	
Storage Bay Dist (ft)	275		100		450	450			300			350
Storage Blk Time (%)	10	33	25		34	50	19			33	29	0
Queuing Penalty (veh)	48	120	93		345	498	94			10	128	1

Intersection: 13: West URA 6D Access/River Terrace Blvd & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	48	18	44	17	152	83
Average Queue (ft)	10	1	12	1	67	40
95th Queue (ft)	35	9	37	7	116	71
Link Distance (ft)		1242		1221	1082	641
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 14: East URA 6D Access & SW Beef Bend Rd

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	28	251
Average Queue (ft)	2	113
95th Queue (ft)	14	219
Link Distance (ft)		1829
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 15: SW Roy Rogers Rd & SW Fischer Rd Extension

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	104	254	256	163	137	114
Average Queue (ft)	51	122	147	97	23	43
95th Queue (ft)	91	214	240	151	78	93
Link Distance (ft)	1616	1818	1818		2042	2042
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				150		
Storage Blk Time (%)				1	0	
Queuing Penalty (veh)				6	0	

Zone Summary

Zone wide Queuing Penalty: 1922

SIGNAL WARRANT ANALYSIS

Project Name: King City URA 6D
Analyst: Ryan Shea
Date: 28-Mar-18

Intersection: Beef Bend Rd @ 150th Avenue
Conditions (yr, alt., etc.): 2035 PM with Project

GENERAL INPUT PARAMETERS:

Number of lanes for moving traffic:	
Major approach:	1 lanes
Minor approach:	1 lanes
Peak Hour Approach Volumes*:	
Sum of major approaches:	1222 vph
Highest minor approach:	301 vph
Factor Peak Hour --> 8th Highest Hour	
Major approach:	70% (60-80% acceptable)
Minor approach:	70% (60-80% acceptable)
Factor Peak Hour --> 4th Highest Hour	
Major approach:	85%
Minor approach:	85%
Is the population < 10,000 or speed => 40	YES
Warrant Factor	70%

	INDIVIDUAL REQUIRED		80% COMBINED REQUIRED		ACTUAL VOLUMES		4TH & 8TH HIGHEST HOUR EST.		
	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	WARRANT MET ?
WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME									YES
A - Minimum Vehicular Volume	350	105	400	120	1222	301	855.4	211	YES
B - Interruption of Continuous Traffic	525	53	600	60	1222	301	855.4	211	YES
WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME	XXXXX	60	XXXXX	XXXXX	1222	301	1038.7	256	YES
WARRANT 3 (b)- PEAK HOUR VOLUME	XXXXX	75	XXXXX	XXXXX	1222	301	XXXXX	XXXXX	YES
* SHALL ONLY BE APPLIED IN UNUSUAL CASES									

SIGNAL WARRANT ANALYSIS

Project Name: King City URA 6D
Analyst: Ryan Shea
Date: 28-Mar-18

Intersection: 131st Ave at Fischer Rd
Conditions (yr, alt., etc.): 2035 PM with Project

GENERAL INPUT PARAMETERS:

Number of lanes for moving traffic:	
Major approach:	1 lanes
Minor approach:	1 lanes
Peak Hour Approach Volumes*:	
Sum of major approaches:	1158 vph
Highest minor approach:	195 vph
Factor Peak Hour --> 8th Highest Hour	
Major approach:	70% (60-80% acceptable)
Minor approach:	70% (60-80% acceptable)
Factor Peak Hour --> 4th Highest Hour	
Major approach:	85%
Minor approach:	85%
Is the population < 10,000 or speed => 40	NO
Warrant Factor	100%

	INDIVIDUAL REQUIRED		80% COMBINED REQUIRED		ACTUAL VOLUMES		4TH & 8TH HIGHEST HOUR EST.		
	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	WARRANT MET ?
WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME									YES
A - Minimum Vehicular Volume	500	150	400	120	1158	195	810.6	137	NO
B - Interruption of Continuous Traffic	750	75	600	60	1158	195	810.6	137	YES
WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME	XXXXX	101	XXXXX	XXXXX	1158	195	984.3	166	YES
WARRANT 3 (b)- PEAK HOUR VOLUME	XXXXX	158	XXXXX	XXXXX	1158	195	XXXXX	XXXXX	YES
* SHALL ONLY BE APPLIED IN UNUSUAL CASES									

