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TECHNICAL MEMORANDUM

To: Ryan Herinckx (*Project Manager)*
City of Roseburg

From: Gregg Weston, PE (*Project Manager)*
Jake Johnston, PE (*Civil Engineer)*
3J Consulting, Inc.

Date: March 27, 2017

Project Name: NW Black Avenue Extension
Project No: 16-373 (17UR01)
RE: Alternative Analysis

This memo is a follow up to the initial findings meeting with City staff where the alternatives have been refined and thinned out. This memo includes the following:

- Typical section exhibits
- Horizontal layout exhibits with impacts
- Profile grade exhibits
- Traffic analysis
- Estimated cost comparisons

Mackenzie has provided the attached traffic analysis which considers potential distribution of traffic under varying conditions from no build to an improved Black Avenue extended through to Goetz Street. The traffic analysis does discuss existing and future impacts to the intersection at Goetz and Garden Valley but a full analysis of improvements will not be part of this alternative analysis. Intersection improvements was a topic for discussion at the initial findings meeting with City staff. Issues considered were future widening, vehicle stacking, a dedicated right turn lane and potential signal impacts. The traffic analysis assumes that the majority, if not all of the vehicles diverted to the Goetz intersection will be making right turns and that there would not be a significant increase in left turn movements unless the property to the north on Goetz is developed (*See Attachments: Summary of Traffic Analysis*).

It appears that an extension of Black Ave to Goetz would be most effective if improvements are also made to Goetz Street. The design team with City staff input estimated that the cost range for such improvements could be in the neighborhood of ***$250k*** to ***$500k***, not including the cost for relocating or replacing an existing shallow storm and/or sanitary sewer system where widening would occur for a dedicated right turn lane (the top section/cone of an existing manhole is exposed behind the back of walk).

The information provided in this memorandum will be used for City staff to provide input, requests, and direction to the design team for moving forward. A meeting will be scheduled following review of this memorandum for the project team to discuss the refined alternatives and costs to make any course corrections. The design team will then refine the alternatives per City input as needed.

EXISTING CONDITIONS

Review of the preliminary boundary survey, provided by Land Mark Surveying, confirmed the existing right-of-way widths of Black Ave within the project limits (*See Attachments: Base Maps*). Adequate monuments to control the line between Fred Goetz Subdivision and Ronald Heights were not recovered. Computed locations for property corners within this area are being used at this time. Table 1 below shows the existing right-of-way widths and approximate lengths for each segment of the project along Black Ave.

Street Segment (East to West)			Existing R/W Width	Approx. Length	% Length of Project
Shopping Center	To	Dogwood	60′	142′	14%
Dogwood	To	Estelle	60′	261′	25%
Estelle	To	Patricia	40′	203′	20%
Patricia	To	Crouch	40′	190′	18%
Crouch	To	Goetz	None	235′	23%

Table 1 – Existing Black Ave

Side street roadway sections vary along Black Ave. Preliminary typical sections have been developed showing the varying sections (*See Technical Appendix: Typical Sections*). Table 2 below summarizes the existing conditions of each side street along Black Ave, east to west based on City provided aerial photo and GIS topographic mapping. Design level topographic survey will confirm actual field conditions.

Street Name (East to West)	Right-of-Way Width	Roadway Centered on R/W?	Approx. Paved Width	Curb and/or Sidewalk (s/w)
Dogwood St	60′	No ~7′ to the west	20′	None
Estelle St *(North of Black Ave)*	60′	Yes	20′	None
Estelle St *(South of Black Ave)*	60′	Yes	40′	6′ curb tight s/w (both sides)
Patricia St	40′	Yes	20′	None
Crouch St *(North of Black Ave)*	40′	Yes	20′	None
Crouch St *(South of Black Ave)*	40′	Yes	28′	Curb and gutter (both sides)
Goetz St	50′	Yes	32′	6′ curb tight s/w (west side); standard curb (both sides)

Table 2 – Existing Side Streets

GIS contour data indicates that roadway elevations for Black Ave vary approx. 6.5 feet between the Shopping Center (464.5 feet) and a point just west of Patricia Street (458.0 feet). The existing centerline profile grade of Black Ave varies between approx. 0% and 3%.

Black Ave is designated as a Neighborhood Collector with a design speed of 25 MPH and does not have a posted speed limit. The street is currently paved for two-way travel with an approximate width of 20 feet with no visible centerline delineation. No sidewalks or curb exist along Black Ave.

RANGE OF ALTERNATIVES

Detailed horizontal plan exhibits have been developed for each leg (*See Attachments: Detailed Layouts*). Exhibits combining legs showing project extents have also been developed (*See Attachments: Plan Layouts*). Each leg has been given a designated alternative number to help differentiate during discussion. Table 3 below shows the current range of alternatives.

Street Segment			Existing R/W Width	Proposed R/W Width	Paved Width	Curb & Sidewalk	Alt. #	Est. Cost in Comparison
Black Avenue *(East to West)*								
Shopping Center	To	Estelle	60′	60′	34′	6.5′	*1*	**570k**
Estelle	To	Crouch	40′	40′	28′	5.5′	*2*	**550k**
Crouch	To	Goetz	None	40′	28′	5.5′	*3*	**1,250k**
Dogwood Street *(South to North)*								
Garden Valley Blvd	To	Black Ave	60′	60′	34′	6.5′	*4*	**540k**

Table 3 – Range of Alternatives

Alt. 1 Shopping Center to Estelle

Black Ave between the Shopping Center and Estelle is shown improved with a paved width of 34 feet with 34 foot wide proposed north and south legs at the intersection of Dogwood. Approximately 335 feet of an existing 42″ aluminized storm pipe is proposed to be replaced within this section. In addition, when the original 42″ line was installed the storm lines on Dogwood North of Black Ave were not connected to the new pipe. The new 42″ pipe crossed under the existing storm lines in the intersection at Dogwood and Black. As part of the Black Ave improvements the City has requested to capture the Dogwood storm runoff North of Black Ave and get it into the 42″ pipe. The existing 42″ line has about 3 feet of cover. The existing right-of-way width for Dogwood is 60 feet (*See Attachments: Detailed Layouts*). The estimated cost in comparison for this alternative is ***$570,000*** (*See Attachments: Estimated Cost Comparisons*).

Alt. 2 Estelle to Crouch

Black Ave between Estelle St and Crouch is shown improved with a paved width of 28 feet with an assumed 28 foot width on Patricia and Crouch. In addition, the existing sidewalk is extended on the west side of Crouch to the north side of the intersection to complete the pedestrian route between Garden Valley and the Shopping Center via Black Ave. This alternative preserves the existing 40 foot R/W. Approximately 400 feet of an existing 42″ aluminized storm pipe is proposed to be replaced within this section. Curb returns West of Dogwood have been refined to avoid impact to existing driveways and properties (*See Attachments: Detailed Layouts*). The estimated cost in comparison for this alternative is ***$550,000*** (*See Attachments: Estimated Cost Comparisons).*

Alt. 3 Crouch to Goetz

Black Ave extension between Crouch and Goetz is shown new with a paved width of 34 feet for a straight extension. In addition, the existing sidewalk is extended on the west side of Crouch. The profile grade has been evaluated, resulting in a max profile grade of approx. 3%. The vertical difference between the centerline at Crouch and Goetz is approx. 4.5 feet over a distance of approx. 245 feet (*See Attachments: Detailed Layouts*). The estimated cost in comparison for this alternative is

$1,250,000. This estimated cost includes R/W acquisitions for 4 properties impacted by the extension with a suggested cost based on City input of roughly ***$1 million***. The estimated cost in comparison does not include intersection improvements at Garden Valley and Goetz or relocations/improvement to the existing storm and/or sanitary sewer system that would be impacted by intersection improvements (*See Attachments: Estimated Cost Comparisons).*

Alt. 4 Dogwood

Dogwood Street between Garden Valley Blvd and Black Ave is shown improved with a paved width of 34 feet. The existing R/W of Dogwood is 60 feet and has the potential for improving by widening and adding curb tight sidewalks with no R/W needs. Dogwood improvements could require significant changes to the storm as the existing pipe is very shallow with 4" to 12" of cover with one exception of a 24" line that has about 22" of cover. (*See Attachments: Detailed Layouts*). The estimated cost in comparison for this alternative is ***$540,000*** (*See Attachments: Estimated Cost Comparisons).* This cost includes a standard drainage system with manholes, catch basins, storm leads, and a new 12" main within Dogwood Street.

COST COMPARISON

The alternatives are accompanied by concept cost estimates. At this time 3J would like to provide City staff with a chance to review and provide input on the estimated costs identified for each alternative and those highlighted prior to our final check-in; specifically the public utility easement (PUE) and utility relocation line items as these may be dependent on the franchise utility agreements and are unknown at this time. The estimated per foot, square foot or cubic foot costs are based on recent bid pricing, magnitude of quantities and an appropriate contingency for concept level costs. This level of effort is for magnitude estimating and comparison of alternatives and not for budgeting purposes (*See Attachments: Estimated Cost Comparisons*).

NEXT STEPS

This memorandum serves as a summary of the alternatives analyzed thus far. 3J will schedule a meeting with the City after you have an opportunity to review this submittal. Please provide a time convenient to City staff to discuss these revised alternatives and cost comparisons and determine if any course corrections should be made prior to finalizing the alternative analysis.

ATTACHMENTS

Traffic Analysis
- Exhibit A – Findings
- Exhibit B – Figures

Base Maps
- With Addresses
- With Contours

Typical Sections
- Proposed - Black Avenue & Dogwood Street
- Existing - Dogwood; Estelle (South of Black Ave)
- Existing - Estelle (North of Black Ave); Patricia; Crouch (North of Black Ave)
- Existing - Crouch (South of Black Ave); Goetz

Plan Layouts
- 1 Shopping Center to Estelle
- 1, 2 Shopping Center to Crouch
- 1, 2, 3 Shopping Center to Goetz
- 4 Dogwood Street

Detailed Layouts
- 1 Shopping Center to Estelle Plan
- 1 Shopping Center to Estelle Profile View
- 2 Estelle to Crouch Plan
- 2 Estelle to Crouch Profile View
- 3 Crouch to Goetz Plan
- 3 Crouch to Goetz Profile View
- 4 Dogwood Street

Estimated Cost Comparisons
- 1 60’ R/W – Black Ave (Shopping Center to Estelle)
- 2 40’ R/W – Black Ave (Estelle to Crouch)
- 3 40’ R/W – Black Ave (Crouch to Goetz)
- 4 60’ R/W – Dogwood Street (Garden Valley Blvd to Black Ave)

REFERENCES

1. *A Policy on Geometric Design of Highways and Streets*, AASHTO, 2011, 6th Edition

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MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

March 27, 2017

3J Consulting, Inc.
Attention: Gregg Weston
5075 SW Griffith Drive, Suite 150
Beaverton, OR

Re: **Black Avenue Extension**
Summary of Traffic Analysis
Project Number 2160590.00

Dear Gregg:

Mackenzie has prepared this letter to present the traffic analysis for the Black Avenue Extension in Roseburg, Oregon.

NETWORK CONDITIONS

Black Avenue currently extends from the shopping center east of Dogwood Avenue to Crouch Street, as shown in Figure 1. It is currently a local street with a 22- to 24-foot paved surface and no curbs or sidewalks. Figure 2 illustrates the existing and planned traffic control and lane configurations along Black Avenue and Garden Valley Boulevard. *(Note: While Black Avenue currently terminates at Crouch Street, a residential driveway forms a fourth leg of the intersection.)*

Three network conditions are evaluated in the traffic analysis:

- No build – Black Avenue remains as an unimproved local street.
- Black Avenue is improved from the Shopping Center to Crouch Street (Improved Black Avenue).
- Black Avenue is improved from the Shopping Center to Crouch Street and extended from Crouch Street to Goetz Street (Black Avenue Extension).

ANALYSIS YEARS

The traffic analysis examines two years:

- Existing Year 2017 – base conditions
- Future Year 2037 – 20-year forecast conditions

TRAFFIC VOLUMES

Traffic volumes were developed for each analysis year and network condition as described below.

No Build Network

To be consistent with the transportation analysis that has been completed for the Interchange Area Management Plan (IAMP) for I-5 Exits 124 and 125, design hour volumes (DHVs) were developed for the existing and future years as described below.

Existing Year 2017

The existing year 2017 traffic volumes were derived from traffic counts collected on January 31, 2017 and traffic volumes from technical memoranda prepared for the Exit 125 IAMP.

The 2017 counts were collected at the following intersections:

- Black Avenue and Crouch Street
- Garden Valley Boulevard and Duck Pond Street/Goetz Street
- Garden Valley Boulevard and Centennial Drive/Estelle Street

The IAMP memoranda includes 2013 volumes at:

- Garden Valley Boulevard and Centennial Drive/Estelle Street
- Garden Valley Boulevard and BLM Access/Shopping Center

These volumes were combined to create the base year 2017 traffic volumes using the following approach:

- The January 2017 volumes were seasonally adjusted to a DHV using the commuter trend from the Oregon Department of Transportation (ODOT) 2016 Seasonal Trend Table. This approach is consistent with ODOT's Analysis Procedures Manual (APM) and the methodology from the IAMP.
- The IAMP 2013 volumes (already DHVs) were grown by a factor of 124% for the AM peak hour and 116% for the PM peak hour based on a comparison with the 2017 volumes at the Garden Valley Boulevard/Centennial Drive/Estelle Street intersection.
- Volumes for the Garden Valley Boulevard/Crouch Street intersection were estimated based on counts from the adjacent intersections and the existing land uses (fast food and specialty retail) on the corners.

The resulting volumes are illustrated in Figures 3A and 3B attached to this letter. The technical appendix includes the spreadsheet with unadjusted and adjusted existing traffic volumes.

Future Year 2037

Volumes for the forecast year 2037 were derived from existing volumes, the regional travel demand forecasting model plots (from the IAMP memoranda) and estimates of additional demand generated by the Veterans Administration (VA) Hospital located on Centennial Drive (from the IAMP memoranda). The forecasting methodology follows the guidelines of ODOT's APM.

The resulting volumes are illustrated in Figures 6A and 6B attached to this letter.

Improved Black Avenue

Even if no extension is constructed, improving Black Avenue will likely make it a more attractive route for traffic entering and exiting the Shopping Center, particularly as congestion builds during the PM peak hour. Based on this premise, some traffic traveling to and from the west was assumed to shift to Black Avenue by using either Crouch or Estelle Streets. No one was assumed to travel out of direction to avoid congestion.

The following simple volume shifts were assumed to assess this build scenario:

- 40% of southbound-to-westbound right turns onto and eastbound-to-northbound left turns at the Garden Valley/Shopping Center signal would shift to either the signal at Estelle Street (32%) or the unsignalized Crouch Street (8%)

The resulting diversion volumes are:

- Existing Year (2017) ~45 AM trips, ~140 PM trips, ~1,400 daily trips
- Future Year (2037) ~50 AM trips, ~165 PM trips, ~1,700 daily trips

Figures 4A and 4B illustrate the existing volumes with improved Black Avenue and Figures 7A and 7B illustrate the future volumes.

Black Avenue Extension

With the Black Avenue extension to Goetz Street, some traffic from the Shopping Center as well as traffic from Estelle Street is expected to shift travel patterns. No one was assumed to travel out of direction but traffic to and from the west was assumed to shift to Goetz Street and Black Avenue:

The following simple volume shifts were assumed to assess this build scenario:

- 50% of southbound-to-westbound right turns and eastbound-to-northbound left turns at the Garden Valley/Shopping Center signal would shift to the signal at Goetz Street
- 50% of southbound-to-westbound right turns and eastbound-to-northbound left turns at the Garden Valley/Estelle Street signal would shift to the signal at Goetz Street
- 50% of the traffic currently on Black Avenue would shift from turning at Crouch Street to continue to Goetz Street
- 50% of the traffic on Crouch Street north of Black Avenue would shift to Goetz Street

The resulting diversion volumes are:

- Existing Year (2017) ~80 AM trips, ~240 PM trips, ~2,400 daily trips
- Future Year (2037) ~100 AM trips, ~300 PM trips, ~3,000 daily trips

Figures 5A and 5B illustrate the existing volumes with improved Black Avenue and Figures 8A and 8B illustrate the future volumes.

INTERSECTION ANALYSIS

Intersection operations are generally measured by three mobility standards: volume-to-capacity (v/c) ratio, level-of-service (LOS), and delay (measured in seconds). Signalized intersections are measured by one overall v/c ratio, LOS and delay. Two-way stop-controlled (TWSC) intersections are typically measured by a single v/c ratio, LOS, and delay representative of the worst stopped movement.

Performance Measures

All the study area intersections lie within City limits are under Roseburg jurisdiction. The City of Roseburg requires that unsignalized and signalized intersections meet the following operational thresholds:

- LOS D at signalized intersections and LOS "E" at unsignalized intersections
- V/C ratios of 0.85 for arterials, 0.90 for collectors, and 0.95 for local streets

Findings

The critical movements (either overall intersection for signalized or worst movement for TWSC) for the AM and PM peak hours are provided in Table 1. Synchro output sheets are provided in the appendix for reference.

TABLE 1: SUMMARY OF TRAFFIC OPERATIONS

Intersection	Performance Standard	Time Period	V/C Ratio - Level of Service (LOS) – Delay (seconds)					
			2017 Existing Volumes			2037 Future Volumes		
			Existing Network	With Improved Black Ave	With Black Ave Extension	No Build	With Improved Black Ave	With Black Ave Extension
Garden Valley Blvd/ Duck Pond St & Goetz St Signalized	0.85/LOS D	AM	0.51-A-10	0.51-A-10	0.51-B-13	0.62-B-11	0.64-B-13	0.64-B-14
		PM	0.83-C-28	0.83-C-30	**0.89-D-43**	**0.95-D-38**	**0.95-D-39**	**1.04-E-64**
Garden Valley Blvd/ Centennial Dr & Estelle St Signalized	0.85/LOS D	AM	0.62-B-18	0.60-B-19	0.60-B-18	**0.93-D-61**	**0.92-E-56**	**0.91-D-54**
		PM	0.62-B-16	0.64-B-19	0.58-B-16	0.80-C-27	0.80-C-29	0.75-C-23
Garden Valley Blvd/ BLM & Shopping Center	0.85/LOS D	AM	0.58-B-13	0.56-B-11	0.56-B-11	0.67-B-14	0.64-B-13	0.64-B-12
		PM	**0.94-C-35**	**0.89-C-30**	**0.87-C-28**	**1.06-D-50**	**1.00-D-40**	**0.99-D-38**
Black Ave/ Goetz St Unsignalized	0.95/LOS E	AM	NA	NA	0.06-A-9 (WB)	NA	NA	0.08-A-10 (WB)
		PM	NA	NA	0.24-B-12 (WB)	NA	NA	0.32-B-13 (WB)
Black Ave/ Crouch St Unsignalized	0.95/LOS E	AM	0.01-A-9 (WB)	0.01-A-9 (WB)	0.07-A-9 (EB)	0.02-A-9 (WB)	0.02-A-9 (WB)	0.08-A-10 (EB)
		PM	0.02-A-9 (WB)	0.02-A-9 (WB)	0.21-B-10 (WB)	0.03-A-9 (WB)	0.03-A-9 (WB)	0.26-B-11 (WB)

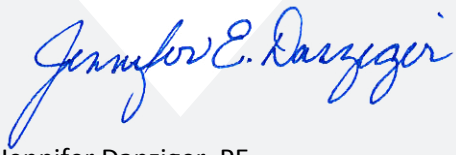
Note: At signalized intersections, the performance measures indicate overall intersection operations while at unsignalized intersections, the performance measures are for the worst stopped movement, which is indicated in parentheses.

Some of the key findings from the analysis are:

- Improving Black Avenue without the extension is still likely to attract some traffic from Garden Valley Boulevard and could provide some relief to the traffic signal at the Shopping Center/BLM entrance during the PM peak hour with a minimal increase in congestion at the traffic signal at Centennial Drive/Estelle Street.
- Improving Black Avenue with the extension would likely provide more congestion relief at the Shopping Center/BLM entrance than just improving Black Avenue.
- Improving Black Avenue with the extension would increase demand on Goetz Street and might require widening Goetz Street to accommodate the additional demand; otherwise, the Duck Pond Street/Goetz Street signal would eventually fail.
- Adding a southbound right-turn lane on Goetz Street at Garden Valley Boulevard would substantially improve overall operations and bring the overall 2037 PM peak v/c ratio from 1.04 to 0.91 with the extension of Black Avenue.

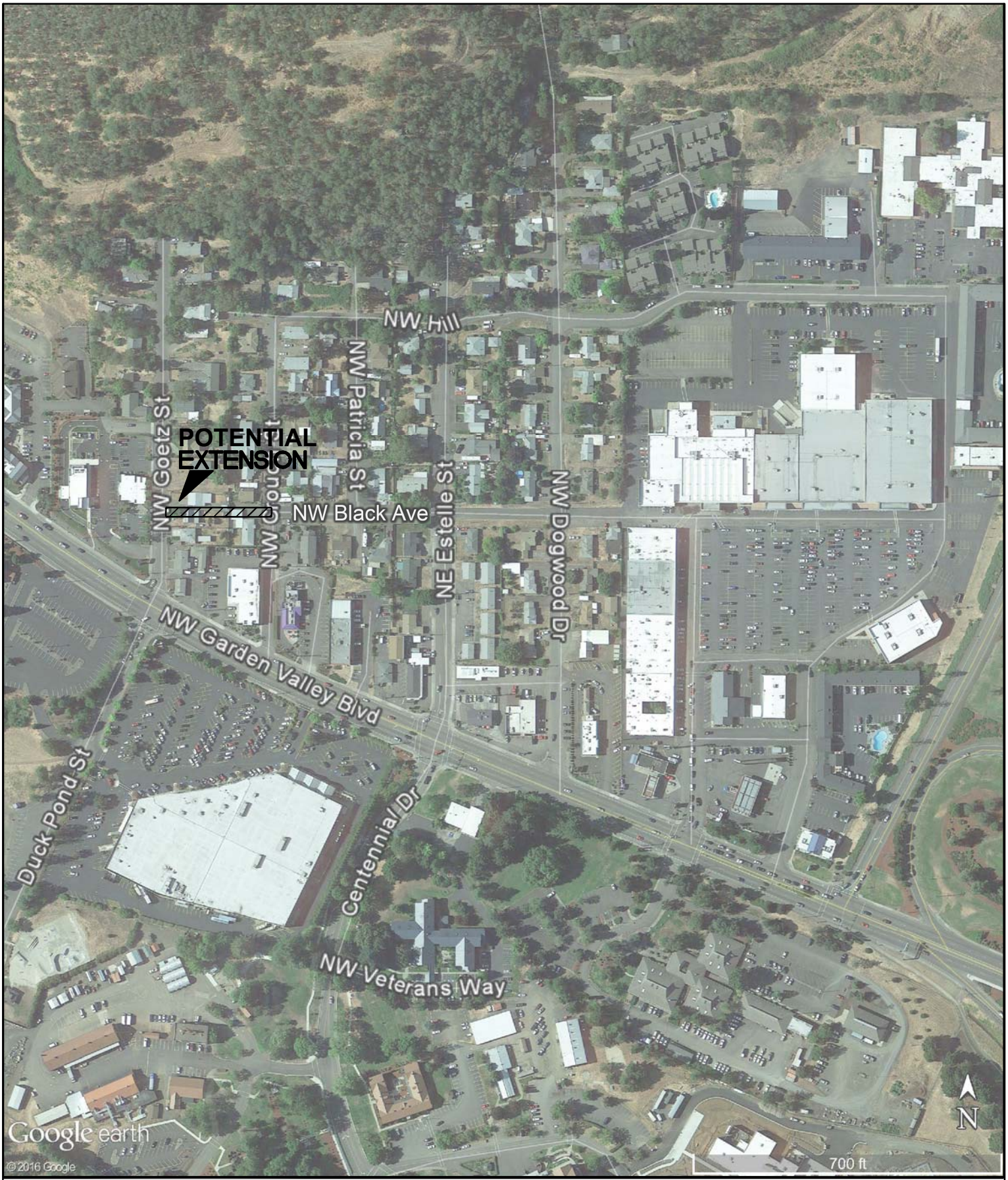
Please let me know if I can provide any additional information.