SIGNAL WARRANT ANALYSIS

Project Name: King City URA 6D
Analyst: Ryan Shea
Date: 28-Feb-18

Intersection: Roy Rogers Rd at Fischer Rd Extension
Conditions (yr, alt., etc.): 2035 PM with Project

GENERAL INPUT PARAMETERS:

Number of lanes for moving traffic:	
Major approach:	1 lanes
Minor approach:	1 lanes
Peak Hour Approach Volumes*:	
Sum of major approaches:	2860 vph
Highest minor approach:	90 vph
Factor Peak Hour --> 8th Highest Hour	
Major approach:	70% (60-80% acceptable)
Minor approach:	70% (60-80% acceptable)
Factor Peak Hour --> 4th Highest Hour	
Major approach:	85%
Minor approach:	85%
Is the population < 10,000 or speed => 40	YES
Warrant Factor	70%

	INDIVIDUAL REQUIRED		80% COMBINED REQUIRED		ACTUAL VOLUMES		4TH & 8TH HIGHEST HOUR EST.		
	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	WARRANT MET ?
WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME									YES
A - Minimum Vehicular Volume	350	105	400	120	2860	90	2002	63	NO
B - Interruption of Continuous Traffic	525	53	600	60	2860	90	2002	63	YES
WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME	XXXXX	60	XXXXX	XXXXX	2860	90	2431	77	YES
WARRANT 3 (b)- PEAK HOUR VOLUME	XXXXX	75	XXXXX	XXXXX	2860	90	XXXXX	XXXXX	YES
* SHALL ONLY BE APPLIED IN UNUSUAL CASES									

SIGNAL WARRANT ANALYSIS

Project Name: King City URA 6D
Analyst: Ryan Shea
Date: 28-Mar-18

Intersection: Roy Rogers Rd at Elsner Rd
Conditions (yr, alt., etc.): 2035 PM with Project

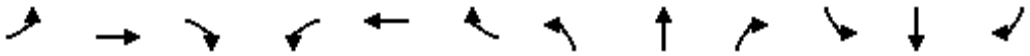
GENERAL INPUT PARAMETERS:

Number of lanes for moving traffic:	
Major approach:	1 lanes
Minor approach:	1 lanes
Peak Hour Approach Volumes*:	
Sum of major approaches:	3050 vph
Highest minor approach:	67 vph
Factor Peak Hour --> 8th Highest Hour	
Major approach:	70% (60-80% acceptable)
Minor approach:	70% (60-80% acceptable)
Factor Peak Hour --> 4th Highest Hour	
Major approach:	85%
Minor approach:	85%
Is the population < 10,000 or speed => 40	YES
Warrant Factor	70%

	INDIVIDUAL REQUIRED		80% COMBINED REQUIRED		ACTUAL VOLUMES		4TH & 8TH HIGHEST HOUR EST.		
	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	MAJOR VOLUME BOTH APP	MINOR VOLUME HIGH APP	WARRANT MET ?
WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME									NO
A - Minimum Vehicular Volume	350	105	400	120	3050	67	2135	47	NO
B - Interruption of Continuous Traffic	525	53	600	60	3050	67	2135	47	NO
WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME	XXXXX	60	XXXXX	XXXXX	3050	67	2592.5	57	NO
WARRANT 3 (b)- PEAK HOUR VOLUME	XXXXX	75	XXXXX	XXXXX	3050	67	XXXXX	XXXXX	NO
* SHALL ONLY BE APPLIED IN UNUSUAL CASES									