Sincerely,



Jennifer Danziger, PE
Transportation Engineer

Enclosure(s): Figures, Technical Appendix



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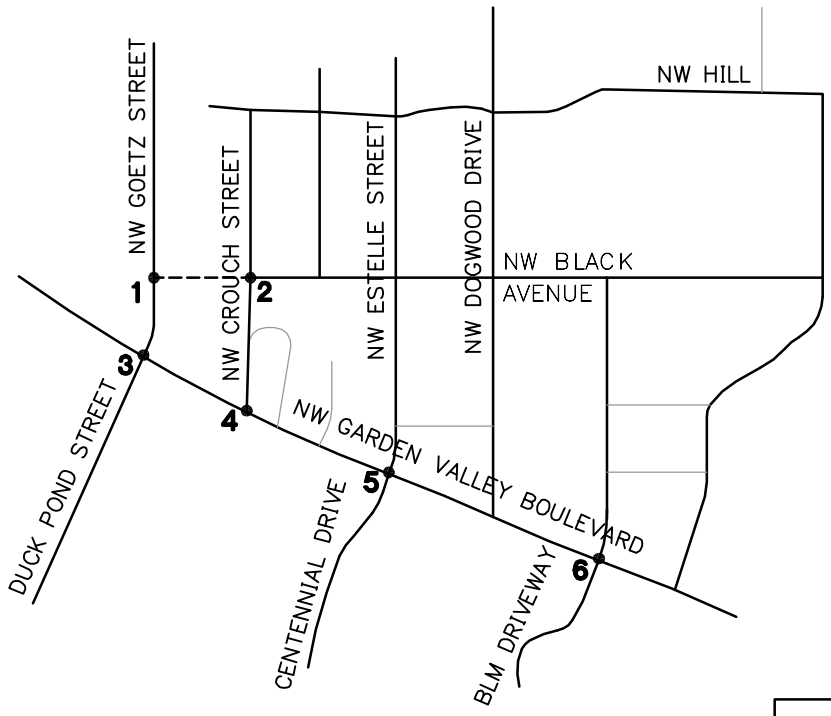
DATE: 2.23.2017
DRAWN BY: JTJ
CHECKED BY: JED
JOB NO: 2160590.00

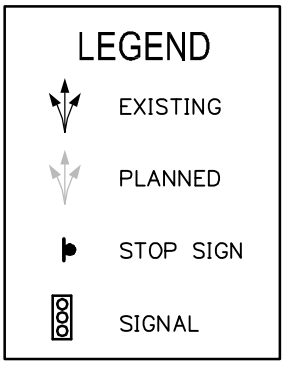
VICINITY MAP

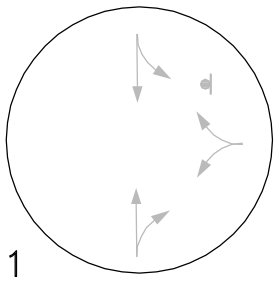
ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

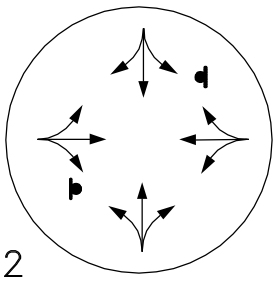
FIGURE 1

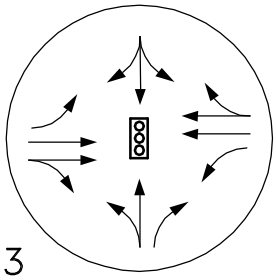
NOT TO SCALE

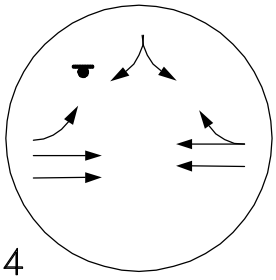


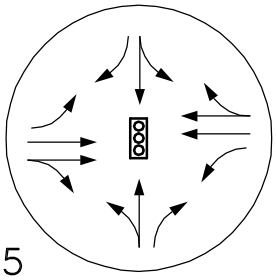


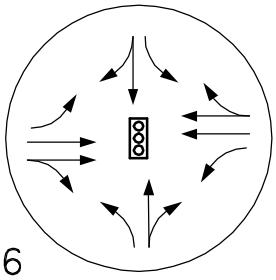












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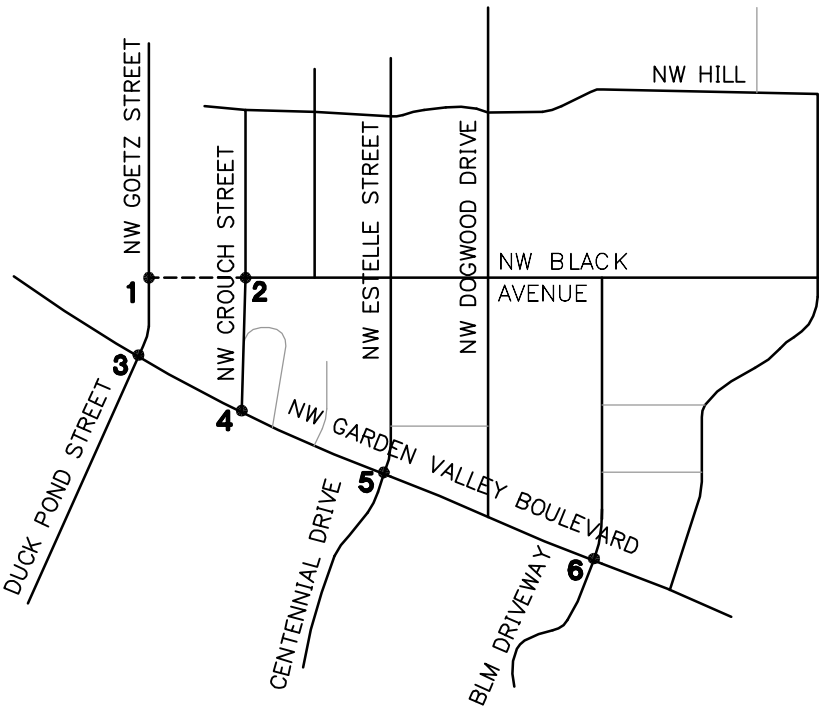
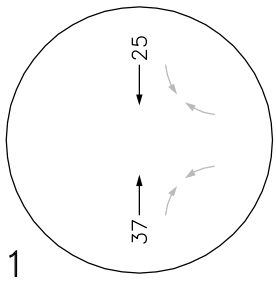
EXISTING + PLANNED TRAFFIC CONTROL DEVICES + LANE CONFIGURATIONS

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE 2

NOT TO SCALE





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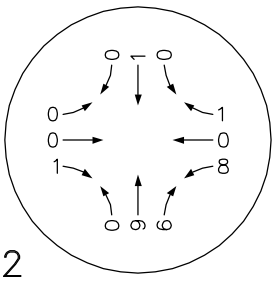

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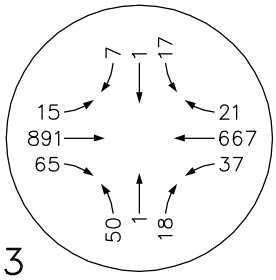

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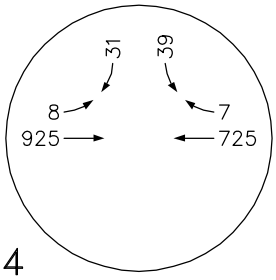

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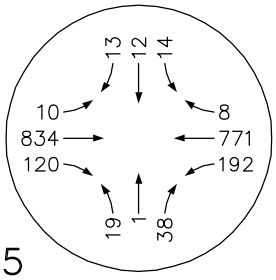

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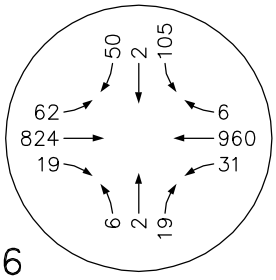

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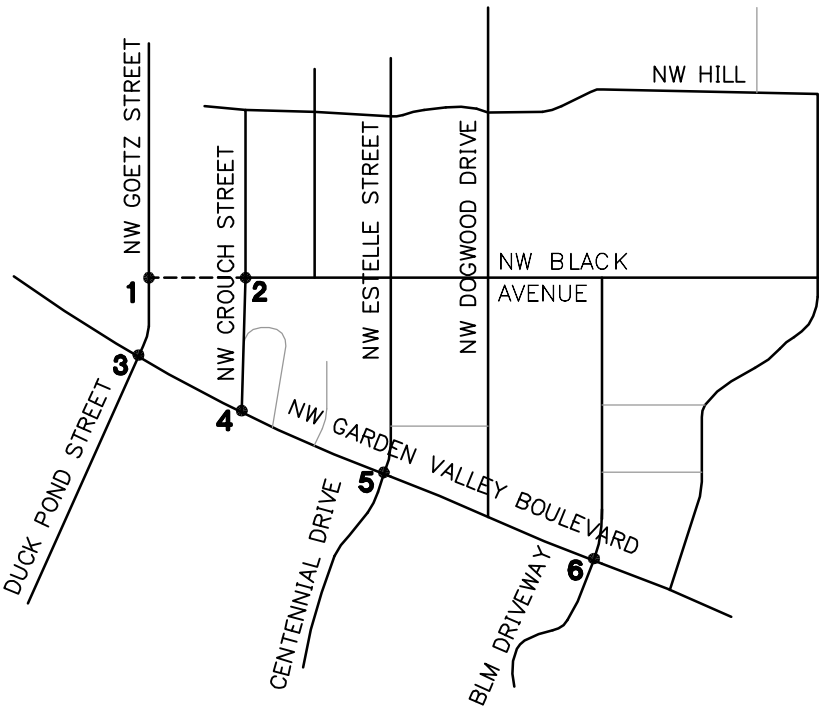
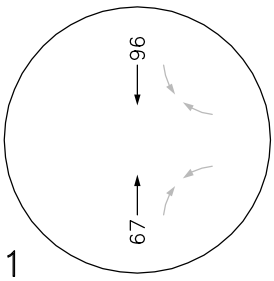
2017 EXISTING TRAFFIC - AM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
3A

NOT TO SCALE





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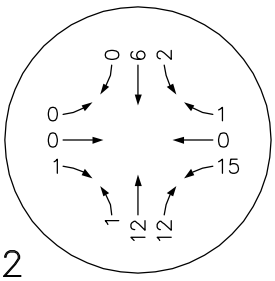

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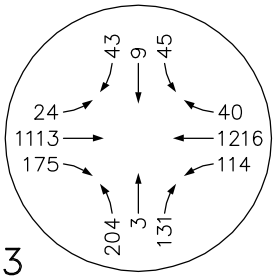

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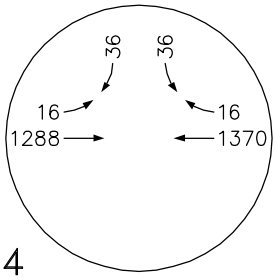

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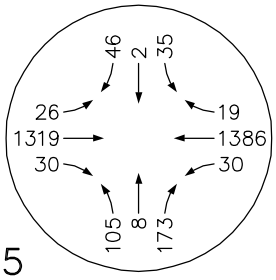

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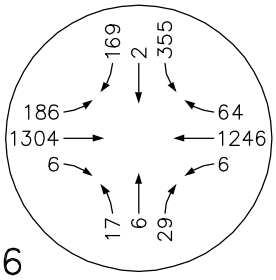

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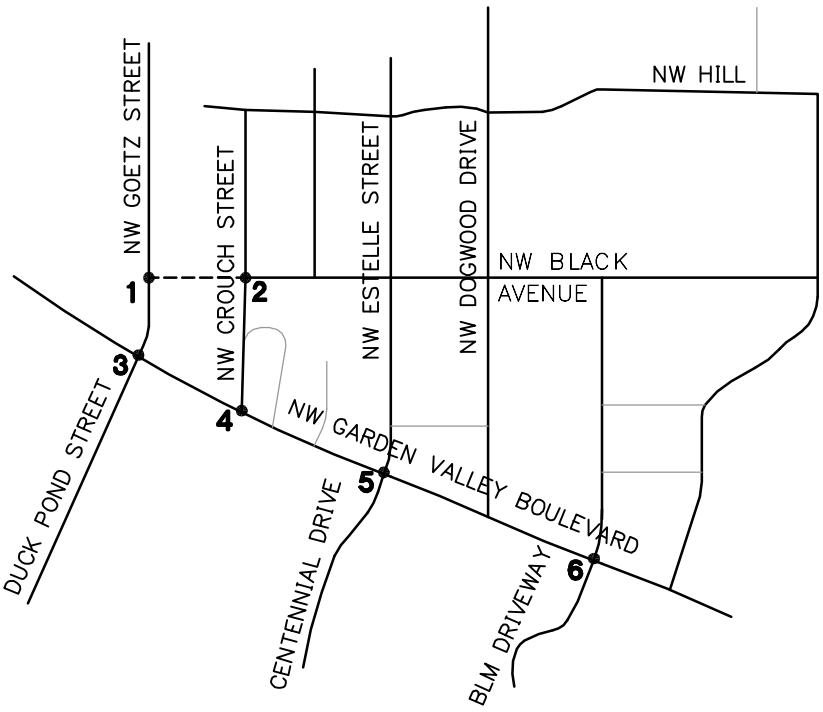
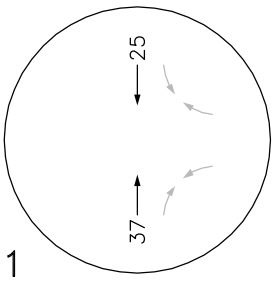
2017 EXISTING TRAFFIC - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE 3B

NOT TO SCALE





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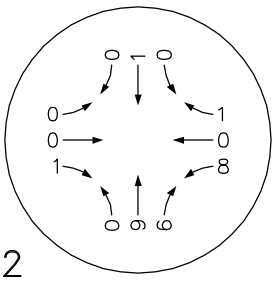

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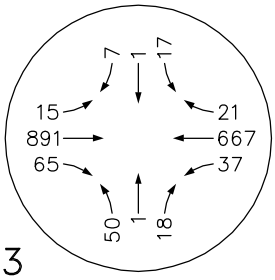

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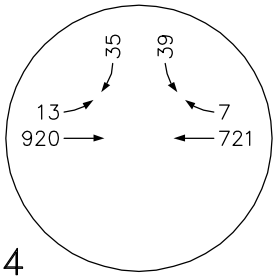

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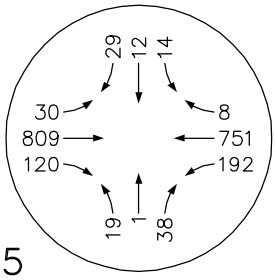

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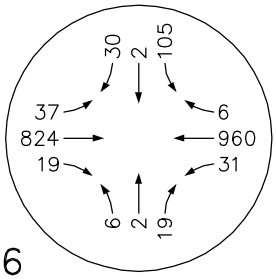

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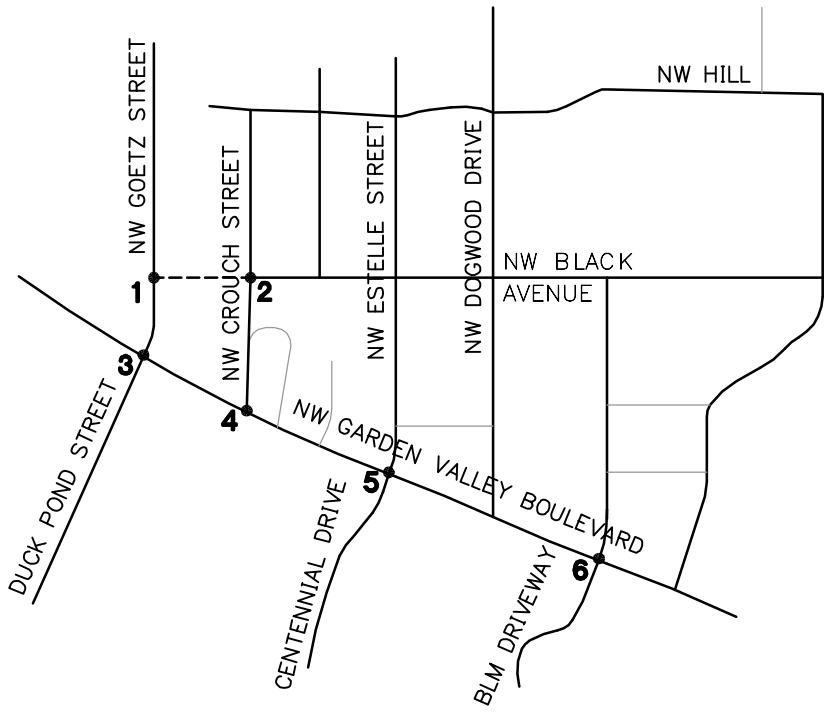
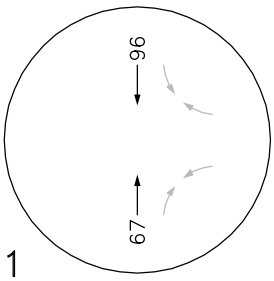
2017 EXISTING TRAFFIC WITH IMPROVED BLACK AVENUE - AM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
4A

NOT TO SCALE





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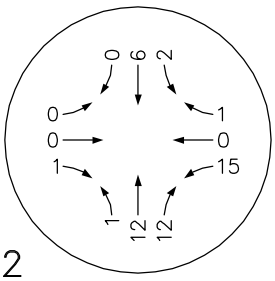

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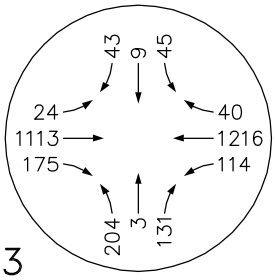

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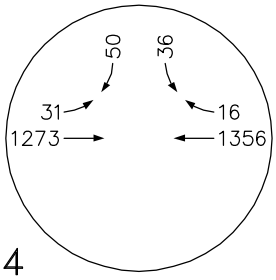

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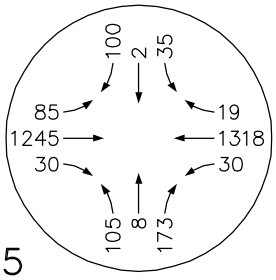

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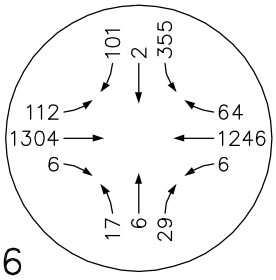

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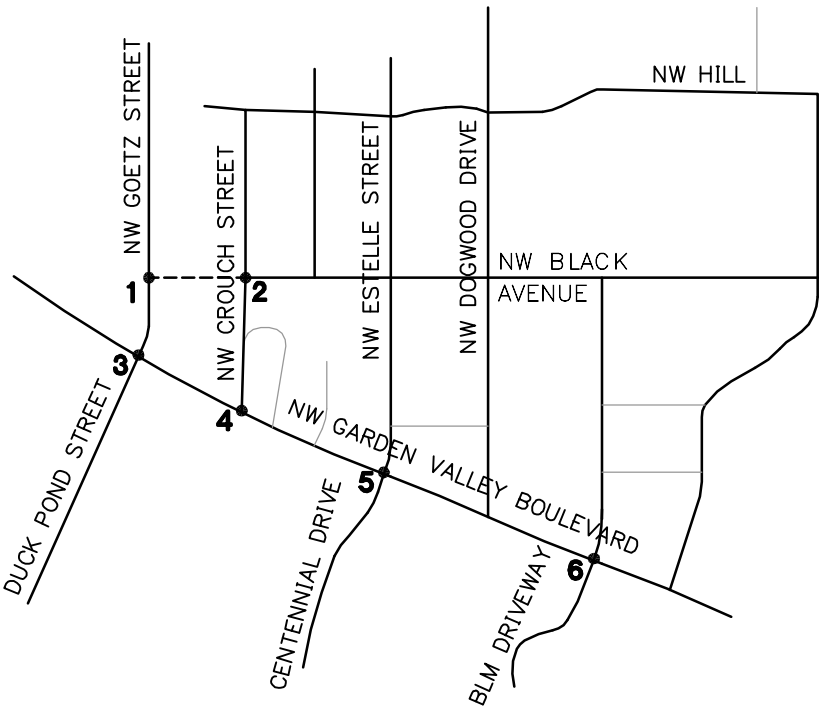
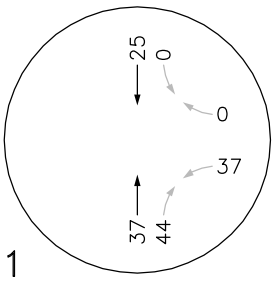
2017 EXISTING TRAFFIC WITH IMPROVED BLACK AVENUE - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
4B

NOT TO SCALE





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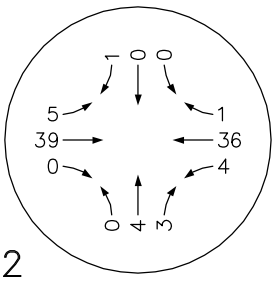

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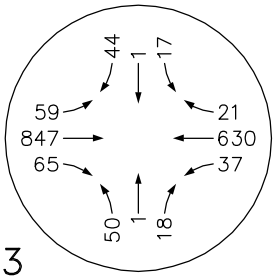

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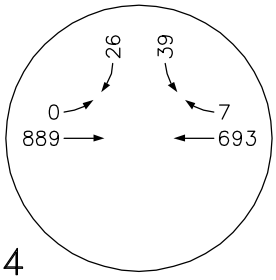

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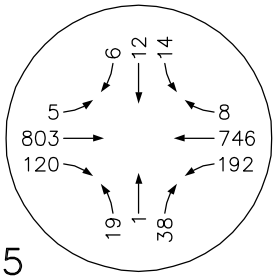

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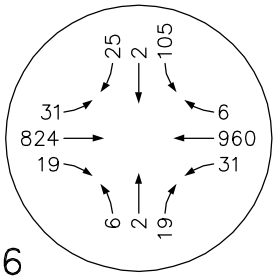