APPENDIX H

2030 URA 6D OPERATIONS ANALYSIS WORKSHEETS



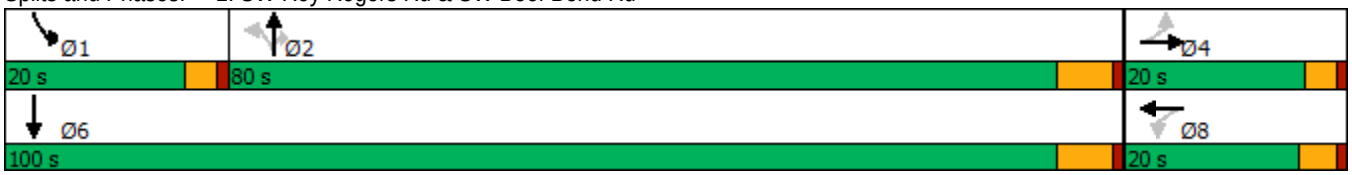
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	165	1	265	1	1110	45	250	1210	1
Future Volume (vph)	1	1	1	165	1	265	1	1110	45	250	1210	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frt		0.95		1.00	0.85			1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1785		1752	1584			3539	1599	1752	3505	
Flt Permitted		0.93		0.76	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (perm)		1685		1394	1584			3377	1599	1752	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1	1	172	1	276	1	1156	47	260	1260	1
RTOR Reduction (vph)	0	1	0	0	217	0	0	0	27	0	0	0
Lane Group Flow (vph)	0	2	0	172	60	0	0	1157	20	260	1261	0
Heavy Vehicles (%)	0%	0%	0%	3%	0%	2%	0%	2%	1%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Actuated Green, G (s)		15.9		15.4	15.4			34.8	34.8	16.1	54.9	
Effective Green, g (s)		15.9		15.4	15.4			34.8	34.8	16.1	54.9	
Actuated g/C Ratio		0.20		0.19	0.19			0.43	0.43	0.20	0.68	
Clearance Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		331		265	301			1454	688	349	2381	
v/s Ratio Prot					0.04					c0.15	0.36	
v/s Ratio Perm		0.00		c0.12				c0.34	0.01			
v/c Ratio		0.01		0.65	0.20			0.80	0.03	0.74	0.53	
Uniform Delay, d1		26.1		30.2	27.5			19.9	13.3	30.4	6.5	
Progression Factor		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		5.4	0.3			3.1	0.0	8.4	0.2	
Delay (s)		26.1		35.6	27.8			23.0	13.3	38.8	6.7	
Level of Service		C		D	C			C	B	D	A	
Approach Delay (s)		26.1			30.8			22.6			12.2	
Approach LOS		C			C			C			B	

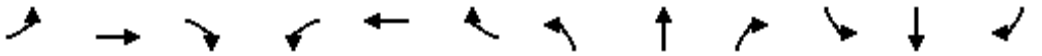
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	14.5
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	1	165	1	265	1	1110	45	250	1210	1
Future Volume (vph)	1	1	1	165	1	265	1	1110	45	250	1210	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	0		150	175		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			45			55			55	
Link Distance (ft)		854			2607			1990			1191	
Travel Time (s)		23.3			39.5			24.7			14.8	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2			
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		6.0	6.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	28.0	28.0		26.5	26.5		31.0	31.0	31.0	9.5	16.0	
Total Split (s)	20.0	20.0		20.0	20.0		80.0	80.0	80.0	20.0	100.0	
Total Split (%)	16.7%	16.7%		16.7%	16.7%		66.7%	66.7%	66.7%	16.7%	83.3%	
Maximum Green (s)	16.0	16.0		15.5	15.5		74.0	74.0	74.0	16.0	94.0	
Yellow Time (s)	3.0	3.0		3.5	3.5		5.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.0		4.5	4.5			6.0	6.0	4.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0	
Flash Dont Walk (s)	19.0	19.0		17.0	17.0		20.0	20.0	20.0		5.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 80.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SW Roy Rogers Rd & SW Beef Bend Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	165	1	265	1	1110	45	250	1210	1
Future Volume (veh/h)	1	1	1	165	1	265	1	1110	45	250	1210	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1856	1900	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	1	1	1	172	1	276	1	1156	47	260	1260	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	3	0	0	2	2	1	3	3	3
Cap, veh/h	87	83	53	295	1	335	49	1477	677	304	2349	2
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.42	0.42	0.42	0.17	0.65	0.65
Sat Flow, veh/h	105	400	252	1404	6	1605	0	3486	1598	1767	3615	3
Grp Volume(v), veh/h	3	0	0	172	0	277	620	537	47	260	614	647
Grp Sat Flow(s),veh/h/ln	756	0	0	1404	0	1611	1869	1617	1598	1767	1763	1855
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	12.2	0.0	21.2	1.3	10.6	13.9	13.9
Cycle Q Clear(g_c), s	12.2	0.0	0.0	13.9	0.0	12.2	21.2	21.2	1.3	10.6	13.9	13.9
Prop In Lane	0.33		0.33	1.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	223	0	0	295	0	336	841	685	677	304	1145	1205
V/C Ratio(X)	0.01	0.00	0.00	0.58	0.00	0.82	0.74	0.78	0.07	0.85	0.54	0.54
Avail Cap(c_a), veh/h	233	0	0	295	0	336	1907	1612	1593	381	2232	2349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	0.0	29.2	0.0	28.1	18.4	18.4	12.7	29.8	7.0	7.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.9	0.0	15.1	1.3	2.0	0.0	14.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.0	0.0	5.7	7.6	6.7	0.4	5.2	3.1	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	0.0	0.0	32.1	0.0	43.2	19.7	20.5	12.7	44.2	7.4	7.4
LnGrp LOS	C	A	A	C	A	D	B	C	B	D	A	A
Approach Vol, veh/h		3			449			1204			1521	
Approach Delay, s/veh		23.8			38.9			19.8			13.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	16.8	37.4		20.0		54.2		20.0				
Change Period (Y+Rc), s	4.0	6.0		* 4.5		6.0		4.5				
Max Green Setting (Gmax), s	16.0	74.0		* 16		94.0		15.5				
Max Q Clear Time (g_c+I1), s	12.6	23.2		14.2		15.9		15.9				
Green Ext Time (p_c), s	0.2	8.2		0.0		9.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		19.6	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	175	1	10	355	100	20	25	175	5	15	55
Future Vol, veh/h	1	175	1	10	355	100	20	25	175	5	15	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	1	184	1	11	374	105	21	26	184	5	16	58

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	479	0	0	185	0	0	673	688	185	741	636	427
Stage 1	-	-	-	-	-	-	187	187	-	449	449	-
Stage 2	-	-	-	-	-	-	486	501	-	292	187	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1094	-	-	1402	-	-	372	372	862	335	398	632
Stage 1	-	-	-	-	-	-	819	749	-	593	576	-
Stage 2	-	-	-	-	-	-	566	546	-	720	749	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1094	-	-	1402	-	-	325	368	862	247	393	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	325	368	-	247	393	-
Stage 1	-	-	-	-	-	-	818	748	-	592	570	-
Stage 2	-	-	-	-	-	-	494	540	-	546	748	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	13.3	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	662	1094	-	-	1402	-	-	516
HCM Lane V/C Ratio	0.35	0.001	-	-	0.008	-	-	0.153
HCM Control Delay (s)	13.3	8.3	0	-	7.6	0	-	13.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.6	0	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	165	1	200	395	145	1	1	85	95	1	5
Future Vol, veh/h	20	165	1	200	395	145	1	1	85	95	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	3	0	0	1	0	0	0	0	2	0	6
Mvmt Flow	21	170	1	206	407	149	1	1	88	98	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	171	0	0	1110	1181	171	1151	1107	482
Stage 1	-	-	-	-	-	-	213	213	-	894	894	-
Stage 2	-	-	-	-	-	-	897	968	-	257	213	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.518	4	3.354
Pot Cap-1 Maneuver	1010	-	-	1418	-	-	188	192	878	175	212	576
Stage 1	-	-	-	-	-	-	794	730	-	336	362	-
Stage 2	-	-	-	-	-	-	337	335	-	748	730	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1010	-	-	1418	-	-	162	160	878	137	177	576
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	160	-	137	177	-
Stage 1	-	-	-	-	-	-	776	713	-	328	310	-
Stage 2	-	-	-	-	-	-	285	286	-	657	713	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	2.2	10.1	78.5
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	796	1010	-	-	1418	-	-	143
HCM Lane V/C Ratio	0.113	0.02	-	-	0.145	-	-	0.728
HCM Control Delay (s)	10.1	8.6	0	-	8	-	-	78.5
HCM Lane LOS	B	A	A	-	A	-	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.5	-	-	4.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	480	5	20	1000	5	15
Future Vol, veh/h	480	5	20	1000	5	15
Conflicting Peds, #/hr	0	4	2	0	4	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	485	5	20	1010	5	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	494	0	1546	494
Stage 1	-	-	-	-	492	-
Stage 2	-	-	-	-	1054	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1080	-	127	579
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	338	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1076	-	124	576
Mov Cap-2 Maneuver	-	-	-	-	124	-
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	337	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	-	-	1076	-
HCM Lane V/C Ratio	0.067	-	-	0.019	-
HCM Control Delay (s)	17.8	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	320	215	85	825	270	95
Future Volume (vph)	320	215	85	825	270	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	4.0	5.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1558	1804	1881	1787	1599
Flt Permitted	1.00	1.00	0.44	1.00	0.95	1.00
Satd. Flow (perm)	1881	1558	833	1881	1787	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	337	226	89	868	284	100
RTOR Reduction (vph)	0	66	0	0	0	59
Lane Group Flow (vph)	337	160	89	868	284	41
Confl. Peds. (#/hr)		3	2		3	2
Heavy Vehicles (%)	1%	2%	0%	1%	1%	1%
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov
Protected Phases	2	8	1	6	8	1 4
Permitted Phases		2	6			8
Actuated Green, G (s)	28.8	45.0	38.4	38.4	16.2	25.8
Effective Green, g (s)	28.8	45.0	38.4	38.4	16.2	25.8
Actuated g/C Ratio	0.45	0.71	0.60	0.60	0.25	0.41
Clearance Time (s)	5.0	4.0	4.0	5.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	851	1102	588	1135	455	648
v/s Ratio Prot	0.18	0.04	0.01	c0.46	c0.16	0.03
v/s Ratio Perm		0.07	0.08			
v/c Ratio	0.40	0.15	0.15	0.76	0.62	0.06
Uniform Delay, d1	11.6	3.0	5.7	9.3	21.0	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	3.1	2.7	0.0
Delay (s)	11.9	3.1	5.8	12.4	23.7	11.6
Level of Service	B	A	A	B	C	B
Approach Delay (s)	8.4			11.8	20.5	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø4
Lane Configurations							
Traffic Volume (vph)	320	215	85	825	270	95	
Future Volume (vph)	320	215	85	825	270	95	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		225	225		250	0	
Storage Lanes		1	1		1	1	
Taper Length (ft)			25		25		
Right Turn on Red		Yes				Yes	
Link Speed (mph)	35			35	25		
Link Distance (ft)	1753			1355	1310		
Travel Time (s)	34.1			26.4	35.7		
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pt+ov	
Protected Phases	2	8	1	6	8	1 4	4
Permitted Phases		2	6			8	
Detector Phase	2	8	1	6	8	1 4	
Switch Phase							
Minimum Initial (s)	10.0	5.0	5.0	10.0	5.0		5.0
Minimum Split (s)	28.0	22.5	9.5	15.0	22.5		22.0
Total Split (s)	55.0	30.0	20.0	75.0	30.0		30.0
Total Split (%)	52.4%	28.6%	19.0%	71.4%	28.6%		29%
Maximum Green (s)	50.0	26.0	16.0	70.0	26.0		26.0
Yellow Time (s)	4.0	3.0	3.0	4.0	3.0		3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	4.0	4.0	5.0	4.0		
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Min	None	None	Min	None		None
Walk Time (s)	6.0	5.0			5.0		7.0
Flash Dont Walk (s)	17.0	13.0			13.0		11.0
Pedestrian Calls (#/hr)	0	0			0		0