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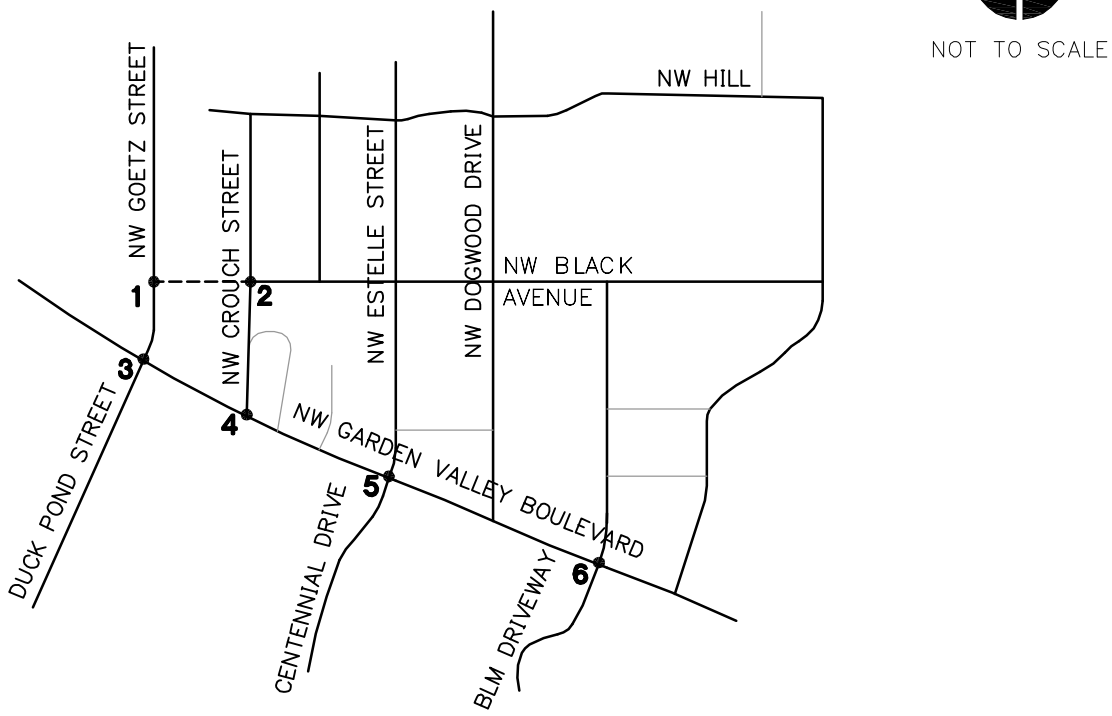
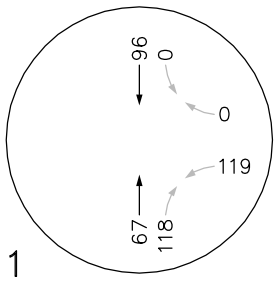
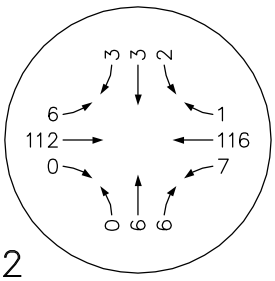
2017 EXISTING TRAFFIC WITH BLACK AVENUE EXTENSION - AM PEAK HOUR

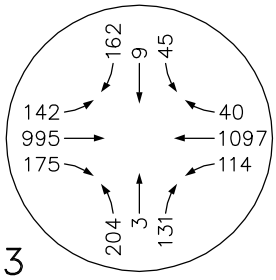
ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

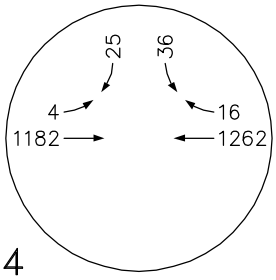
FIGURE
5A

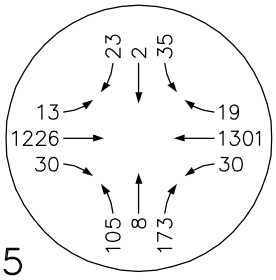


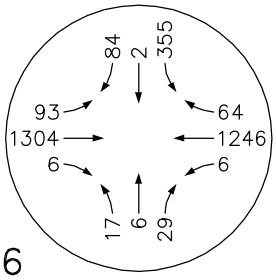












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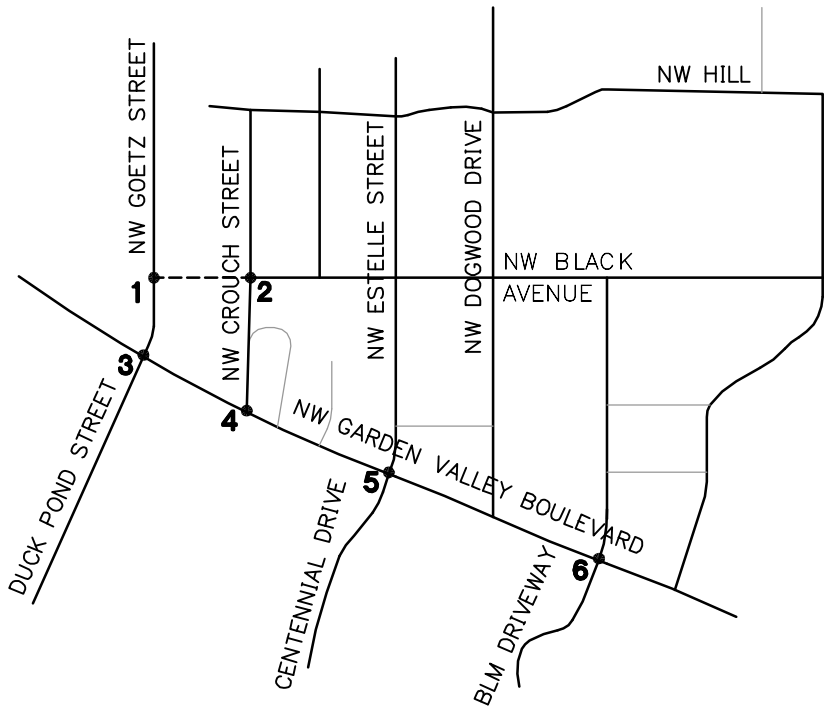
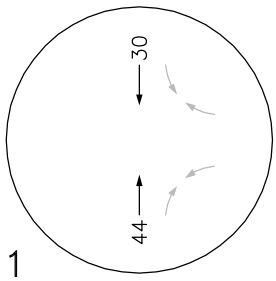
2017 EXISTING TRAFFIC WITH BLACK AVENUE EXTENSION - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
5B

NOT TO SCALE





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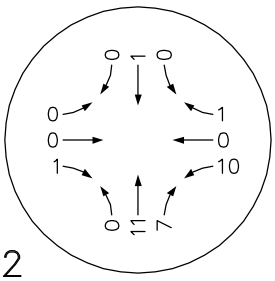

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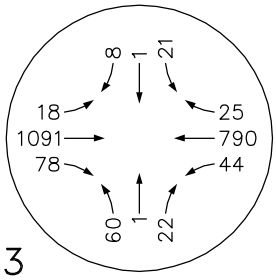

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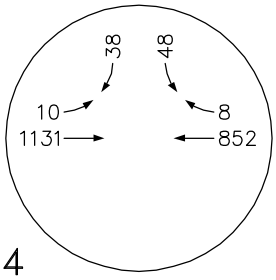

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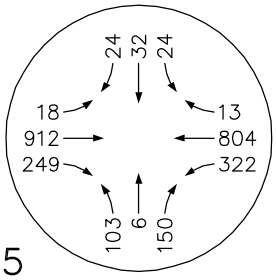

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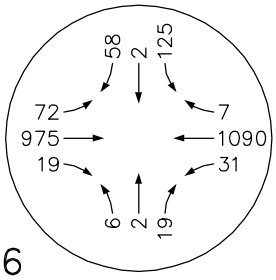

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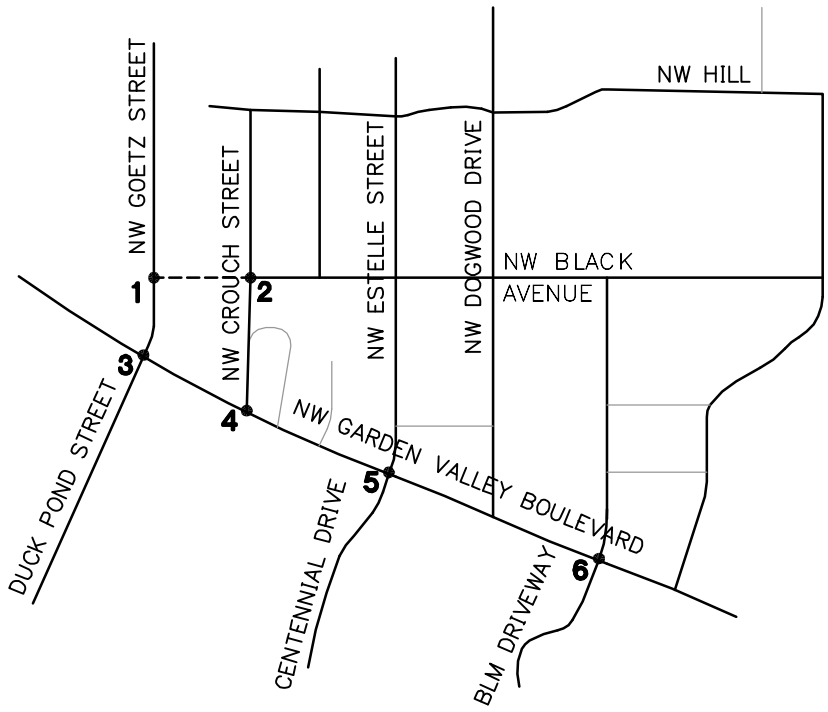
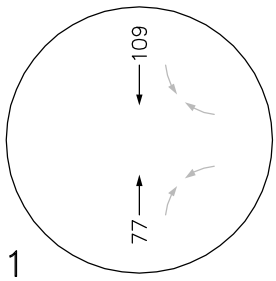
2037 FUTURE TRAFFIC NO BUILD CONDITION - AM PEAK HOUR

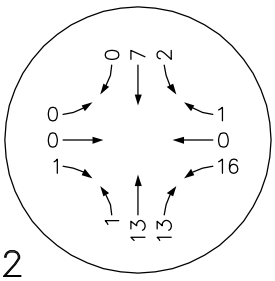
ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

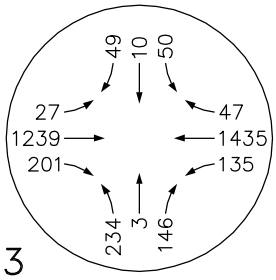
FIGURE 6A

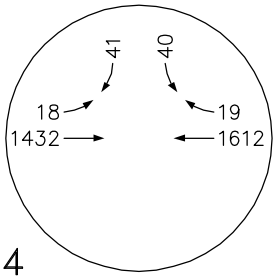
NOT TO SCALE

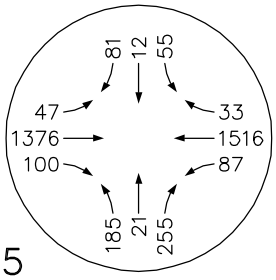


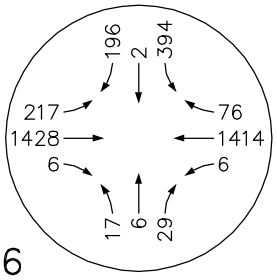












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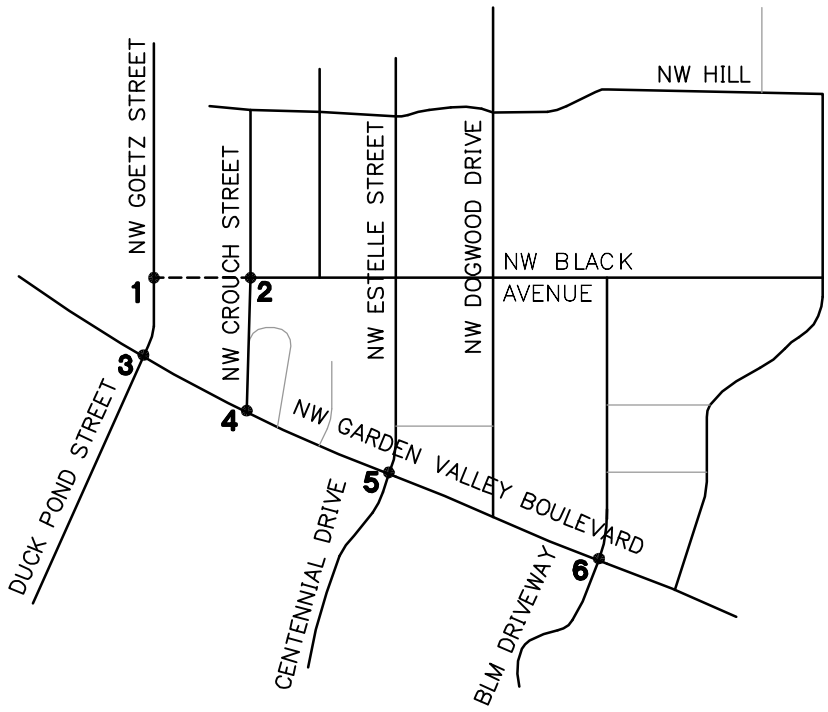
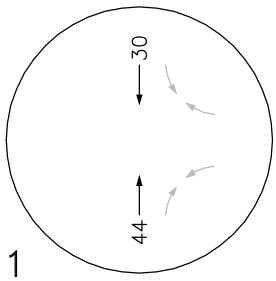
2037 FUTURE TRAFFIC NO BUILD CONDITION - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE 6B

NOT TO SCALE





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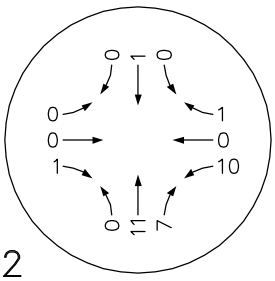

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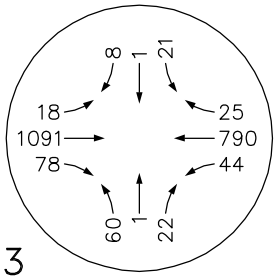

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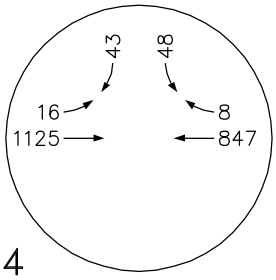

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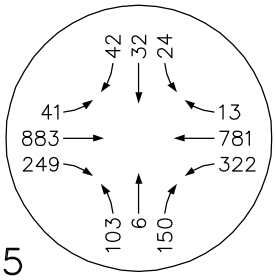

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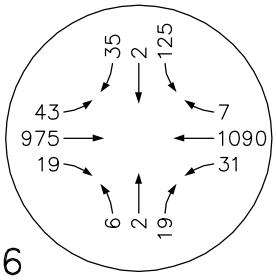

6

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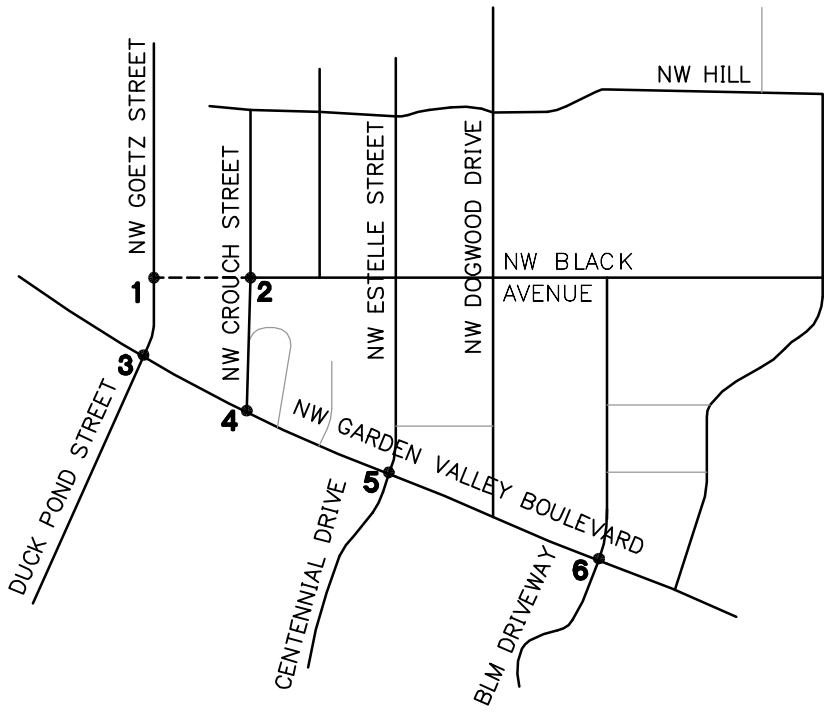
JOB NO: 2160590.00

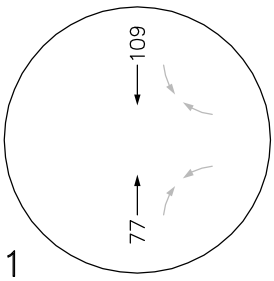
2037 FUTURE TRAFFIC WITH IMPROVED BLACK AVENUE - AM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
7A

NOT TO SCALE





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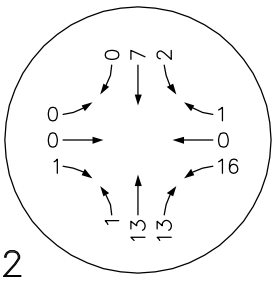

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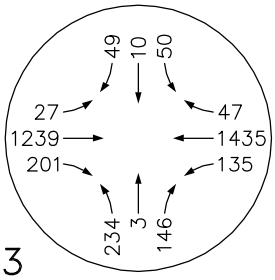

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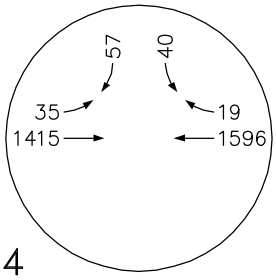

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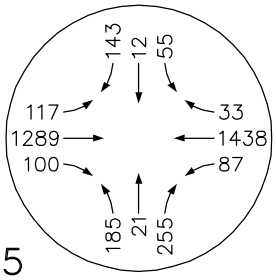

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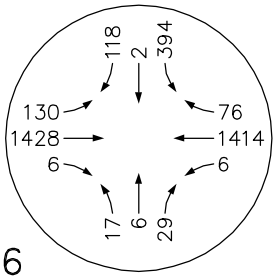

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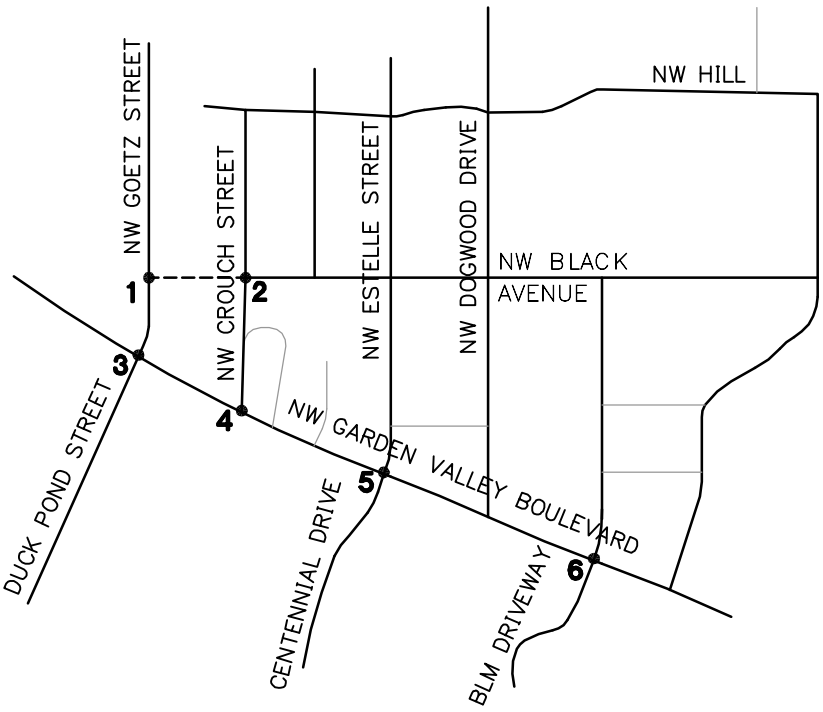
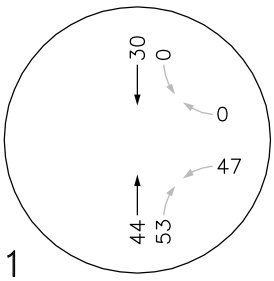
2037 FUTURE TRAFFIC WITH IMPROVED BLACK AVENUE - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE 7B

NOT TO SCALE





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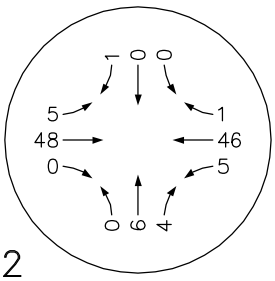

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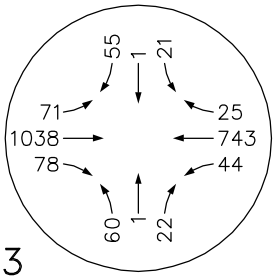

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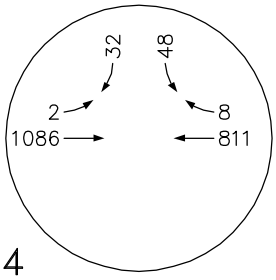

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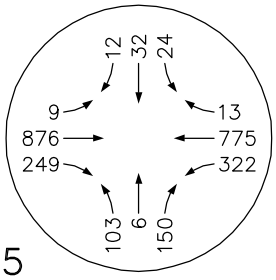

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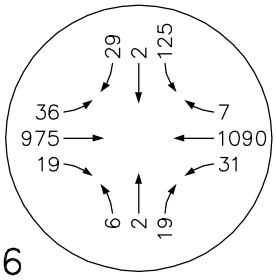

6

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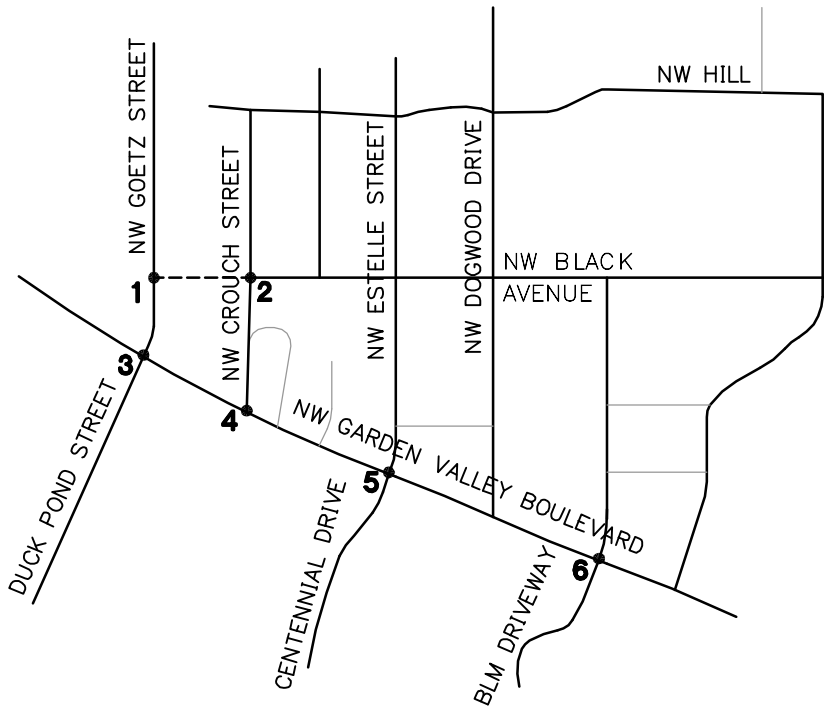
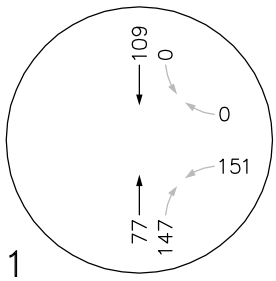
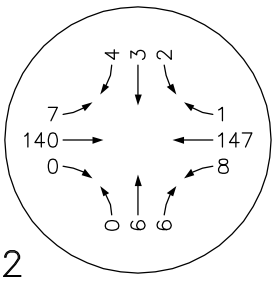
2037 FUTURE TRAFFIC WITH BLACK AVENUE EXTENSION - AM PEAK HOUR

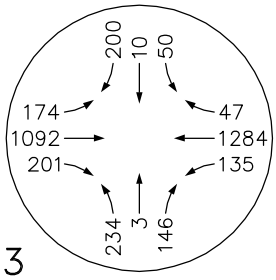
ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

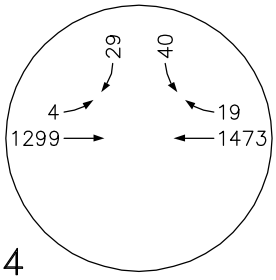
FIGURE
8A

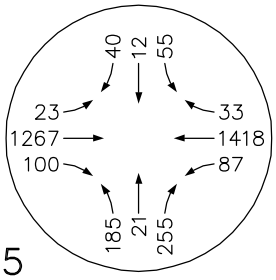


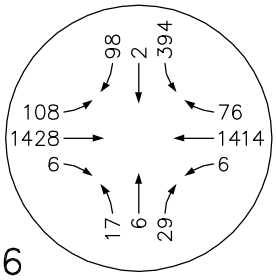












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DRAWN BY: JTJ
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JOB NO: 2160590.00

2037 FUTURE TRAFFIC WITH BLACK AVENUE EXTENSION - PM PEAK HOUR

ROSEBURG BLACK AVENUE EXTENSION
ROSEBURG, OREGON

FIGURE
8B

TECHNICAL APPENDIX

TRAFFIC COUNTS
VOLUME ESTIMATES
SYNCHRO OUTPUT

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

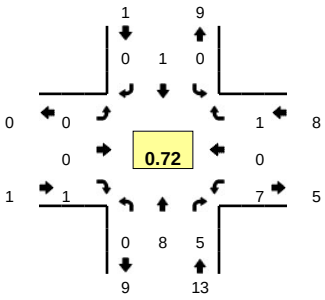
LOCATION: NW Crouch St -- NW Black Ave

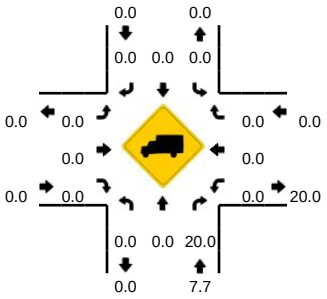
QC JOB #: 14115207

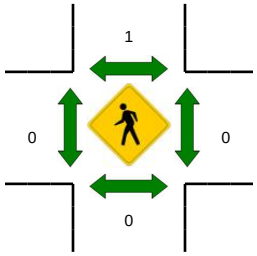
CITY/STATE: Roseburg, OR

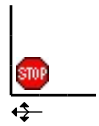
DATE: Wed, Feb 01 2017

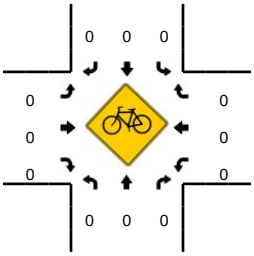
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

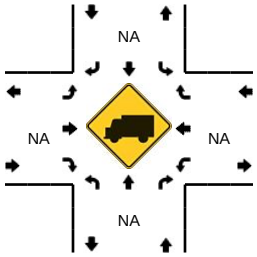


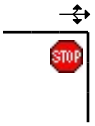


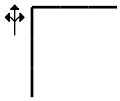


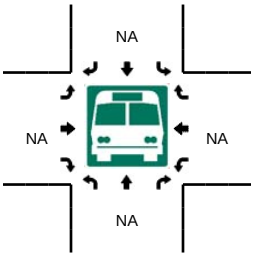












5-Min Count Period Beginning At	NW Crouch St (Northbound)				NW Crouch St (Southbound)				NW Black Ave (Eastbound)				NW Black Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:05 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:25 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:35 AM	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	4	
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4	
7:50 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
7:55 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	14
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	16
8:05 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	17
8:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	19
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
8:20 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	20
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	20
8:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	22
8:35 AM	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	4	22
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
8:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	20
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	20
8:55 AM	0	2	0	0	0	0	0	0	0	0	1	0	2	0	0	0	5	23

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	12	4	0	0	0	0	0	0	0	4	0	12	0	0	0	32
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
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 2/7/2017 12:42 PM

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

Type of peak hour being reported: Intersection Peak

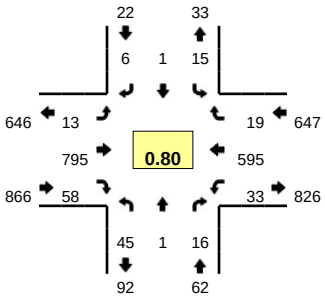
Method for determining peak hour: Total Entering Volume

LOCATION: Duck Pond St/Goetz St -- NW Garden Valley Blvd

QC JOB #: 14115205

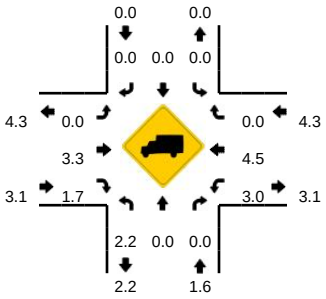
CITY/STATE: Roseburg, OR

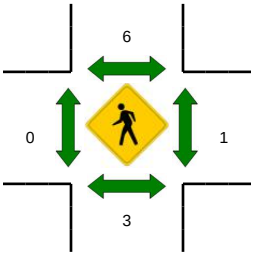
DATE: Wed, Feb 01 2017

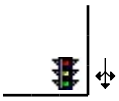


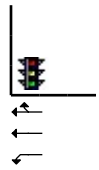
Peak-Hour: 7:15 AM -- 8:15 AM

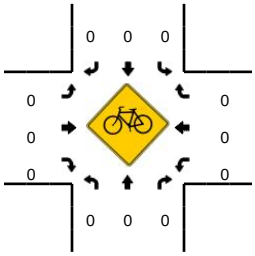
Peak 15-Min: 7:40 AM -- 7:55 AM

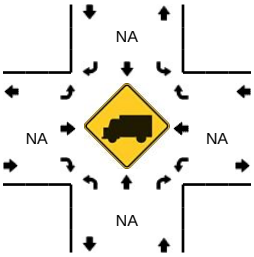


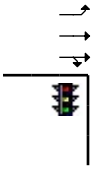


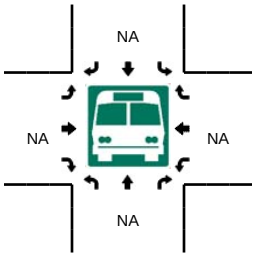












5-Min Count Period Beginning At	Duck Pond St/Goetz St (Northbound)				Duck Pond St/Goetz St (Southbound)				NW Garden Valley Blvd (Eastbound)				NW Garden Valley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	1	0	0	47	4	0	0	28	1	0	82	
7:05 AM	2	0	3	0	0	0	2	0	0	56	2	0	1	31	0	0	97	
7:10 AM	0	0	0	0	0	0	0	0	0	51	4	0	1	33	0	0	89	
7:15 AM	7	0	2	0	0	0	0	0	2	75	2	0	2	53	2	0	145	
7:20 AM	3	0	0	0	2	0	1	0	0	72	2	0	1	38	2	0	121	
7:25 AM	2	0	0	0	0	0	0	0	2	58	7	0	1	40	0	0	110	
7:30 AM	2	0	1	0	0	0	1	0	0	74	4	0	2	38	5	0	127	
7:35 AM	3	0	2	0	1	0	1	0	0	70	3	0	1	52	1	0	134	
7:40 AM	8	0	1	0	3	0	1	0	1	71	3	0	2	62	0	0	152	
7:45 AM	2	0	1	0	3	0	0	0	5	95	7	0	3	65	3	0	184	
7:50 AM	7	1	2	0	3	1	0	0	1	65	7	0	6	68	0	0	161	
7:55 AM	2	0	1	0	0	0	1	0	1	70	4	0	3	53	1	0	136	1538
8:00 AM	1	0	2	0	0	0	0	0	0	40	6	0	7	40	1	0	97	1553
8:05 AM	2	0	1	0	0	0	1	0	1	49	5	0	1	38	3	0	101	1557
8:10 AM	6	0	3	0	3	0	0	0	0	56	8	0	4	48	1	0	129	1597
8:15 AM	3	0	5	0	1	0	1	0	0	50	3	0	0	47	1	0	111	1563
8:20 AM	8	0	5	0	1	0	0	0	1	41	3	0	3	49	1	0	112	1554
8:25 AM	8	1	2	0	2	0	0	0	1	39	11	0	0	55	0	0	119	1563
8:30 AM	5	0	1	0	0	0	0	0	0	46	8	0	1	48	0	0	109	1545
8:35 AM	4	0	2	0	4	0	0	0	3	62	7	0	2	54	4	0	142	1553
8:40 AM	4	0	3	0	0	0	0	0	1	59	9	0	3	68	0	0	147	1548
8:45 AM	8	1	6	0	0	0	1	0	1	77	6	0	4	65	2	0	171	1535
8:50 AM	10	0	3	0	0	0	2	0	0	86	5	0	4	66	3	0	179	1553
8:55 AM	4	0	3	0	0	0	0	0	2	63	11	0	3	60	3	0	149	1566

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	68	4	16	0	36	4	4	0	28	924	68	0	44	780	12	0	1988
Heavy Trucks	0	0	0		0	0	0		0	24	0		0	28	0		52
Pedestrians		12				12				0				0			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/7/2017 12:42 PM

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

Type of peak hour being reported: Intersection Peak

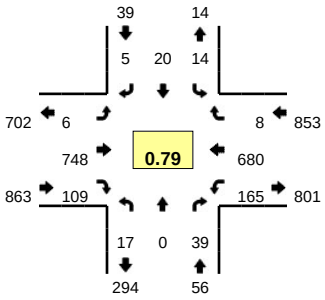
Method for determining peak hour: Total Entering Volume

LOCATION: Centennial Dr/Estelle St -- NW Garden Valley Blvd

QC JOB #: 14115203

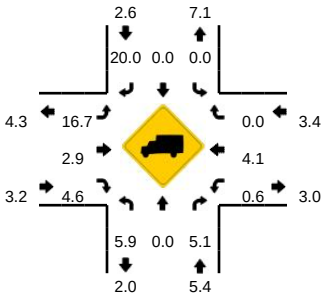
CITY/STATE: Roseburg, OR

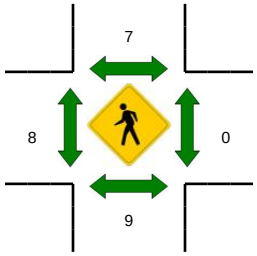
DATE: Wed, Feb 01 2017

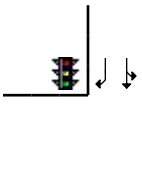


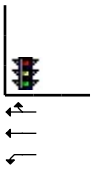
Peak-Hour: 7:15 AM -- 8:15 AM

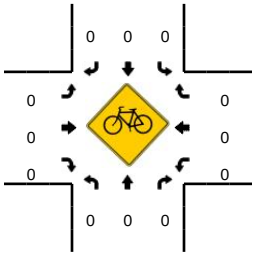
Peak 15-Min: 7:40 AM -- 7:55 AM

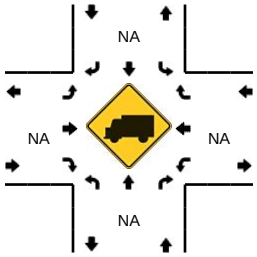


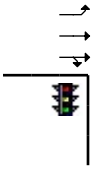


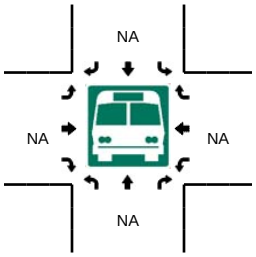












5-Min Count Period Beginning At	Centennial Dr/Estelle St (Northbound)				Centennial Dr/Estelle St (Southbound)				NW Garden Valley Blvd (Eastbound)				NW Garden Valley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	2	0	1	0	0	34	7	0	9	33	0	0	88	
7:05 AM	1	0	2	0	2	0	2	0	0	61	9	0	6	28	2	0	113	
7:10 AM	2	0	2	0	1	0	0	0	0	48	8	0	10	37	2	0	110	
7:15 AM	1	0	2	0	0	0	0	0	0	71	6	0	9	50	0	0	139	
7:20 AM	1	0	2	0	1	0	0	0	1	64	5	0	10	46	0	0	130	
7:25 AM	1	0	0	0	0	0	1	0	0	57	9	0	14	48	0	0	130	
7:30 AM	2	0	5	0	3	0	0	0	0	66	8	0	12	52	0	0	148	
7:35 AM	1	0	5	0	2	1	0	0	1	70	6	0	15	55	1	0	157	
7:40 AM	1	0	1	0	3	4	0	0	0	61	21	0	18	70	0	0	179	
7:45 AM	2	0	4	0	1	3	2	0	0	70	19	0	19	76	0	0	196	
7:50 AM	1	0	5	0	1	8	0	0	2	73	14	0	20	68	4	0	196	
7:55 AM	1	0	3	0	1	4	0	0	1	71	6	0	15	63	1	0	166	1752
8:00 AM	3	0	4	0	1	0	0	0	0	39	7	0	14	54	1	0	123	1787
8:05 AM	2	0	6	0	0	0	0	0	1	46	2	0	10	41	1	0	109	1783
8:10 AM	1	0	2	0	1	0	2	0	0	60	6	0	9	57	0	0	138	1811
8:15 AM	1	0	2	0	1	0	1	0	3	55	2	0	8	51	3	0	127	1799
8:20 AM	4	0	5	0	0	0	0	0	0	51	1	0	7	56	0	0	124	1793
8:25 AM	4	0	1	0	0	0	0	0	0	27	2	0	10	49	0	0	93	1756
8:30 AM	1	0	0	0	1	0	1	0	1	56	4	0	12	56	1	0	133	1741
8:35 AM	2	0	3	0	2	0	1	0	1	62	2	0	10	75	0	0	158	1742
8:40 AM	2	0	10	0	1	0	1	0	0	59	8	0	9	73	0	0	163	1726
8:45 AM	3	0	9	0	2	1	3	0	0	79	5	0	9	63	2	0	176	1706
8:50 AM	7	2	3	0	0	0	1	0	0	76	5	0	16	68	1	0	179	1689
8:55 AM	4	0	3	0	0	0	2	0	2	76	5	0	12	66	1	0	171	1694

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	40	0	20	60	8	0	8	816	216	0	228	856	16	0	2284
Heavy Trucks	0	0	0		0	0	0		0	24	0		4	28	0		56
Pedestrians		16				8				12				0			36
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/7/2017 12:42 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

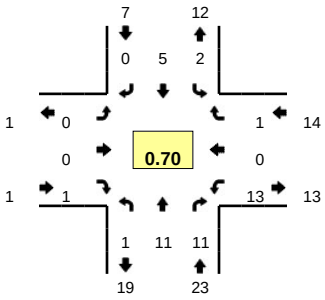
LOCATION: NW Crouch St -- NW Black Ave

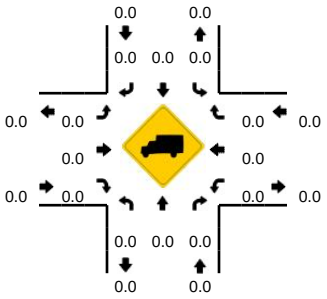
QC JOB #: 14115208

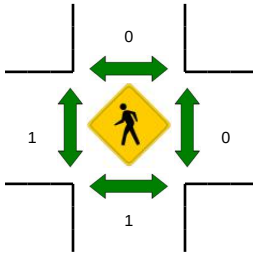
CITY/STATE: Roseburg, OR

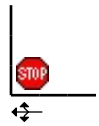
DATE: Tue, Jan 31 2017

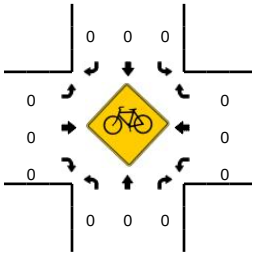
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 4:25 PM -- 4:40 PM

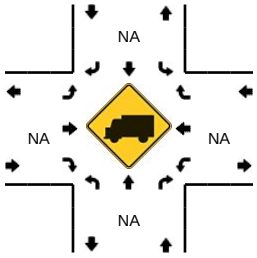


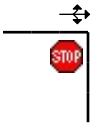


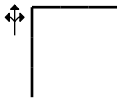


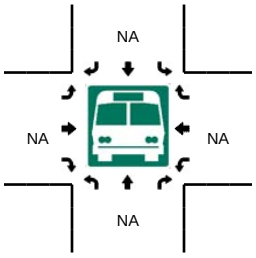












5-Min Count Period Beginning At	NW Crouch St (Northbound)				NW Crouch St (Southbound)				NW Black Ave (Eastbound)				NW Black Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	
4:05 PM	0	1	1	0	0	0	0	0	0	0	0	0	2	0	0	0	4	
4:10 PM	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	4	
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
4:25 PM	1	2	0	0	0	0	0	0	0	0	1	0	2	0	0	0	6	
4:30 PM	0	0	2	0	0	1	0	0	0	0	0	0	2	0	0	0	5	
4:35 PM	0	1	2	0	0	0	0	0	0	0	0	0	2	0	0	0	5	
4:40 PM	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	4	
4:45 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3	
4:50 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
4:55 PM	0	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4	41
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	40
5:05 PM	0	4	1	0	0	0	0	0	0	0	0	0	1	0	0	0	6	42
5:10 PM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	42
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	2	0	1	0	4	44
5:20 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	45
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	40
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	38
5:35 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3	36
5:40 PM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	35
5:45 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4	36
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	37
5:55 PM	0	0	2	1	0	0	0	0	0	0	0	0	4	0	0	0	7	40

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	12	16	0	0	4	0	0	0	0	4	0	24	0	0	0	64
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
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 2/7/2017 12:42 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

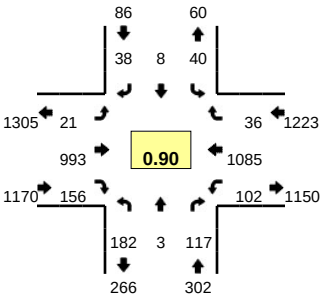
LOCATION: Duck Pond St/Goetz St -- NW Garden Valley Blvd

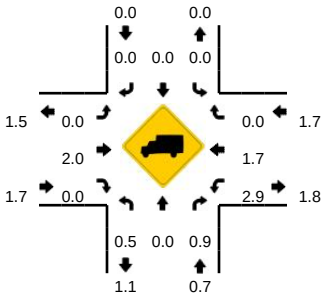
QC JOB #: 14115206

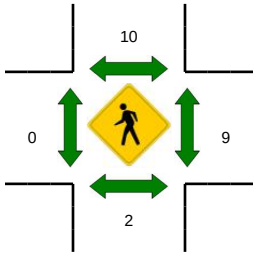
CITY/STATE: Roseburg, OR

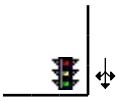
DATE: Tue, Jan 31 2017

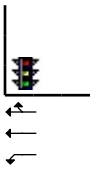
Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

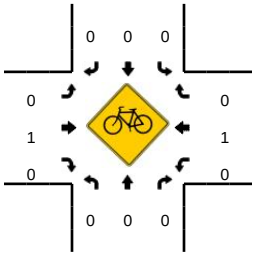


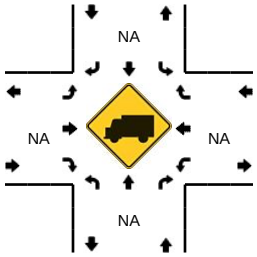


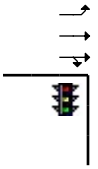


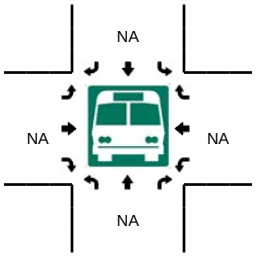












5-Min Count Period Beginning At	Duck Pond St/Goetz St (Northbound)				Duck Pond St/Goetz St (Southbound)				NW Garden Valley Blvd (Eastbound)				NW Garden Valley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	0	6	0	2	0	0	0	1	77	13	0	9	78	2	0	198	
4:05 PM	16	1	9	0	3	0	4	0	1	72	8	0	5	60	2	0	181	
4:10 PM	13	0	11	0	6	0	3	0	1	70	11	0	9	97	3	0	224	
4:15 PM	12	2	10	0	1	1	1	0	1	78	12	0	9	83	2	0	212	
4:20 PM	11	0	12	0	2	0	2	0	2	74	16	0	10	102	0	0	231	
4:25 PM	11	1	9	0	2	0	0	0	2	88	12	0	14	86	2	0	227	
4:30 PM	13	2	10	0	3	0	2	0	1	71	16	0	8	82	6	0	214	
4:35 PM	19	0	7	0	4	1	1	0	4	73	14	0	8	108	1	0	240	
4:40 PM	16	1	9	0	3	2	4	0	4	67	12	0	4	77	2	0	201	
4:45 PM	15	0	13	0	7	0	2	0	0	78	8	0	7	97	1	0	228	
4:50 PM	16	1	8	0	5	0	5	0	4	70	11	0	9	101	4	0	234	
4:55 PM	16	1	6	0	1	1	3	0	0	86	11	0	8	83	8	0	224	2614
5:00 PM	14	0	5	0	1	1	8	0	1	63	9	0	8	82	3	0	195	2611
5:05 PM	22	0	10	0	1	0	1	0	1	105	19	0	4	82	4	0	249	2679
5:10 PM	9	0	6	0	8	0	5	0	1	108	22	0	11	100	2	0	272	2727
5:15 PM	11	0	12	0	3	1	2	0	3	96	20	0	10	87	4	0	249	2764
5:20 PM	11	0	15	0	5	2	1	0	1	90	14	0	14	89	2	0	244	2777
5:25 PM	16	0	13	0	2	0	1	0	2	84	8	0	9	90	2	0	227	2777
5:30 PM	17	0	13	0	0	0	5	0	0	73	8	0	10	89	3	0	218	2781
5:35 PM	14	1	12	0	2	1	1	0	0	54	10	0	4	84	4	0	187	2728
5:40 PM	16	0	10	0	3	0	1	0	0	89	9	0	11	73	2	0	214	2741
5:45 PM	14	1	8	0	3	1	2	0	0	74	14	0	10	65	2	0	194	2707
5:50 PM	13	1	13	0	0	0	1	0	1	65	14	0	6	90	1	0	205	2678
5:55 PM	6	0	14	0	4	0	4	0	0	60	8	0	7	71	1	0	175	2629

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	168	0	112	0	48	4	32	0	20	1236	244	0	100	1076	40	0	3080
Heavy Trucks	0	0	4		0	0	0		0	20	0		8	24	0		56
Pedestrians		0				16				0				12			28
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/7/2017 12:42 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

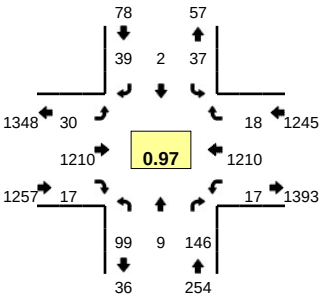
LOCATION: Centennial Dr/Estelle St -- NW Garden Valley Blvd

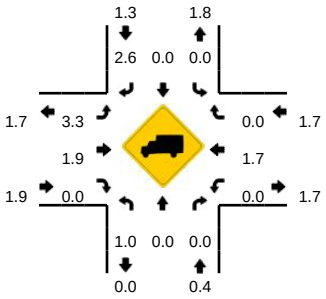
QC JOB #: 14115204

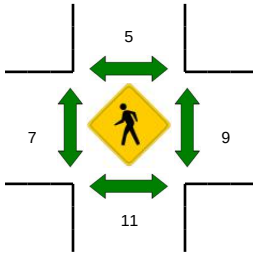
CITY/STATE: Roseburg, OR

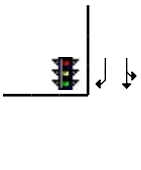
DATE: Tue, Jan 31 2017

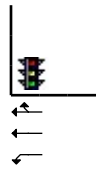
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