Intersection Summary	
Area Type:	Other
Cycle Length: 105	
Actuated Cycle Length: 63.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 5: SW 131st Ave & SW Beef Bend Rd

Queuing and Blocking Report

Intersection: 1: SW Roy Rogers Rd & SW Beef Bend Rd

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	LT	T	R	L	T	TR
Maximum Queue (ft)	24	124	236	249	224	126	199	397	305
Average Queue (ft)	2	93	94	158	138	21	145	122	93
95th Queue (ft)	12	140	189	223	212	83	215	293	230
Link Distance (ft)	808		2520	1956	1956			1157	1157
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		100				150	175		
Storage Blk Time (%)		9	5		3	0	9	0	
Queuing Penalty (veh)		24	8		2	0	56	0	

Intersection: 2: SW Elsner Rd/SW Taylor Ln & SW Beef Bend Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	16	27	118	60
Average Queue (ft)	1	2	52	29
95th Queue (ft)	8	14	86	49
Link Distance (ft)	2520	2697	1074	1032
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SW 150th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	59	65	18	55	101
Average Queue (ft)	10	21	1	33	49
95th Queue (ft)	38	51	9	53	85
Link Distance (ft)	2697		3206	1231	1065
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Intersection: 4: SW 137th Ave & SW Beef Bend Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	47	36	58	49
Average Queue (ft)	3	6	4	15
95th Queue (ft)	23	26	29	42
Link Distance (ft)	3206		1693	1317
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: SW 131st Ave & SW Beef Bend Rd

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	168	75	142	314	200	76
Average Queue (ft)	79	23	37	160	112	27
95th Queue (ft)	146	57	89	267	177	56
Link Distance (ft)	1693			1323		1260
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		225	225		250	
Storage Blk Time (%)				1		
Queuing Penalty (veh)				1		

Network Summary

Network wide Queuing Penalty: 91