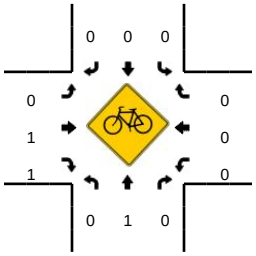


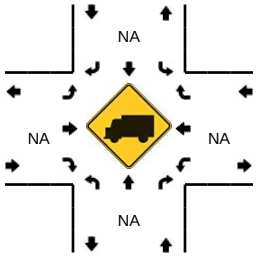


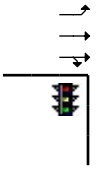


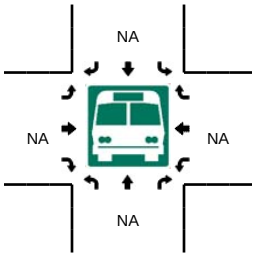












5-Min Count Period Beginning At	Centennial Dr/Estelle St (Northbound)				Centennial Dr/Estelle St (Southbound)				NW Garden Valley Blvd (Eastbound)				NW Garden Valley Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	1	14	0	3	0	8	0	4	91	0	0	2	100	1	0	236	
4:05 PM	6	1	29	0	2	0	3	0	1	89	2	0	4	77	0	0	214	
4:10 PM	10	0	13	0	2	0	2	0	7	82	2	0	0	108	0	0	226	
4:15 PM	8	0	11	0	2	1	2	0	2	99	2	0	5	98	1	0	231	
4:20 PM	9	0	7	0	1	0	3	0	2	89	2	0	5	107	2	0	227	
4:25 PM	5	0	10	0	4	0	3	0	0	103	2	0	4	98	2	0	231	
4:30 PM	11	1	22	0	3	0	2	0	1	100	3	0	0	105	1	0	249	
4:35 PM	23	2	30	0	2	0	4	0	6	90	0	0	3	97	2	0	259	
4:40 PM	12	0	20	0	2	0	4	0	1	84	1	0	4	92	2	0	222	
4:45 PM	9	1	17	0	4	1	8	0	1	100	1	0	2	102	1	0	247	
4:50 PM	8	0	12	0	4	0	3	0	2	90	3	0	1	103	1	0	227	
4:55 PM	4	0	4	0	2	0	0	0	4	93	0	0	1	112	1	0	221	2790
5:00 PM	7	2	13	0	3	0	2	0	2	95	0	0	2	82	1	0	209	2763
5:05 PM	7	1	7	0	5	0	5	0	2	99	3	0	2	94	2	0	227	2776
5:10 PM	7	0	7	0	3	1	4	0	2	124	1	0	0	116	3	0	268	2818
5:15 PM	5	1	6	0	3	0	1	0	4	104	1	0	0	106	1	0	232	2819
5:20 PM	2	0	2	0	5	0	4	0	3	107	2	0	2	97	2	0	226	2818
5:25 PM	4	1	6	0	1	0	2	0	2	124	2	0	0	104	1	0	247	2834
5:30 PM	1	1	11	0	0	0	2	0	4	94	0	0	1	103	0	0	217	2802
5:35 PM	3	0	9	0	2	0	5	0	0	76	1	0	6	96	1	0	199	2742
5:40 PM	3	0	4	0	5	0	1	0	0	104	2	0	0	89	7	0	215	2735
5:45 PM	1	0	3	0	2	0	0	0	1	99	1	0	5	80	3	0	195	2683
5:50 PM	4	0	4	0	1	0	3	0	2	79	1	0	1	103	4	0	202	2658
5:55 PM	0	0	1	0	4	0	3	0	1	88	4	0	1	79	4	0	185	2622

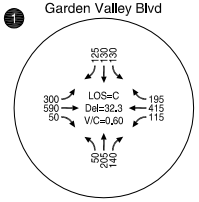
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	184	12	288	0	28	0	40	0	32	1096	16	0	28	1176	20	0	2920
Heavy Trucks	0	0	0		0	0	4		4	36	0		0	20	0		64
Pedestrians		16				4				12				16			48
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

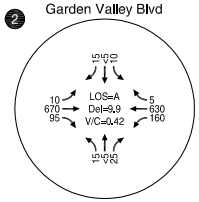
Report generated on 2/7/2017 12:42 PM

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

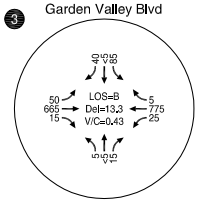
1 Stewart Pkwy/ Garden Valley Blvd



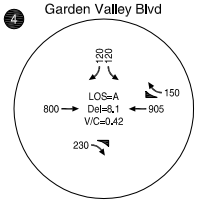
2 Centennial Dr/ Garden Valley Blvd



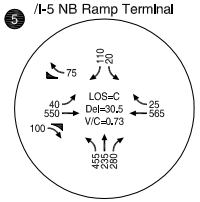
3 BLM Access/ Garden Valley Blvd



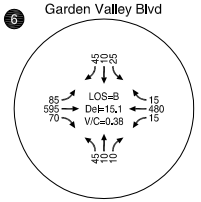
4 I-5 SB Ramp Terminal/ Garden Valley Blvd



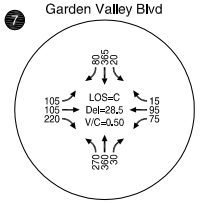
5 Mulholland Dr / Garden Valley Blvd /I-5 NB Ramp Terminal



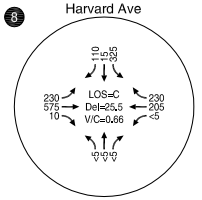
6 Cedar St/ Airport Rd/ Garden Valley Blvd



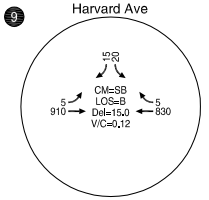
7 Stephens St/ Garden Valley Blvd



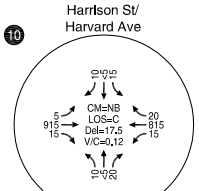
8 Stewart Pkwy/ Harvard Ave



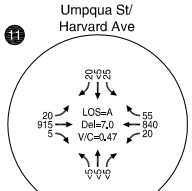
9 Maple St/ Harvard Ave



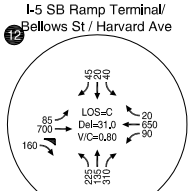
10 Harrison St/ Harvard Ave



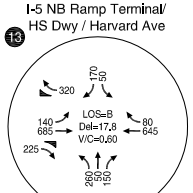
11 Umpqua St/ Harvard Ave



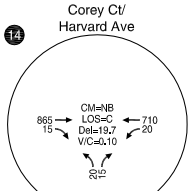
12 I-5 SB Ramp Terminal/ Bellows St / Harvard Ave



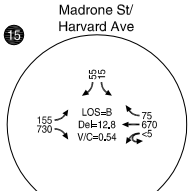
13 I-5 NB Ramp Terminal/ HS Dwy / Harvard Ave



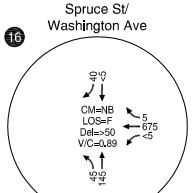
14 Corey Ct/ Harvard Ave



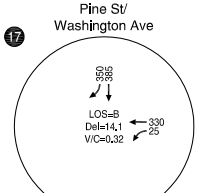
15 Madrone St/ Harvard Ave



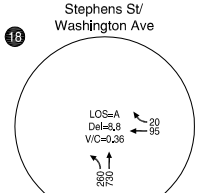
16 Spruce St/ Washington Ave



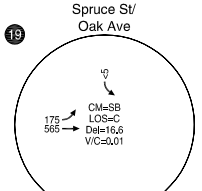
17 Pine St/ Washington Ave



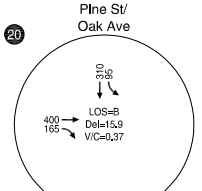
18 Stephens St/ Washington Ave



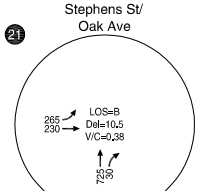
19 Spruce St/ Oak Ave

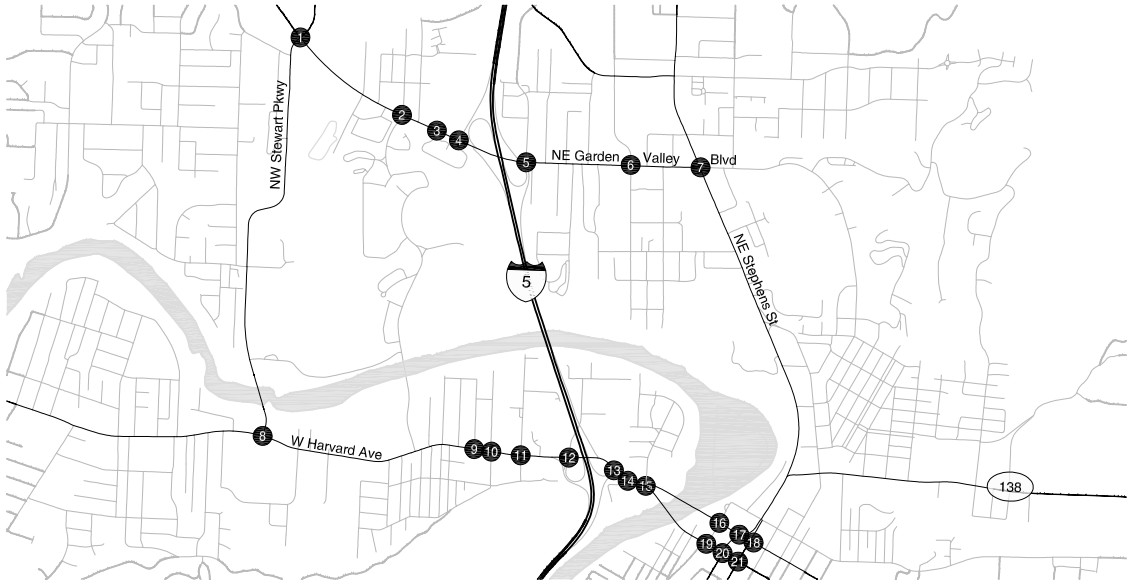


20 Pine St/ Oak Ave



21 Stephens St/ Oak Ave

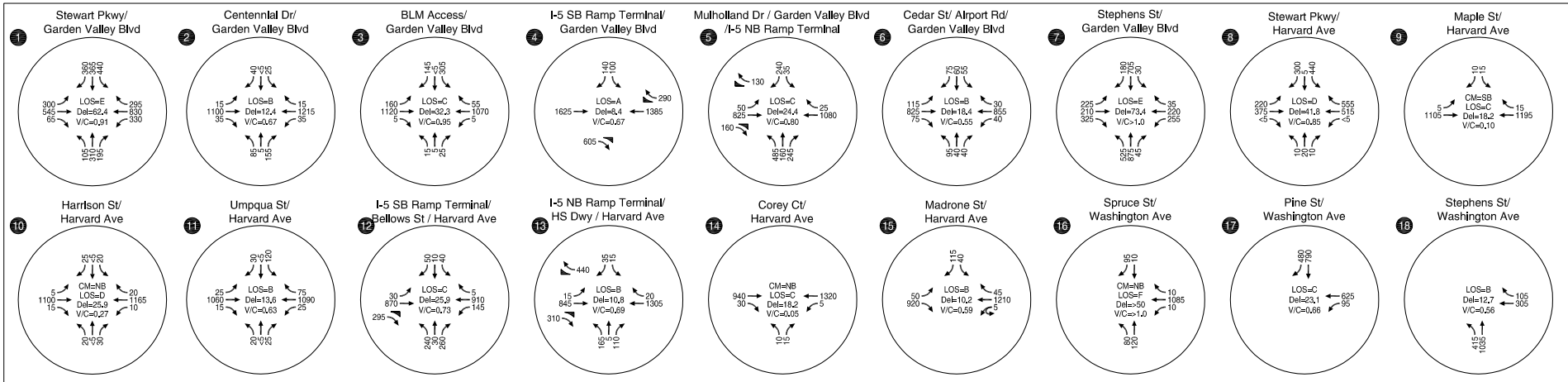


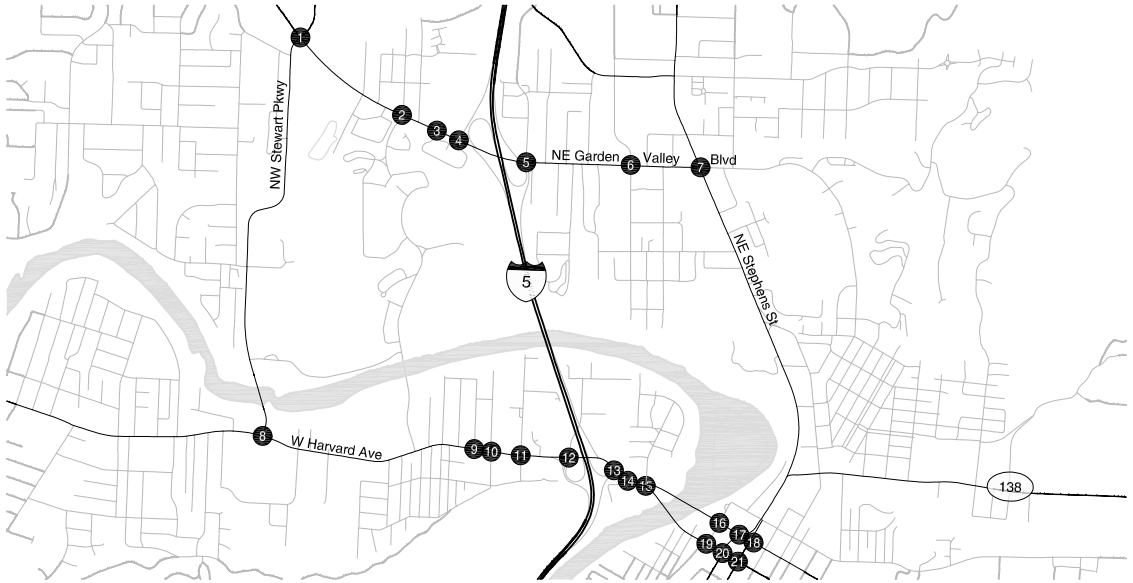


CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWC = TWO-WAY STOP CONTROL

2013 Existing Traffic Conditions
Weekday AM Peak Hour
Roseburg, OR

Figure **2-20**

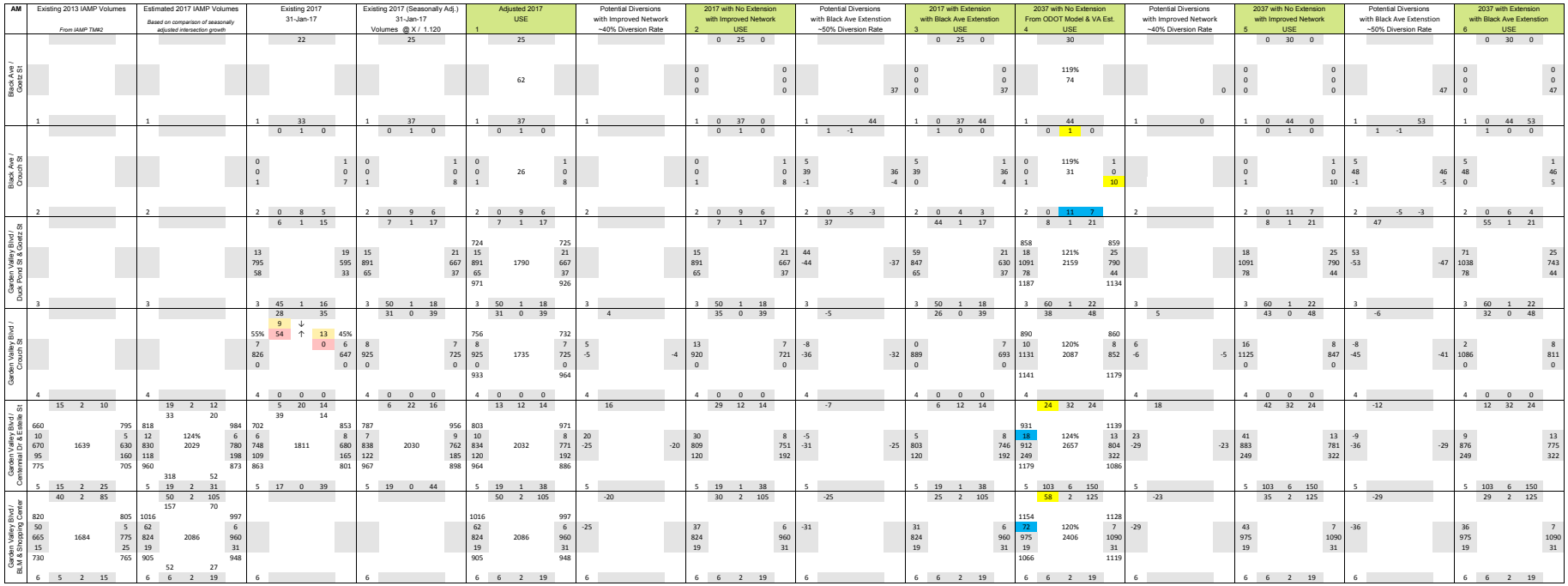




CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWC = TWO-WAY STOP CONTROL

2013 Existing Traffic Conditions
Weekday PM Peak Hour
Roseburg, OR

Figure **2-21**



Fast Food w/ Drive Thru
Est. 3000 sf
136 AM peak hour trips
Entry on GV 68 trips
Exit on GV 14 trips
Exit on Crouch 54 trips

Specialty Retail
Est. 7500 sf
0 AM peak hour trips
Entry on GV 0 trips
Entry on Crou 0 trips
Exit on GV 0 trips
Exit on Crouch 0 trips

AM Diverted 45
PM Diverted 142
Est. ADT 1400

AM Diverted 81
PM Diverted 237
Est. ADT 2400

AM Diverted 52
PM Diverted 165
Est. ADT 1700

AM Diverted 100
PM Diverted 298
Est. ADT 3000

PM	Existing 2013 IAMP Volumes *From IAMP TM#2*	Estimated 2017 IAMP Volumes *Based on comparison of seasonally adjusted intersection growth*	Existing 2017 31-Jan-17	Existing 2017 (Seasonally Adj.) 31-Jan-17 Volumes @ X / 1.120	Adjusted 2017 USE 7	Potential Diversions with Improved Network ~40% Diversion Rate	2017 with No Extension with Improved Network 8 USE	Potential Diversions with Black Ave Extenstion ~50% Diversion Rate	2017 with Extension with Black Ave Extenstion 9 USE	2037 with No Extension From ODOT Model & VA Est. 10 USE	Potential Diversions with Improved Network ~40% Diversion Rate	2037 with No Extension with Improved Network 11 USE	Potential Diversions with Black Ave Extenstion ~50% Diversion Rate	2037 with Extension with Black Ave Extenstion 12 USE
Black Avenue / Goetz Street			86	96	96		0 96 0		0 96 0	109		0 109 0		0 109 0
					163		0 0 0		0 0 119	114% 186		0 0 0		0 0 151
	1	1	1 60	1 67	1 67	1	1 0 67 0	1 118	1 0 67 118	1 77	1	1 0 77 0	1 147	1 0 77 147
Black Avenue / Crouch Street			0 5 2	0 6 2	0 6 2		0 6 2	3 -3	3 3 2	0 7 2		0 7 2	4 -4	4 3 2
			0 0 1 1	0 0 1 1	0 0 50 1 1 15		0 0 1	6 112 -1 116 -8	6 112 0 1 7	0 0 1	108% 54	1 0 16	7 140 -1 147 -8	7 140 0 1 8
	2	2	2 1 11 11	2 1 12 12	2 1 12 12	2	2 1 12 12	2 -1 -6 -6	2 0 6 6	2 1 13 13	2	2 1 13 13	2 -1 -7 -7	2 0 6 6
Garden Valley Boulevard / Duck Pond & Goetz Streets			38 8 40	43 9 45	43 9 45		43 9 45	119	162 9 45	49 10 50		49 10 50	151	200 10 50
			21 36 993 1085 156 102	1463 1370 24 40 1113 1216 175 114 1312 1289	1463 1370 24 40 3117 1113 1216 175 114 1312 1289		24 40 1113 1216 175 114	118 -118 -119 114	142 40 995 1097 175 114	1718 1617 27 47 115% 1239 3576 1435 201 135 1467 1435		27 47 1239 1435 201 135	147 -147 -151	174 47 1092 1284 201 135
	3	3	3 182 3 117	3 204 3 131	3 204 3 131	3	3 204 3 131	3	3 204 3 131	3 234 3 146	3	3 234 3 146	3	3 234 3 146
Garden Valley Boulevard / Crouch Street			32 32 19 ↓ 50% 45 ↑ 23 50% 14 4 14 1150 1223 0	36 36 1406 1386 16 16 1288 1370 0 1304 1324	36 36 1406 1386 16 16 2762 1288 1370 1304 1324	14 15 -15 -14	50 0 36 31 16 1273 1356 0	-11 -12 -106 -108	25 0 36 4 16 1182 1262 0	41 40 1653 1631 18 19 114% 1432 3162 1612 1450 1472	16 17 -17 -16	57 0 40 35 19 1415 1596 0	-12 -14 -133 -139	29 0 40 4 19 1299 1473 0
	4	4	4 0 0 0	4	4	4	4 0 0 0	4	4 0 0 0	4	4	4 0 0 0	4	4 0 0 0
Garden Valley Boulevard / Centennial DR & Estates ST	40 2 25	47 2 29	39 2 37	44 2 41	46 2 35	54	100 2 35	-23	23 2 35	81 12 55	62	143 12 55	-41	40 12 55
	1340 1265 15 15 1100 2727 1215 35 35 1150 1280	1561 1473 17 17 1281 116% 3176 1415 41 41 1339 1491	1348 1245 30 18 1210 2834 1210 17 17 1257 1393	1511 1395 34 20 1356 3176 1356 19 19 1409 1561	1537 1435 26 19 1319 3179 1386 30 30 1375 1527	59 -74 -68 5	85 19 1245 1318 30 5 105 8 173	-13 -93 -85 5	13 19 1226 1301 30 5 105 8 173	1782 1636 47 33 119% 1376 3768 1516 100 87 1523 1686 5 185 21 255	70 -87 -78 5	117 33 1289 1438 100 87 5 185 21 255	-24 -109 -98 5	23 33 1267 1418 100 87 5 185 21 255
	5 85 5 155	5 99 6 181	5 99 9 146	5 111 10 164	5 105 8 173	5	5 105 8 173	5	5 105 8 173		5		5	
Garden Valley Boulevard / BLM & Shopping Center	145 2 305	169 2 355			169 2 355	-68	101 2 355	-85	84 2 355	196 2 394	-78	118 2 394	-98	98 2 394
	1230 1130 160 55 1120 2912 1070 5 5 1285 1450	1432 1316 186 64 1304 3390 1246 6 6 1496 1688			1432 1316 186 64 1304 3390 1246 6 6 1496 1688	-74	112 64 1304 1246 6 6	-93	93 64 1304 1246 6 6	1627 1496 217 76 112% 1428 3791 1414 6 6 1651 1851	-87	130 76 1428 1414 6 6	-109	108 76 1428 1414 6 6
	6 15 5 25	6 17 6 29	6	6	6 17 6 29	6	6 17 6 29	6	6 17 6 29	6 17 6 29	6	6 17 6 29	6	6 17 6 29

135
-170

Fast Food w/ Drive Thru
Est. 3000 sf
100 PM peak hour trips
Entry on GV 50 trips
Exit on GV 10 trips
Exit on Crouch 40 trips

Specialty Retail
Est. 7500 sf
20 AM peak hour trips
Entry on GV 5 trips
Entry on Crou 4 trips
Exit on GV 6 trips
Exit on Crouch 5 trips

AM Diverted 45
PM Diverted 142
Est. ADT 1400

AM Diverted 81
PM Diverted 237
Est. ADT 2400

AM Diverted 52
PM Diverted 165
Est. ADT 1700

AM Diverted 100
PM Diverted 298
Est. ADT 3000

SEASONAL TREND TABLE (Updated: 9/30/16)																										
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	Seasonal Trend Peak Period Factor
INTERSTATE URBANIZED	1.0328	1.0423	1.0157	0.9891	0.9780	0.9670	0.9582	0.9493	0.9530	0.9567	0.9385	0.9202	0.9228	0.9275	0.9229	0.9182	0.9363	0.9544	0.9568	0.9592	0.9776	0.9959	1.0131	1.0303	0.9182
INTERSTATE NONURBANIZED	1.2437	1.3089	1.2543	1.1997	1.1341	1.0685	1.0594	1.0503	1.0243	0.9984	0.9494	0.9005	0.8748	0.8449	0.8450	0.8452	0.8928	0.9405	0.9815	1.0224	1.0445	1.0666	1.1193	1.1721	0.8449
COMMUTER	1.0475	1.0553	1.0272	0.9991	0.9913	0.9836	0.9655	0.9474	0.9442	0.9411	0.9497	0.9583	0.9410	0.9243	0.9206	0.9168	0.9289	0.9409	0.9431	0.9452	0.9734	1.0017	1.0249	1.0481	0.9168
COASTAL DESTINATION	1.2011	1.2105	1.1669	1.1234	1.0959	1.0684	1.0679	1.0673	1.0450	1.0227	0.9832	0.9438	0.8923	0.8293	0.8289	0.8284	0.8792	0.9300	0.9866	1.0432	1.1000	1.1567	1.1795	1.2023	0.8284
COASTAL DESTINATION ROUTE	1.4581	1.4945	1.4132	1.3319	1.2689	1.2060	1.1989	1.1918	1.1318	1.0718	1.0090	0.9462	0.8627	0.7570	0.7580	0.7589	0.8357	0.9125	1.0223	1.1321	1.2122	1.2922	1.3556	1.4189	0.7570
AGRICULTURE	1.2501	1.2671	1.2126	1.1581	1.1239	1.0896	1.0515	1.0134	0.9750	0.9367	0.9081	0.8794	0.8633	0.8439	0.8440	0.8441	0.8457	0.8473	0.8799	0.9125	0.9820	1.0515	1.1491	1.2467	0.8439
RECREATIONAL SUMMER	1.7175	1.7853	1.7144	1.6434	1.5416	1.4398	1.3847	1.3297	1.1730	1.0163	0.9355	0.8546	0.7960	0.7248	0.7363	0.7478	0.8050	0.8623	0.9661	1.0699	1.2299	1.3898	1.5122	1.6346	0.7248
RECREATIONAL SUMMER WINTER	1.1876	1.2510	1.2671	1.2831	1.3092	1.3353	1.4523	1.5692	1.5280	1.4868	1.2809	1.0750	0.9651	0.8183	0.8556	0.8930	1.0372	1.1814	1.4146	1.6262	1.6922	1.7365	1.4069	1.0773	0.8183
RECREATIONAL WINTER	0.9829	0.9405	0.9610	0.9814	1.0088	1.0363	1.2717	1.5070	1.8899	2.2729	1.9598	1.6468	1.4478	1.1378	1.1680	1.1981	1.3341	1.4702	1.7772	2.0843	2.4169	2.7495	1.8778	1.0060	0.9405
SUMMER	1.2064	1.2361	1.1933	1.1505	1.1163	1.0821	1.0551	1.0280	0.9946	0.9611	0.9252	0.8893	0.8654	0.8356	0.8394	0.8431	0.8787	0.9142	0.9489	0.9836	1.0386	1.0936	1.1381	1.1826	0.8356
SUMMER < 2500	1.2956	1.3295	1.2823	1.2352	1.1775	1.1198	1.0711	1.0223	0.9728	0.9232	0.8909	0.8586	0.8394	0.8161	0.8251	0.8341	0.8478	0.8616	0.9004	0.9392	1.0145	1.0898	1.1787	1.2675	0.8161

***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%**

Roseburg Seasonal Factor 1.120405

	Adjusted 2017 USE					Forecasting Model 2009					Forecasting Model 2035					Preliminary 2037					Estimated 2037					VA Hospital Estimates from TM#4 Appendix C				Estimated 2037 USE				
Garden Valley Boulevard / Centennial DR & Estelle ST		46	2	35																		81	12	55							81	12	55	
		83		53			385		251			469		313			148		101			148		101							148		101	
	1537				1435	1551				1587	1874				1843	1785				1632	1782				1636					1826				1676
	26				19																	47				33					47				33
	1319		PM		1386																	1376				1516					1376				1516
	30				30																	100				87	40			40	140				127
	1375				1527	1421				1677	1618				1880	1527				1683	1523				1686					1563				1729
		62		286			229		316			407		544			199		461			199		461							279		548	
	5	105	8	173		5					5					5					5	185	21	255		5	44	43		5	229	21	298	
Garden Valley Blvd / Centennial Dr & Estelle St		13	12	14			21	13	14			50%	150%	74%			24	32	24												24	32	24	
		39		19																											80		37	
	803				971																									931				1139
	10				8	35				20	22%				23%	18				13										18				13
	834		AM		771	130				57	60%				58%	912				804										912		AM		804
	120				192	80				82	114%				111%	211				283						38			39	249				322
	964				886																									1179				1086
		324		58																											603		259	
	5	19	1	38		5	70	10	57		5	63%	50%	127%		5	63	6	110							5	40	40		5	103	6	150	
	Adjusted 2017 USE					PM Reciprocal Delta					AM/PM Reciprocal Ratio					Estimated 2037										VA Hospital Estimates from TM#4 Appendix C				Estimated 2037 USE				

	Adjusted 2017 USE					Forecasting Model 2009					Forecasting Model 2035					Preliminary 2037					Estimated 2037					VA Hospital Estimates from TM#4 Appendix C					Estimated 2037 USE				
Garden Valley Boulevard / BLM & Shopping Center		169	2	355																		196	2	394							196	2	394	
		526		256			236		157			322		213			592		299			592		299							592		299	
	1432				1316	1587				1602	1843				1833	1629				1494	1627				1496					1667			1536
	186				64																217				76					217			76
	1304				1246																1428				1414	43			40	1471			1454
	6				6																6				6					6			6
	1496				1688	1677				1771	1880				1980	1652				1849	1651				1851					1694			1894
		14		52			0		0			0		0			14		52			14		52							14		52	
	5	17	6	29		5					5					5					5	17	6	29		5				5	17	6	29	
Garden Valley Blvd / BLM & Shopping Center		50	2	105			31	0	12			27%	33%	164%			58	2	125												58	2	125	
		157		70																										185		81	
	1016				997																									1154			1128
	62				6	27				39	37%				2%	72				7										72			7
	824		AM		960	168				124	66%				74%	935				1051						40			39	975		AM		1090
	19				31	0				0	112%				107%	19				31										19			31
	905				948																									1066			1119
		52		27																											52		27	
	5	6	2	19		5	0	0	0		5	100%	100%	317%		5	6	2	19							5					5	6	2	19	
	Adjusted 2017 USE					PM Reciprocal Delta					AM/PM Reciprocal Ratio					Estimated 2037										VA Hospital Estimates from TM#4 Appendix C					Estimated 2037 USE				

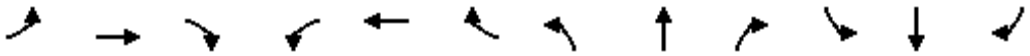
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	8	0	1	0	9	6	0	1	0
Future Vol, veh/h	0	0	1	8	0	1	0	9	6	0	1	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	11	0	1	0	13	8	0	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	20	24	2	20	20	19	2	0	0	22	0	0
Stage 1	2	2	-	18	18	-	-	-	-	-	-	-
Stage 2	18	22	-	2	2	-	-	-	-	-	-	-
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	998	873	1088	998	878	1065	1634	-	-	1607	-	-
Stage 1	1026	898	-	1006	884	-	-	-	-	-	-	-
Stage 2	1006	881	-	1026	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	995	871	1087	996	876	1063	1634	-	-	1605	-	-
Mov Cap-2 Maneuver	995	871	-	996	876	-	-	-	-	-	-	-
Stage 1	1025	897	-	1005	883	-	-	-	-	-	-	-
Stage 2	1004	880	-	1025	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.3	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	1087	1003	1605	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.012	-	-	-
HCM Control Delay (s)	0	-	-	8.3	8.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	891	65	37	667	21	50	1	18	17	1	7
Future Volume (vph)	15	891	65	37	667	21	50	1	18	17	1	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1662	3191		1614	3153			1636	1467		1625	
Flt Permitted	0.95	1.00		0.95	1.00			0.71	1.00		0.78	
Satd. Flow (perm)	1662	3191		1614	3153			1213	1467		1310	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	19	1114	81	46	834	26	62	1	22	21	1	9
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	21	0	8	0
Lane Group Flow (vph)	19	1192	0	46	859	0	0	64	2	0	23	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	3.0	73.6		5.5	76.1			8.9	8.9		8.9	
Effective Green, g (s)	3.0	73.6		5.5	76.1			8.9	8.9		8.9	
Actuated g/C Ratio	0.03	0.74		0.06	0.76			0.09	0.09		0.09	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	49	2348		88	2399			107	130		116	
v/s Ratio Prot	0.01	c0.37		c0.03	0.27							
v/s Ratio Perm								c0.05	0.00		0.02	
v/c Ratio	0.39	0.51		0.52	0.36			0.60	0.02		0.20	
Uniform Delay, d1	47.6	5.6		46.0	3.9			43.8	41.6		42.2	
Progression Factor	1.00	1.00		1.19	1.38			1.00	1.00		1.00	
Incremental Delay, d2	3.7	0.8		4.0	0.4			7.3	0.0		0.6	
Delay (s)	51.3	6.4		58.6	5.8			51.1	41.6		42.8	
Level of Service	D	A		E	A			D	D		D	
Approach Delay (s)		7.1			8.5			48.6			42.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

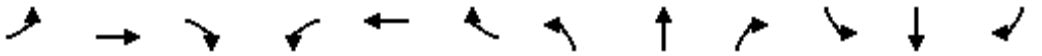
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	925	725	7	39	31
Future Vol, veh/h	8	925	725	7	39	31
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	10	1156	906	9	49	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	921	0	-	0	1521	470
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	604	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	750	-	-	-	111	545
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	514	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	746	-	-	-	108	539
Mov Cap-2 Maneuver	-	-	-	-	237	-
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	504	-

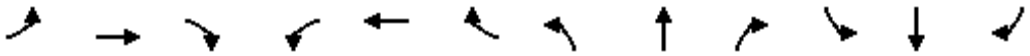
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	746	-	-	-	315
HCM Lane V/C Ratio	0.013	-	-	-	0.278
HCM Control Delay (s)	9.9	-	-	-	20.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	834	120	192	771	8	19	1	38	14	12	13
Future Volume (vph)	10	834	120	192	771	8	19	1	38	14	12	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	1.00
Satd. Flow (prot)	1662	3219		1662	3286			1657	1459		1697	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00		0.85	1.00
Satd. Flow (perm)	1662	3219		1662	3286			1291	1459		1479	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	13	1056	152	243	976	10	24	1	48	18	15	16
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	43	0	0	14
Lane Group Flow (vph)	13	1200	0	243	986	0	0	25	5	0	33	2
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	0.9	58.3		18.2	75.6			10.0	10.0		10.0	10.0
Effective Green, g (s)	1.4	59.3		18.7	76.6			10.0	10.0		10.0	10.0
Actuated g/C Ratio	0.01	0.59		0.19	0.77			0.10	0.10		0.10	0.10
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	23	1908		310	2517			129	145		147	145
v/s Ratio Prot	0.01	c0.37		c0.15	0.30							
v/s Ratio Perm								0.02	0.00		c0.02	0.00
v/c Ratio	0.57	0.63		0.78	0.39			0.19	0.03		0.22	0.01
Uniform Delay, d1	49.0	13.2		38.7	3.9			41.3	40.6		41.4	40.5
Progression Factor	0.87	1.50		0.93	1.70			1.00	1.00		1.00	1.00
Incremental Delay, d2	21.4	1.4		10.1	0.4			0.5	0.1		0.6	0.0
Delay (s)	64.0	21.3		46.1	7.0			41.8	40.7		42.0	40.6
Level of Service	E	C		D	A			D	D		D	D
Approach Delay (s)		21.8			14.7			41.1			41.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	824	19	31	960	6	6	2	19	105	2	50
Future Volume (vph)	62	824	19	31	960	6	6	2	19	105	2	50
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3278		1662	3288		1659	1495		1656	1479	
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3278		1662	3288		1247	1495		1289	1479	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	78	1030	24	39	1200	8	8	2	24	131	2	62
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	53	0
Lane Group Flow (vph)	78	1053	0	39	1208	0	8	7	0	131	13	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	7.8	65.5		4.6	62.3		16.4	16.4		16.4	16.4	
Effective Green, g (s)	8.3	66.5		5.1	63.3		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.08	0.66		0.05	0.63		0.16	0.16		0.16	0.16	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	137	2179		84	2081		204	245		211	242	
v/s Ratio Prot	c0.05	c0.32		0.02	c0.37			0.00			0.01	
v/s Ratio Perm							0.01			c0.10		
v/c Ratio	0.57	0.48		0.46	0.58		0.04	0.03		0.62	0.06	
Uniform Delay, d1	44.1	8.3		46.1	10.6		35.2	35.1		38.9	35.3	
Progression Factor	1.53	0.14		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.6		2.9	1.2		0.0	0.0		4.8	0.1	
Delay (s)	71.2	1.8		49.1	11.8		35.2	35.1		43.7	35.3	
Level of Service	E	A		D	B		D	D		D	D	
Approach Delay (s)		6.6			13.0			35.1			40.9	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

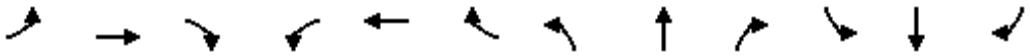
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	15	0	1	1	12	12	2	6	0
Future Vol, veh/h	0	0	1	15	0	1	1	12	12	2	6	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	21	0	1	1	17	17	3	9	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	45	53	10	45	45	28	10	0	0	35	0	0
Stage 1	15	15	-	30	30	-	-	-	-	-	-	-
Stage 2	30	38	-	15	15	-	-	-	-	-	-	-
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	962	842	1077	962	851	1053	1623	-	-	1589	-	-
Stage 1	1010	887	-	992	874	-	-	-	-	-	-	-
Stage 2	992	867	-	1010	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	957	838	1076	958	847	1051	1623	-	-	1587	-	-
Mov Cap-2 Maneuver	957	838	-	958	847	-	-	-	-	-	-	-
Stage 1	1008	884	-	990	872	-	-	-	-	-	-	-
Stage 2	989	865	-	1007	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	8.8	0.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	1076	963	1587	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.024	0.002	-	-
HCM Control Delay (s)	7.2	0	-	8.4	8.8	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1113	175	114	1216	40	204	3	131	45	9	43
Future Volume (vph)	24	1113	175	114	1216	40	204	3	131	45	9	43
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1662	3154		1614	3153			1635	1467		1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.64	1.00		0.69	
Satd. Flow (perm)	1662	3154		1614	3153			1099	1467		1129	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	1237	194	127	1351	44	227	3	146	50	10	48
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	111	0	27	0
Lane Group Flow (vph)	27	1418	0	127	1393	0	0	230	35	0	81	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.1	57.9		10.2	64.0			24.9	24.9		24.9	
Effective Green, g (s)	4.1	57.9		10.2	64.0			24.9	24.9		24.9	
Actuated g/C Ratio	0.04	0.55		0.10	0.61			0.24	0.24		0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	64	1739		156	1921			260	347		267	
v/s Ratio Prot	0.02	c0.45		c0.08	0.44							
v/s Ratio Perm								c0.21	0.02		0.07	
v/c Ratio	0.42	0.82		0.81	0.73			0.88	0.10		0.30	
Uniform Delay, d1	49.3	19.2		46.5	14.3			38.7	31.3		32.9	
Progression Factor	1.00	1.00		1.07	1.23			1.00	1.00		1.00	
Incremental Delay, d2	3.2	4.4		23.2	2.1			27.8	0.1		0.5	
Delay (s)	52.5	23.6		73.1	19.8			66.5	31.4		33.4	
Level of Service	D	C		E	B			E	C		C	
Approach Delay (s)		24.1			24.2			52.8			33.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.8

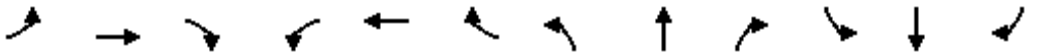
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	1288	1370	16	36	36
Future Vol, veh/h	16	1288	1370	16	36	36
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	20	1610	1713	20	45	45

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1739	0	-	0	2580	878
Stage 1	-	-	-	-	1729	-
Stage 2	-	-	-	-	851	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	367	-	-	-	~ 21	295
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	384	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	365	-	-	-	~ 20	292
Mov Cap-2 Maneuver	-	-	-	-	94	-
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	66.4
HCM LOS			F

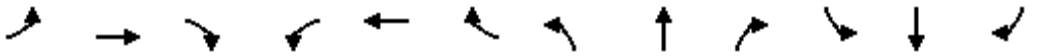
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	365	-	-	-	142
HCM Lane V/C Ratio	0.055	-	-	-	0.634
HCM Control Delay (s)	15.4	-	-	-	66.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	3.4

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1319	30	30	1386	19	105	8	173	35	2	46
Future Volume (vph)	26	1319	30	30	1386	19	105	8	173	35	2	46
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1662	3279		1662	3284			1659	1459		1661	1457
Flt Permitted	0.95	1.00		0.95	1.00			0.71	1.00		0.71	1.00
Satd. Flow (perm)	1662	3279		1662	3284			1238	1459		1238	1457
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)	27	1360	31	31	1429	20	108	8	178	36	2	47
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	151	0	0	40
Lane Group Flow (vph)	27	1390	0	31	1448	0	0	116	27	0	38	7
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	3.7	70.5		4.9	71.7			16.1	16.1		16.1	16.1
Effective Green, g (s)	4.2	71.5		5.4	72.7			16.1	16.1		16.1	16.1
Actuated g/C Ratio	0.04	0.68		0.05	0.69			0.15	0.15		0.15	0.15
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	66	2232		85	2273			189	223		189	223
v/s Ratio Prot	0.02	0.42		c0.02	c0.44							
v/s Ratio Perm								c0.09	0.02		0.03	0.00
v/c Ratio	0.41	0.62		0.36	0.64			0.61	0.12		0.20	0.03
Uniform Delay, d1	49.2	9.3		48.1	8.9			41.5	38.4		38.8	37.8
Progression Factor	1.04	1.54		0.84	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	1.0		1.2	0.9			5.0	0.2		0.4	0.0
Delay (s)	53.3	15.4		41.5	9.8			46.5	38.5		39.2	37.9
Level of Service	D	B		D	A			D	D		D	D
Approach Delay (s)		16.1			10.4			41.7			38.5	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1304	6	6	1246	64	17	6	29	355	2	169
Future Volume (vph)	186	1304	6	6	1246	64	17	6	29	355	2	169
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3289		1662	3266		1660	1509		1656	1470	
Flt Permitted	0.95	1.00		0.95	1.00		0.56	1.00		0.73	1.00	
Satd. Flow (perm)	1662	3289		1662	3266		970	1509		1277	1470	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	196	1373	6	6	1312	67	18	6	31	374	2	178
RTOR Reduction (vph)	0	0	0	0	4	0	0	22	0	0	108	0
Lane Group Flow (vph)	196	1379	0	6	1375	0	18	15	0	374	72	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	10.7	59.4		1.3	50.0		30.8	30.8		30.8	30.8	
Effective Green, g (s)	11.2	60.4		1.8	51.0		30.8	30.8		30.8	30.8	
Actuated g/C Ratio	0.11	0.58		0.02	0.49		0.29	0.29		0.29	0.29	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	177	1891		28	1586		284	442		374	431	
v/s Ratio Prot	c0.12	0.42		0.00	c0.42			0.01			0.05	
v/s Ratio Perm							0.02			c0.29		
v/c Ratio	1.11	0.73		0.21	0.87		0.06	0.03		1.00	0.17	
Uniform Delay, d1	46.9	16.3		50.9	24.0		26.7	26.5		37.1	27.6	
Progression Factor	1.11	0.60		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	93.4	2.1		2.8	6.7		0.0	0.0		46.5	0.1	
Delay (s)	145.7	11.9		53.7	30.7		26.7	26.5		83.6	27.7	
Level of Service	F	B		D	C		C	C		F	C	
Approach Delay (s)		28.5			30.8			26.6			65.5	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

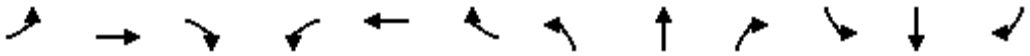
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	8	0	1	0	9	6	0	1	0
Future Vol, veh/h	0	0	1	8	0	1	0	9	6	0	1	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	11	0	1	0	13	8	0	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	20	24	2	20	20	19	2	0	0	22	0	0
Stage 1	2	2	-	18	18	-	-	-	-	-	-	-
Stage 2	18	22	-	2	2	-	-	-	-	-	-	-
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	998	873	1088	998	878	1065	1634	-	-	1607	-	-
Stage 1	1026	898	-	1006	884	-	-	-	-	-	-	-
Stage 2	1006	881	-	1026	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	995	871	1087	996	876	1063	1634	-	-	1605	-	-
Mov Cap-2 Maneuver	995	871	-	996	876	-	-	-	-	-	-	-
Stage 1	1025	897	-	1005	883	-	-	-	-	-	-	-
Stage 2	1004	880	-	1025	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.3	8.6	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	1087	1003	1605	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.012	-	-	-
HCM Control Delay (s)	0	-	-	8.3	8.6	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	891	65	37	667	21	50	1	18	17	1	7
Future Volume (vph)	15	891	65	37	667	21	50	1	18	17	1	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1662	3191		1614	3153			1636	1467		1625	
Flt Permitted	0.95	1.00		0.95	1.00			0.71	1.00		0.78	
Satd. Flow (perm)	1662	3191		1614	3153			1213	1467		1310	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	19	1114	81	46	834	26	62	1	22	21	1	9
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	21	0	8	0
Lane Group Flow (vph)	19	1192	0	46	859	0	0	64	2	0	23	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	3.0	73.6		5.5	76.1			8.9	8.9		8.9	
Effective Green, g (s)	3.0	73.6		5.5	76.1			8.9	8.9		8.9	
Actuated g/C Ratio	0.03	0.74		0.06	0.76			0.09	0.09		0.09	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	49	2348		88	2399			107	130		116	
v/s Ratio Prot	0.01	c0.37		c0.03	0.27							
v/s Ratio Perm								c0.05	0.00		0.02	
v/c Ratio	0.39	0.51		0.52	0.36			0.60	0.02		0.20	
Uniform Delay, d1	47.6	5.6		46.0	3.9			43.8	41.6		42.2	
Progression Factor	1.00	1.00		1.09	1.47			1.00	1.00		1.00	
Incremental Delay, d2	3.7	0.8		4.0	0.4			7.3	0.0		0.6	
Delay (s)	51.3	6.4		54.3	6.2			51.1	41.6		42.8	
Level of Service	D	A		D	A			D	D		D	
Approach Delay (s)		7.1			8.6			48.6			42.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

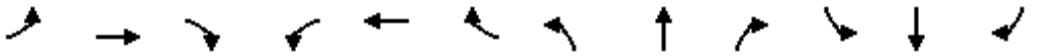
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	920	721	7	39	35
Future Vol, veh/h	13	920	721	7	39	35
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	16	1150	901	9	49	44

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	916	0	-	0	1526	467
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	614	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	753	-	-	-	111	548
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	749	-	-	-	107	542
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	494	-

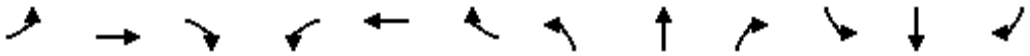
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	749	-	-	-	322
HCM Lane V/C Ratio	0.022	-	-	-	0.287
HCM Control Delay (s)	9.9	-	-	-	20.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	809	120	192	751	8	19	1	38	14	12	29
Future Volume (vph)	30	809	120	192	751	8	19	1	38	14	12	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	1.00
Satd. Flow (prot)	1662	3217		1662	3286			1657	1459		1697	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00		0.85	1.00
Satd. Flow (perm)	1662	3217		1662	3286			1291	1459		1479	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	38	1024	152	243	951	10	24	1	48	18	15	37
RTOR Reduction (vph)	0	8	0	0	1	0	0	0	43	0	0	33
Lane Group Flow (vph)	38	1168	0	243	960	0	0	25	5	0	33	4
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	4.0	58.3		18.2	72.5			10.0	10.0		10.0	10.0
Effective Green, g (s)	4.5	59.3		18.7	73.5			10.0	10.0		10.0	10.0
Actuated g/C Ratio	0.04	0.59		0.19	0.74			0.10	0.10		0.10	0.10
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	74	1907		310	2415			129	145		147	145
v/s Ratio Prot	0.02	c0.36		c0.15	0.29							
v/s Ratio Perm								0.02	0.00		c0.02	0.00
v/c Ratio	0.51	0.61		0.78	0.40			0.19	0.03		0.22	0.03
Uniform Delay, d1	46.7	13.0		38.7	5.0			41.3	40.6		41.4	40.6
Progression Factor	0.86	1.53		0.99	1.51			1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	1.4		10.3	0.4			0.5	0.1		0.6	0.1
Delay (s)	44.1	21.3		48.5	7.9			41.8	40.7		42.0	40.7
Level of Service	D	C		D	A			D	D		D	D
Approach Delay (s)		22.0			16.1			41.1			41.3	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	824	19	31	960	6	6	2	19	105	2	30
Future Volume (vph)	37	824	19	31	960	6	6	2	19	105	2	30
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3278		1662	3288		1659	1495		1656	1487	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3278		1662	3288		1276	1495		1289	1487	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	46	1030	24	39	1200	8	8	2	24	131	2	38
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	32	0
Lane Group Flow (vph)	46	1053	0	39	1208	0	8	7	0	131	9	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.4	65.5		4.6	64.7		16.4	16.4		16.4	16.4	
Effective Green, g (s)	5.9	66.5		5.1	65.7		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.06	0.66		0.05	0.66		0.16	0.16		0.16	0.16	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	98	2179		84	2160		209	245		211	243	
v/s Ratio Prot	c0.03	0.32		0.02	c0.37			0.00			0.01	
v/s Ratio Perm							0.01			c0.10		
v/c Ratio	0.47	0.48		0.46	0.56		0.04	0.03		0.62	0.04	
Uniform Delay, d1	45.5	8.3		46.1	9.3		35.2	35.1		38.9	35.2	
Progression Factor	1.53	0.14		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.6		2.9	1.1		0.0	0.0		4.8	0.0	
Delay (s)	72.0	1.8		49.1	10.3		35.2	35.1		43.7	35.2	
Level of Service	E	A		D	B		D	D		D	D	
Approach Delay (s)		4.8			11.6			35.1			41.7	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

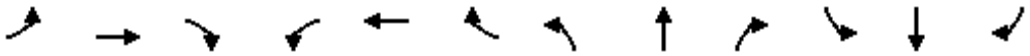
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	15	0	1	1	12	12	2	6	0
Future Vol, veh/h	0	0	1	15	0	1	1	12	12	2	6	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	21	0	1	1	17	17	3	9	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	45	53	10	45	45	28	10	0	0	35	0	0
Stage 1	15	15	-	30	30	-	-	-	-	-	-	-
Stage 2	30	38	-	15	15	-	-	-	-	-	-	-
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	962	842	1077	962	851	1053	1623	-	-	1589	-	-
Stage 1	1010	887	-	992	874	-	-	-	-	-	-	-
Stage 2	992	867	-	1010	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	957	838	1076	958	847	1051	1623	-	-	1587	-	-
Mov Cap-2 Maneuver	957	838	-	958	847	-	-	-	-	-	-	-
Stage 1	1008	884	-	990	872	-	-	-	-	-	-	-
Stage 2	989	865	-	1007	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	8.8	0.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	1076	963	1587	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.024	0.002	-	-
HCM Control Delay (s)	7.2	0	-	8.4	8.8	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1113	175	114	1216	40	204	3	131	45	9	43
Future Volume (vph)	24	1113	175	114	1216	40	204	3	131	45	9	43
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1662	3154		1614	3153			1635	1467		1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.64	1.00		0.69	
Satd. Flow (perm)	1662	3154		1614	3153			1099	1467		1129	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	1237	194	127	1351	44	227	3	146	50	10	48
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	111	0	27	0
Lane Group Flow (vph)	27	1418	0	127	1393	0	0	230	35	0	81	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.1	57.9		10.2	64.0			24.9	24.9		24.9	
Effective Green, g (s)	4.1	57.9		10.2	64.0			24.9	24.9		24.9	
Actuated g/C Ratio	0.04	0.55		0.10	0.61			0.24	0.24		0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	64	1739		156	1921			260	347		267	
v/s Ratio Prot	0.02	c0.45		c0.08	0.44							
v/s Ratio Perm								c0.21	0.02		0.07	
v/c Ratio	0.42	0.82		0.81	0.73			0.88	0.10		0.30	
Uniform Delay, d1	49.3	19.2		46.5	14.3			38.7	31.3		32.9	
Progression Factor	1.00	1.00		1.02	1.68			1.00	1.00		1.00	
Incremental Delay, d2	3.2	4.4		22.7	2.0			27.8	0.1		0.5	
Delay (s)	52.5	23.6		70.1	26.2			66.5	31.4		33.4	
Level of Service	D	C		E	C			E	C		C	
Approach Delay (s)		24.1			29.8			52.8			33.4	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.3

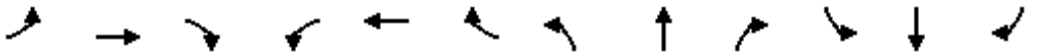
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1273	1356	16	36	50
Future Vol, veh/h	31	1273	1356	16	36	50
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	39	1591	1695	20	45	63

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1721	0	-	0	2590	870
Stage 1	-	-	-	-	1711	-
Stage 2	-	-	-	-	879	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	373	-	-	-	~ 21	299
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	371	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	371	-	-	-	~ 19	296
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	330	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	68.8
HCM LOS			F

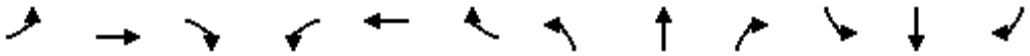
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	371	-	-	-	155
HCM Lane V/C Ratio	0.104	-	-	-	0.694
HCM Control Delay (s)	15.8	-	-	-	68.8
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	4

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1245	30	30	1318	19	105	8	173	35	2	100
Future Volume (vph)	85	1245	30	30	1318	19	105	8	173	35	2	100
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1662	3278		1662	3283			1659	1459		1661	1457
Flt Permitted	0.95	1.00		0.95	1.00			0.71	1.00		0.71	1.00
Satd. Flow (perm)	1662	3278		1662	3283			1238	1459		1238	1457
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)	88	1284	31	31	1359	20	108	8	178	36	2	103
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	151	0	0	87
Lane Group Flow (vph)	88	1314	0	31	1378	0	0	116	27	0	38	16
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	11.7	70.5		4.9	63.7			16.1	16.1		16.1	16.1
Effective Green, g (s)	12.2	71.5		5.4	64.7			16.1	16.1		16.1	16.1
Actuated g/C Ratio	0.12	0.68		0.05	0.62			0.15	0.15		0.15	0.15
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	193	2232		85	2022			189	223		189	223
v/s Ratio Prot	c0.05	c0.40		0.02	c0.42							
v/s Ratio Perm								c0.09	0.02		0.03	0.01
v/c Ratio	0.46	0.59		0.36	0.68			0.61	0.12		0.20	0.07
Uniform Delay, d1	43.3	8.9		48.1	13.3			41.5	38.4		38.8	38.0
Progression Factor	0.99	1.45		0.83	1.15			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	0.9		1.2	1.1			5.0	0.2		0.4	0.1
Delay (s)	44.0	13.8		40.9	16.4			46.5	38.5		39.2	38.1
Level of Service	D	B		D	B			D	D		D	D
Approach Delay (s)		15.7			17.0			41.7			38.4	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1304	6	6	1246	64	17	6	29	355	2	101
Future Volume (vph)	112	1304	6	6	1246	64	17	6	29	355	2	101
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3289		1662	3266		1659	1509		1656	1472	
Flt Permitted	0.95	1.00		0.95	1.00		0.67	1.00		0.73	1.00	
Satd. Flow (perm)	1662	3289		1662	3266		1173	1509		1277	1472	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	1373	6	6	1312	67	18	6	31	374	2	106
RTOR Reduction (vph)	0	0	0	0	4	0	0	22	0	0	75	0
Lane Group Flow (vph)	118	1379	0	6	1375	0	18	15	0	374	33	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	10.0	59.1		1.3	50.4		31.1	31.1		31.1	31.1	
Effective Green, g (s)	10.5	60.1		1.8	51.4		31.1	31.1		31.1	31.1	
Actuated g/C Ratio	0.10	0.57		0.02	0.49		0.30	0.30		0.30	0.30	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	166	1882		28	1598		347	446		378	435	
v/s Ratio Prot	c0.07	0.42		0.00	c0.42			0.01			0.02	
v/s Ratio Perm							0.02			c0.29		
v/c Ratio	0.71	0.73		0.21	0.86		0.05	0.03		0.99	0.08	
Uniform Delay, d1	45.8	16.5		50.9	23.6		26.4	26.3		36.8	26.6	
Progression Factor	1.19	0.75		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.9	2.2		2.8	6.3		0.0	0.0		43.0	0.1	
Delay (s)	65.2	14.5		53.7	30.0		26.4	26.3		79.8	26.7	
Level of Service	E	B		D	C		C	C		E	C	
Approach Delay (s)		18.5			30.1			26.3			67.9	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	0	37	44	0	25
Future Vol, veh/h	37	0	37	44	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	51	0	51	61	0	35

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	117	82	0	0	113	0
Stage 1	82	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	7.1	6.2	-	-	4.1	-
Critical Hdwy Stg 1	6.1	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	864	983	-	-	1489	-
Stage 1	931	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	864	983	-	-	1489	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	864	1489	-
HCM Lane V/C Ratio	-	-	0.059	-	-
HCM Control Delay (s)	-	-	9.4	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

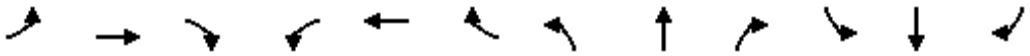
Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	39	0	4	36	1	0	4	3	0	0	1
Future Vol, veh/h	5	39	0	4	36	1	0	4	3	0	0	1
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	54	0	6	50	1	0	6	4	0	0	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	36	13	2	37	11	10	2	0	0	11	0	0
Stage 1	2	2	-	9	9	-	-	-	-	-	-	-
Stage 2	34	11	-	28	2	-	-	-	-	-	-	-
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	975	885	1088	973	888	1077	1634	-	-	1621	-	-
Stage 1	1026	898	-	1017	892	-	-	-	-	-	-	-
Stage 2	987	890	-	994	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	930	883	1087	926	886	1075	1634	-	-	1619	-	-
Mov Cap-2 Maneuver	930	883	-	926	886	-	-	-	-	-	-	-
Stage 1	1025	897	-	1016	891	-	-	-	-	-	-	-
Stage 2	930	889	-	934	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.3	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	888	894	1619	-	-
HCM Lane V/C Ratio	-	-	-	0.069	0.064	-	-	-
HCM Control Delay (s)	0	-	-	9.4	9.3	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	847	65	37	630	21	50	1	18	17	1	44
Future Volume (vph)	59	847	65	37	630	21	50	1	18	17	1	44
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1662	3190		1614	3153			1636	1467		1559	
Flt Permitted	0.95	1.00		0.95	1.00			0.63	1.00		0.90	
Satd. Flow (perm)	1662	3190		1614	3153			1090	1467		1419	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	74	1059	81	46	788	26	62	1	22	21	1	55
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	21	0	50	0
Lane Group Flow (vph)	74	1137	0	46	812	0	0	64	2	0	27	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	8.7	73.4		5.5	70.2			9.1	9.1		9.1	
Effective Green, g (s)	8.7	73.4		5.5	70.2			9.1	9.1		9.1	
Actuated g/C Ratio	0.09	0.73		0.06	0.70			0.09	0.09		0.09	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	144	2341		88	2213			99	133		129	
v/s Ratio Prot	c0.04	c0.36		0.03	0.26							
v/s Ratio Perm								c0.06	0.00		0.02	
v/c Ratio	0.51	0.49		0.52	0.37			0.65	0.02		0.21	
Uniform Delay, d1	43.6	5.5		46.0	6.0			43.9	41.4		42.1	
Progression Factor	1.00	1.00		1.13	1.38			1.00	1.00		1.00	
Incremental Delay, d2	2.3	0.7		4.1	0.5			12.1	0.0		0.6	
Delay (s)	45.9	6.2		56.2	8.7			56.0	41.4		42.7	
Level of Service	D	A		E	A			E	D		D	
Approach Delay (s)		8.6			11.2			52.1			42.7	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

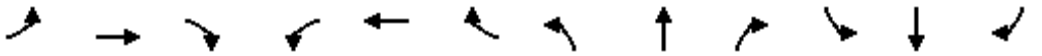
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	889	693	7	39	26
Future Vol, veh/h	0	889	693	7	39	26
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	0	1111	866	9	49	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	881	0	-	0	1439	450
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	776	-	-	-	126	562
Stage 1	-	-	-	-	372	-
Stage 2	-	-	-	-	540	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	772	-	-	-	125	556
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	772	-	-	-	325
HCM Lane V/C Ratio	-	-	-	-	0.25
HCM Control Delay (s)	0	-	-	-	19.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	803	120	192	746	8	19	1	38	14	12	6
Future Volume (vph)	5	803	120	192	746	8	19	1	38	14	12	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	1.00
Satd. Flow (prot)	1662	3216		1662	3286			1657	1459		1697	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00		0.85	1.00
Satd. Flow (perm)	1662	3216		1662	3286			1291	1459		1479	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	6	1016	152	243	944	10	24	1	48	18	15	8
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	43	0	0	7
Lane Group Flow (vph)	6	1160	0	243	954	0	0	25	5	0	33	1
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	0.9	58.3		18.2	75.6			10.0	10.0		10.0	10.0
Effective Green, g (s)	1.4	59.3		18.7	76.6			10.0	10.0		10.0	10.0
Actuated g/C Ratio	0.01	0.59		0.19	0.77			0.10	0.10		0.10	0.10
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	23	1907		310	2517			129	145		147	145
v/s Ratio Prot	0.00	c0.36		c0.15	0.29							
v/s Ratio Perm								0.02	0.00		c0.02	0.00
v/c Ratio	0.26	0.61		0.78	0.38			0.19	0.03		0.22	0.01
Uniform Delay, d1	48.8	13.0		38.7	3.9			41.3	40.6		41.4	40.5
Progression Factor	0.82	1.53		0.99	1.71			1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	1.3		10.3	0.4			0.5	0.1		0.6	0.0
Delay (s)	44.3	21.1		48.5	7.0			41.8	40.7		42.0	40.5
Level of Service	D	C		D	A			D	D		D	D
Approach Delay (s)		21.3			15.4			41.1			41.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	824	19	31	960	6	6	2	19	105	2	25
Future Volume (vph)	31	824	19	31	960	6	6	2	19	105	2	25
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3278		1662	3288		1659	1495		1656	1491	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3278		1662	3288		1284	1495		1289	1491	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	39	1030	24	39	1200	8	8	2	24	131	2	31
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	26	0
Lane Group Flow (vph)	39	1053	0	39	1208	0	8	7	0	131	8	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.1	65.5		4.6	65.0		16.4	16.4		16.4	16.4	
Effective Green, g (s)	5.6	66.5		5.1	66.0		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.06	0.66		0.05	0.66		0.16	0.16		0.16	0.16	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	93	2179		84	2170		210	245		211	244	
v/s Ratio Prot	c0.02	0.32		0.02	c0.37			0.00			0.01	
v/s Ratio Perm							0.01			c0.10		
v/c Ratio	0.42	0.48		0.46	0.56		0.04	0.03		0.62	0.03	
Uniform Delay, d1	45.6	8.3		46.1	9.1		35.2	35.1		38.9	35.1	
Progression Factor	1.52	0.14		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.6		2.9	1.0		0.0	0.0		4.8	0.0	
Delay (s)	71.2	1.8		49.1	10.2		35.2	35.1		43.7	35.2	
Level of Service	E	A		D	B		D	D		D	D	
Approach Delay (s)		4.3			11.4			35.1			42.0	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	0	67	118	0	96
Future Vol, veh/h	119	0	67	118	0	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	170	0	96	169	0	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	276	180	0	0	264	0
Stage 1	180	-	-	-	-	-
Stage 2	96	-	-	-	-	-
Critical Hdwy	7.1	6.2	-	-	4.1	-
Critical Hdwy Stg 1	6.1	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	680	868	-	-	1312	-
Stage 1	826	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	680	868	-	-	1312	-
Mov Cap-2 Maneuver	680	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	680	1312	-
HCM Lane V/C Ratio	-	-	0.25	-	-
HCM Control Delay (s)	-	-	12.1	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0	-

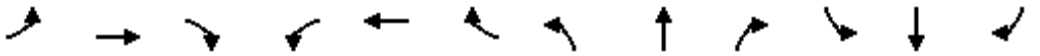
Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	112	0	7	116	1	0	6	6	2	3	3
Future Vol, veh/h	6	112	0	7	116	1	0	6	6	2	3	3
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	160	0	10	166	1	0	9	9	3	4	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	110	31	7	106	29	15	10	0	0	18	0	0
Stage 1	13	13	-	14	14	-	-	-	-	-	-	-
Stage 2	97	18	-	92	15	-	-	-	-	-	-	-
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	873	866	1081	878	868	1070	1623	-	-	1612	-	-
Stage 1	1013	889	-	1011	888	-	-	-	-	-	-	-
Stage 2	914	884	-	920	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	741	863	1080	751	865	1068	1623	-	-	1610	-	-
Mov Cap-2 Maneuver	741	863	-	751	865	-	-	-	-	-	-	-
Stage 1	1012	886	-	1010	887	-	-	-	-	-	-	-
Stage 2	742	883	-	752	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.3	0	1.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	856	859	1610	-	-
HCM Lane V/C Ratio	-	-	-	0.197	0.206	0.002	-	-
HCM Control Delay (s)	0	-	-	10.2	10.3	7.2	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.8	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	995	175	114	1097	40	204	3	131	45	9	162
Future Volume (vph)	142	995	175	114	1097	40	204	3	131	45	9	162
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1662	3147		1614	3151			1635	1467		1556	
Flt Permitted	0.95	1.00		0.95	1.00			0.47	1.00		0.88	
Satd. Flow (perm)	1662	3147		1614	3151			803	1467		1378	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	158	1106	194	127	1219	44	227	3	146	50	10	180
RTOR Reduction (vph)	0	16	0	0	3	0	0	0	103	0	93	0
Lane Group Flow (vph)	158	1284	0	127	1260	0	0	230	43	0	147	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	7.0	53.3		9.0	55.3			30.7	30.7		30.7	
Effective Green, g (s)	7.0	53.3		9.0	55.3			30.7	30.7		30.7	
Actuated g/C Ratio	0.07	0.51		0.09	0.53			0.29	0.29		0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	110	1597		138	1659			234	428		402	
v/s Ratio Prot	c0.10	c0.41		0.08	0.40							
v/s Ratio Perm								c0.29	0.03		0.11	
v/c Ratio	1.44	0.80		0.92	0.76			0.98	0.10		0.36	
Uniform Delay, d1	49.0	21.5		47.6	19.6			36.9	27.1		29.4	
Progression Factor	1.00	1.00		1.06	0.86			1.00	1.00		1.00	
Incremental Delay, d2	240.4	4.4		49.4	3.0			53.7	0.1		0.4	
Delay (s)	289.4	25.9		99.7	19.8			90.6	27.2		29.8	
Level of Service	F	C		F	B			F	C		C	
Approach Delay (s)		54.5			27.1			65.9			29.8	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.2

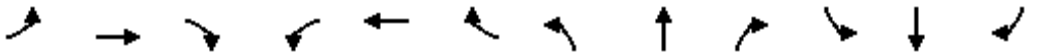
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1182	1262	16	36	25
Future Vol, veh/h	4	1182	1262	16	36	25
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	5	1478	1578	20	45	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1604	0	-	0	2349	811
Stage 1	-	-	-	-	1594	-
Stage 2	-	-	-	-	755	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	413	-	-	-	~ 31	327
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	430	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	411	-	-	-	~ 30	323
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	422	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	49.4
HCM LOS			E

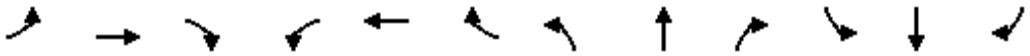
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	411	-	-	-	154
HCM Lane V/C Ratio	0.012	-	-	-	0.495
HCM Control Delay (s)	13.9	-	-	-	49.4
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	2.4

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1226	30	30	1301	19	105	8	173	35	2	23
Future Volume (vph)	13	1226	30	30	1301	19	105	8	173	35	2	23
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1662	3278		1662	3283			1659	1459		1661	1457
Flt Permitted	0.95	1.00		0.95	1.00			0.71	1.00		0.71	1.00
Satd. Flow (perm)	1662	3278		1662	3283			1238	1459		1238	1457
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)	13	1264	31	31	1341	20	108	8	178	36	2	24
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	151	0	0	20
Lane Group Flow (vph)	13	1294	0	31	1360	0	0	116	27	0	38	4
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	0.8	70.5		4.9	74.6			16.1	16.1		16.1	16.1
Effective Green, g (s)	1.3	71.5		5.4	75.6			16.1	16.1		16.1	16.1
Actuated g/C Ratio	0.01	0.68		0.05	0.72			0.15	0.15		0.15	0.15
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	20	2232		85	2363			189	223		189	223
v/s Ratio Prot	0.01	0.39		c0.02	c0.41							
v/s Ratio Perm								c0.09	0.02		0.03	0.00
v/c Ratio	0.65	0.58		0.36	0.58			0.61	0.12		0.20	0.02
Uniform Delay, d1	51.6	8.8		48.1	7.0			41.5	38.4		38.8	37.7
Progression Factor	1.01	1.44		0.83	1.27			1.00	1.00		1.00	1.00
Incremental Delay, d2	44.9	0.9		1.2	0.6			5.0	0.2		0.4	0.0
Delay (s)	96.9	13.7		41.0	9.5			46.5	38.5		39.2	37.8
Level of Service	F	B		D	A			D	D		D	D
Approach Delay (s)		14.5			10.2			41.7			38.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1304	6	6	1246	64	17	6	29	355	2	84
Future Volume (vph)	93	1304	6	6	1246	64	17	6	29	355	2	84
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3289		1662	3266		1659	1509		1656	1473	
Flt Permitted	0.95	1.00		0.95	1.00		0.70	1.00		0.73	1.00	
Satd. Flow (perm)	1662	3289		1662	3266		1220	1509		1277	1473	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	1373	6	6	1312	67	18	6	31	374	2	88
RTOR Reduction (vph)	0	0	0	0	4	0	0	21	0	0	61	0
Lane Group Flow (vph)	98	1379	0	6	1375	0	18	16	0	374	29	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	8.2	57.9		1.3	51.0		32.3	32.3		32.3	32.3	
Effective Green, g (s)	8.7	58.9		1.8	52.0		32.3	32.3		32.3	32.3	
Actuated g/C Ratio	0.08	0.56		0.02	0.50		0.31	0.31		0.31	0.31	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	137	1844		28	1617		375	464		392	453	
v/s Ratio Prot	c0.06	0.42		0.00	c0.42			0.01			0.02	
v/s Ratio Perm							0.01			c0.29		
v/c Ratio	0.72	0.75		0.21	0.85		0.05	0.03		0.95	0.06	
Uniform Delay, d1	46.9	17.4		50.9	23.1		25.5	25.4		35.6	25.7	
Progression Factor	1.20	0.64		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	2.4		2.8	5.8		0.0	0.0		33.5	0.0	
Delay (s)	69.5	13.7		53.7	28.9		25.6	25.4		69.1	25.7	
Level of Service	E	B		D	C		C	C		E	C	
Approach Delay (s)		17.4			29.1			25.5			60.7	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

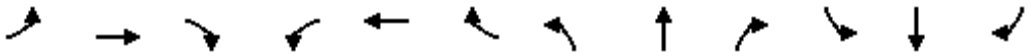
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	10	0	1	0	11	7	0	1	0
Future Vol, veh/h	0	0	1	10	0	1	0	11	7	0	1	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	14	0	1	0	15	10	0	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	24	28	2	23	23	22	2	0	0	26	0	0
Stage 1	2	2	-	21	21	-	-	-	-	-	-	-
Stage 2	22	26	-	2	2	-	-	-	-	-	-	-
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	993	869	1088	994	874	1061	1634	-	-	1601	-	-
Stage 1	1026	898	-	1003	882	-	-	-	-	-	-	-
Stage 2	1002	878	-	1026	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	990	867	1087	992	872	1059	1634	-	-	1599	-	-
Mov Cap-2 Maneuver	990	867	-	992	872	-	-	-	-	-	-	-
Stage 1	1025	897	-	1002	881	-	-	-	-	-	-	-
Stage 2	1000	877	-	1025	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.3	8.7	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	1087	998	1599	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.015	-	-	-
HCM Control Delay (s)	0	-	-	8.3	8.7	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	1091	78	44	790	25	60	1	22	21	1	8
Future Volume (vph)	18	1091	78	44	790	25	60	1	22	21	1	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1662	3192		1614	3153			1635	1467		1627	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.77	
Satd. Flow (perm)	1662	3192		1614	3153			1372	1467		1290	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	22	1364	98	55	988	31	75	1	28	26	1	10
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	25	0	9	0
Lane Group Flow (vph)	23	1459	0	55	1018	0	0	76	3	0	28	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	3.1	70.9		7.3	75.1			9.8	9.8		9.8	
Effective Green, g (s)	3.1	70.9		7.3	75.1			9.8	9.8		9.8	
Actuated g/C Ratio	0.03	0.71		0.07	0.75			0.10	0.10		0.10	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	51	2263		117	2367			134	143		126	
v/s Ratio Prot	0.01	c0.46		c0.03	0.32							
v/s Ratio Perm								c0.06	0.00		0.02	
v/c Ratio	0.45	0.64		0.47	0.43			0.57	0.02		0.22	
Uniform Delay, d1	47.6	7.8		44.5	4.6			43.1	40.8		41.6	
Progression Factor	1.00	1.00		1.04	0.98			1.00	1.00		1.00	
Incremental Delay, d2	4.6	1.4		2.0	0.5			4.4	0.0		0.7	
Delay (s)	52.2	9.2		48.4	5.0			47.5	40.8		42.2	
Level of Service	D	A		D	A			D	D		D	
Approach Delay (s)		9.9			7.2			45.7			42.2	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

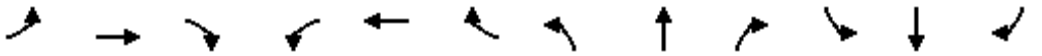
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1131	852	8	48	38
Future Vol, veh/h	10	1131	852	8	48	38
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	13	1414	1065	10	60	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1081	0	-	0	1814	550
Stage 1	-	-	-	-	1076	-
Stage 2	-	-	-	-	738	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	653	-	-	-	71	484
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	439	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	649	-	-	-	69	478
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	428	-

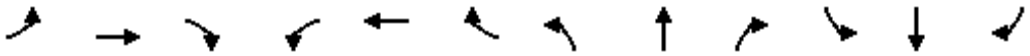
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	28.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	649	-	-	-	257
HCM Lane V/C Ratio	0.019	-	-	-	0.418
HCM Control Delay (s)	10.7	-	-	-	28.7
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	912	249	322	804	13	103	6	150	24	32	24
Future Volume (vph)	18	912	249	322	804	13	103	6	150	24	32	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1662	3167		1662	3283			1659	1459		1710	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.85	1.00
Satd. Flow (perm)	1662	3167		1662	3283			1194	1459		1478	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	23	1154	315	408	1018	16	130	8	190	30	41	30
RTOR Reduction (vph)	0	25	0	0	1	0	0	0	157	0	0	25
Lane Group Flow (vph)	23	1444	0	408	1033	0	0	138	33	0	71	5
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	2.3	39.0		30.1	66.8			17.4	17.4		17.4	17.4
Effective Green, g (s)	2.8	40.0		30.6	67.8			17.4	17.4		17.4	17.4
Actuated g/C Ratio	0.03	0.40		0.31	0.68			0.17	0.17		0.17	0.17
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	46	1266		508	2225			207	253		257	253
v/s Ratio Prot	0.01	c0.46		c0.25	0.31							
v/s Ratio Perm								c0.12	0.02		0.05	0.00
v/c Ratio	0.50	1.14		0.80	0.46			0.67	0.13		0.28	0.02
Uniform Delay, d1	47.9	30.0		31.9	7.6			38.6	34.9		35.8	34.2
Progression Factor	1.11	1.17		1.14	1.62			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	71.8		6.8	0.5			7.1	0.2		0.4	0.0
Delay (s)	58.3	106.9		43.0	12.8			45.7	35.1		36.3	34.3
Level of Service	E	F		D	B			D	D		D	C
Approach Delay (s)		106.1			21.4			39.5			35.7	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	61.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	975	19	31	1090	7	6	2	19	125	2	58
Future Volume (vph)	72	975	19	31	1090	7	6	2	19	125	2	58
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3280		1662	3289		1659	1495		1656	1478	
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3280		1662	3289		1236	1495		1289	1478	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	90	1219	24	39	1362	9	8	2	24	156	2	72
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	60	0
Lane Group Flow (vph)	90	1242	0	39	1372	0	8	7	0	156	16	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	8.2	64.0		4.6	60.4		17.9	17.9		17.9	17.9	
Effective Green, g (s)	8.7	65.0		5.1	61.4		17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.09	0.65		0.05	0.61		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	144	2132		84	2019		221	267		230	264	
v/s Ratio Prot	c0.05	c0.38		0.02	c0.42			0.00			0.01	
v/s Ratio Perm							0.01			c0.12		
v/c Ratio	0.62	0.58		0.46	0.68		0.04	0.03		0.68	0.06	
Uniform Delay, d1	44.1	9.9		46.1	12.8		33.9	33.9		38.4	34.1	
Progression Factor	1.37	0.25		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.1		2.9	1.9		0.0	0.0		7.0	0.1	
Delay (s)	60.8	2.6		49.1	14.6		33.9	33.9		45.4	34.1	
Level of Service	E	A		D	B		C	C		D	C	
Approach Delay (s)		6.5			15.6			33.9			41.7	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

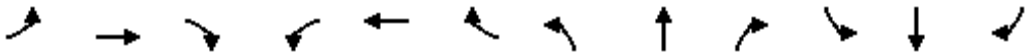
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	16	0	1	1	13	13	2	7	0
Future Vol, veh/h	0	0	1	16	0	1	1	13	13	2	7	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	23	0	1	1	19	19	3	10	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	49	58	11	48	49	30	11	0	0	38	0	0
Stage 1	17	17	-	32	32	-	-	-	-	-	-	-
Stage 2	32	41	-	16	17	-	-	-	-	-	-	-
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	956	837	1076	958	846	1050	1621	-	-	1585	-	-
Stage 1	1008	885	-	990	872	-	-	-	-	-	-	-
Stage 2	990	865	-	1009	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	951	833	1075	954	842	1048	1621	-	-	1583	-	-
Mov Cap-2 Maneuver	951	833	-	954	842	-	-	-	-	-	-	-
Stage 1	1006	882	-	988	870	-	-	-	-	-	-	-
Stage 2	987	863	-	1006	882	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.4	8.9	0.3	1.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1621	-	-	1075	959	1583	-	-
HCM Lane V/C Ratio	0.001	-	-	0.001	0.025	0.002	-	-
HCM Control Delay (s)	7.2	0	-	8.4	8.9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1239	201	135	1435	47	234	3	146	50	10	49
Future Volume (vph)	27	1239	201	135	1435	47	234	3	146	50	10	49
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1662	3152		1614	3153			1635	1467		1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.62	1.00		0.59	
Satd. Flow (perm)	1662	3152		1614	3153			1069	1467		963	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	1377	223	150	1594	52	260	3	162	56	11	54
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	116	0	27	0
Lane Group Flow (vph)	30	1587	0	150	1644	0	0	263	46	0	94	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.2	59.4		9.0	64.2			24.6	24.6		24.6	
Effective Green, g (s)	4.2	59.4		9.0	64.2			24.6	24.6		24.6	
Actuated g/C Ratio	0.04	0.57		0.09	0.61			0.23	0.23		0.23	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	66	1783		138	1927			250	343		225	
v/s Ratio Prot	0.02	c0.50		c0.09	0.52							
v/s Ratio Perm								c0.25	0.03		0.10	
v/c Ratio	0.45	0.89		1.09	0.85			1.05	0.13		0.42	
Uniform Delay, d1	49.3	19.9		48.0	16.6			40.2	31.8		34.1	
Progression Factor	1.00	1.00		0.95	1.43			1.00	1.00		1.00	
Incremental Delay, d2	3.6	7.2		91.8	3.9			71.2	0.1		0.9	
Delay (s)	52.9	27.1		137.4	27.5			111.4	31.9		35.0	
Level of Service	D	C		F	C			F	C		D	
Approach Delay (s)		27.6			36.7			81.1			35.0	
Approach LOS		C			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.2

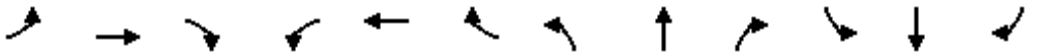
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	1432	1612	19	40	41
Future Vol, veh/h	18	1432	1612	19	40	41
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	23	1790	2015	24	50	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2045	0	-	0	2979	1031
Stage 1	-	-	-	-	2033	-
Stage 2	-	-	-	-	946	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	279	-	-	-	~ 11	234
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	343	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	277	-	-	-	~ 10	231
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	313	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	160.5
HCM LOS			F

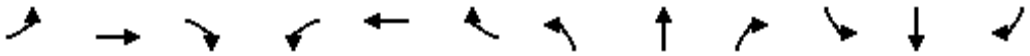
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	277	-	-	-	103
HCM Lane V/C Ratio	0.081	-	-	-	0.983
HCM Control Delay (s)	19.1	-	-	-	160.5
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	6.1

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1376	100	87	1516	33	185	21	255	55	12	81
Future Volume (vph)	47	1376	100	87	1516	33	185	21	255	55	12	81
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.99		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1662	3252		1662	3279			1663	1459		1674	1457
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.56	1.00
Satd. Flow (perm)	1662	3252		1662	3279			1214	1459		972	1457
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)	48	1419	103	90	1563	34	191	22	263	57	12	84
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	207	0	0	66
Lane Group Flow (vph)	48	1518	0	90	1596	0	0	213	56	0	69	18
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	5.2	59.7		9.3	63.8			22.5	22.5		22.5	22.5
Effective Green, g (s)	5.7	60.7		9.8	64.8			22.5	22.5		22.5	22.5
Actuated g/C Ratio	0.05	0.58		0.09	0.62			0.21	0.21		0.21	0.21
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	90	1879		155	2023			260	312		208	312
v/s Ratio Prot	0.03	0.47		c0.05	c0.49							
v/s Ratio Perm								c0.18	0.04		0.07	0.01
v/c Ratio	0.53	0.81		0.58	0.79			0.82	0.18		0.33	0.06
Uniform Delay, d1	48.4	17.5		45.6	15.0			39.3	33.7		34.9	32.8
Progression Factor	1.08	1.13		0.76	1.50			1.00	1.00		1.00	1.00
Incremental Delay, d2	3.4	2.8		1.4	1.0			17.5	0.2		0.7	0.1
Delay (s)	55.6	22.6		35.9	23.5			56.8	33.9		35.6	32.9
Level of Service	E	C		D	C			E	C		D	C
Approach Delay (s)		23.6			24.2			44.2			34.1	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1428	6	6	1414	76	17	6	29	394	2	196
Future Volume (vph)	217	1428	6	6	1414	76	17	6	29	394	2	196
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3290		1662	3264		1660	1509		1656	1469	
Flt Permitted	0.95	1.00		0.95	1.00		0.51	1.00		0.73	1.00	
Satd. Flow (perm)	1662	3290		1662	3264		896	1509		1277	1469	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	1503	6	6	1488	80	18	6	31	415	2	206
RTOR Reduction (vph)	0	0	0	0	4	0	0	22	0	0	131	0
Lane Group Flow (vph)	228	1509	0	6	1564	0	18	15	0	415	77	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	13.5	59.6		0.9	47.0		31.0	31.0		31.0	31.0	
Effective Green, g (s)	14.0	60.6		1.4	48.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.13	0.58		0.01	0.46		0.30	0.30		0.30	0.30	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	221	1898		22	1492		264	445		377	433	
v/s Ratio Prot	c0.14	0.46		0.00	c0.48			0.01			0.05	
v/s Ratio Perm							0.02			c0.32		
v/c Ratio	1.03	0.79		0.27	1.05		0.07	0.03		1.10	0.18	
Uniform Delay, d1	45.5	17.3		51.3	28.5		26.6	26.3		37.0	27.5	
Progression Factor	1.23	0.43		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	58.1	2.4		4.8	37.1		0.0	0.0		76.3	0.1	
Delay (s)	114.2	9.9		56.1	65.6		26.7	26.4		113.3	27.7	
Level of Service	F	A		E	E		C	C		F	C	
Approach Delay (s)		23.6			65.6			26.5			84.7	
Approach LOS		C			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

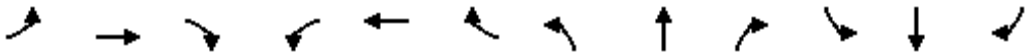
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	1	10	0	1	0	11	7	0	1	0
Future Vol, veh/h	0	0	1	10	0	1	0	11	7	0	1	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	14	0	1	0	15	10	0	1	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	24	28	2	23	23	22	2	0	0	26	0	0
Stage 1	2	2	-	21	21	-	-	-	-	-	-	-
Stage 2	22	26	-	2	2	-	-	-	-	-	-	-
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	993	869	1088	994	874	1061	1634	-	-	1601	-	-
Stage 1	1026	898	-	1003	882	-	-	-	-	-	-	-
Stage 2	1002	878	-	1026	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	990	867	1087	992	872	1059	1634	-	-	1599	-	-
Mov Cap-2 Maneuver	990	867	-	992	872	-	-	-	-	-	-	-
Stage 1	1025	897	-	1002	881	-	-	-	-	-	-	-
Stage 2	1000	877	-	1025	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.3	8.7	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	1087	998	1599	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.015	-	-	-
HCM Control Delay (s)	0	-	-	8.3	8.7	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	1091	78	44	790	25	60	1	22	21	1	8
Future Volume (vph)	18	1091	78	44	790	25	60	1	22	21	1	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1662	3192		1614	3153			1635	1467		1627	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.77	
Satd. Flow (perm)	1662	3192		1614	3153			1372	1467		1290	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	22	1364	98	55	988	31	75	1	28	26	1	10
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	25	0	9	0
Lane Group Flow (vph)	23	1459	0	55	1018	0	0	76	3	0	28	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	3.1	70.9		7.3	75.1			9.8	9.8		9.8	
Effective Green, g (s)	3.1	70.9		7.3	75.1			9.8	9.8		9.8	
Actuated g/C Ratio	0.03	0.71		0.07	0.75			0.10	0.10		0.10	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	51	2263		117	2367			134	143		126	
v/s Ratio Prot	0.01	c0.46		c0.03	0.32							
v/s Ratio Perm								c0.06	0.00		0.02	
v/c Ratio	0.45	0.64		0.47	0.43			0.57	0.02		0.22	
Uniform Delay, d1	47.6	7.8		44.5	4.6			43.1	40.8		41.6	
Progression Factor	1.00	1.00		0.99	1.07			1.00	1.00		1.00	
Incremental Delay, d2	4.6	1.4		2.0	0.5			4.4	0.0		0.7	
Delay (s)	52.2	9.2		45.9	5.4			47.5	40.8		42.2	
Level of Service	D	A		D	A			D	D		D	
Approach Delay (s)		9.9			7.5			45.7			42.2	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

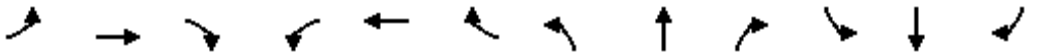
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	1125	847	8	48	43
Future Vol, veh/h	16	1125	847	8	48	43
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	20	1406	1059	10	60	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1075	0	-	0	1819	546
Stage 1	-	-	-	-	1070	-
Stage 2	-	-	-	-	749	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	656	-	-	-	71	487
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	433	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	652	-	-	-	68	481
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	417	-

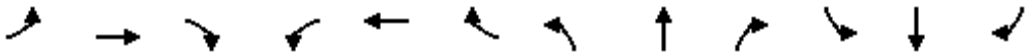
Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	28.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	652	-	-	-	263
HCM Lane V/C Ratio	0.031	-	-	-	0.433
HCM Control Delay (s)	10.7	-	-	-	28.7
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	883	249	322	781	13	103	6	150	24	32	42
Future Volume (vph)	41	883	249	322	781	13	103	6	150	24	32	42
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1662	3164		1662	3283			1659	1459		1710	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.85	1.00
Satd. Flow (perm)	1662	3164		1662	3283			1194	1459		1478	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	52	1118	315	408	989	16	130	8	190	30	41	53
RTOR Reduction (vph)	0	26	0	0	1	0	0	0	157	0	0	44
Lane Group Flow (vph)	52	1407	0	408	1004	0	0	138	33	0	71	9
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	5.9	39.0		30.1	63.2			17.4	17.4		17.4	17.4
Effective Green, g (s)	6.4	40.0		30.6	64.2			17.4	17.4		17.4	17.4
Actuated g/C Ratio	0.06	0.40		0.31	0.64			0.17	0.17		0.17	0.17
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	106	1265		508	2107			207	253		257	253
v/s Ratio Prot	0.03	c0.44		c0.25	0.31							
v/s Ratio Perm								c0.12	0.02		0.05	0.01
v/c Ratio	0.49	1.11		0.80	0.48			0.67	0.13		0.28	0.04
Uniform Delay, d1	45.2	30.0		31.9	9.2			38.6	34.9		35.8	34.3
Progression Factor	1.05	1.17		1.19	1.39			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	60.4		6.8	0.6			7.1	0.2		0.4	0.0
Delay (s)	49.6	95.4		44.8	13.5			45.7	35.1		36.3	34.4
Level of Service	D	F		D	B			D	D		D	C
Approach Delay (s)		93.8			22.5			39.5			35.5	
Approach LOS		F			C			D			D	

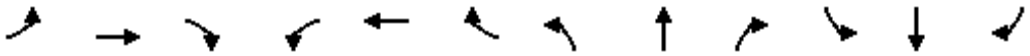
Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	975	19	31	1090	7	6	2	19	125	2	35
Future Volume (vph)	43	975	19	31	1090	7	6	2	19	125	2	35
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3280		1662	3289		1659	1495		1656	1485	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3280		1662	3289		1269	1495		1289	1485	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	54	1219	24	39	1362	9	8	2	24	156	2	44
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	36	0
Lane Group Flow (vph)	54	1242	0	39	1372	0	8	7	0	156	11	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	7.0	64.0		4.6	61.6		17.9	17.9		17.9	17.9	
Effective Green, g (s)	7.5	65.0		5.1	62.6		17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.08	0.65		0.05	0.63		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	124	2132		84	2058		227	267		230	265	
v/s Ratio Prot	c0.03	0.38		0.02	c0.42			0.00			0.01	
v/s Ratio Perm							0.01			c0.12		
v/c Ratio	0.44	0.58		0.46	0.67		0.04	0.03		0.68	0.04	
Uniform Delay, d1	44.2	9.9		46.1	12.0		33.9	33.9		38.4	34.0	
Progression Factor	1.38	0.25		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		2.9	1.7		0.0	0.0		7.0	0.0	
Delay (s)	61.4	2.8		49.1	13.7		33.9	33.9		45.4	34.0	
Level of Service	E	A		D	B		C	C		D	C	
Approach Delay (s)		5.2			14.7			33.9			42.7	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1239	201	135	1435	47	234	3	146	50	10	49
Future Volume (vph)	27	1239	201	135	1435	47	234	3	146	50	10	49
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1662	3152		1614	3153			1635	1467		1607	
Flt Permitted	0.95	1.00		0.95	1.00			0.62	1.00		0.59	
Satd. Flow (perm)	1662	3152		1614	3153			1069	1467		963	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	1377	223	150	1594	52	260	3	162	56	11	54
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	116	0	27	0
Lane Group Flow (vph)	30	1587	0	150	1644	0	0	263	46	0	94	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.2	59.4		9.0	64.2			24.6	24.6		24.6	
Effective Green, g (s)	4.2	59.4		9.0	64.2			24.6	24.6		24.6	
Actuated g/C Ratio	0.04	0.57		0.09	0.61			0.23	0.23		0.23	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	66	1783		138	1927			250	343		225	
v/s Ratio Prot	0.02	c0.50		c0.09	0.52							
v/s Ratio Perm								c0.25	0.03		0.10	
v/c Ratio	0.45	0.89		1.09	0.85			1.05	0.13		0.42	
Uniform Delay, d1	49.3	19.9		48.0	16.6			40.2	31.8		34.1	
Progression Factor	1.00	1.00		0.94	1.69			1.00	1.00		1.00	
Incremental Delay, d2	3.6	7.2		91.1	3.8			71.2	0.1		0.9	
Delay (s)	52.9	27.1		136.1	31.7			111.4	31.9		35.0	
Level of Service	D	C		F	C			F	C		D	
Approach Delay (s)		27.6			40.5			81.1			35.0	
Approach LOS		C			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	0	44	53	0	30
Future Vol, veh/h	47	0	44	53	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	65	0	61	74	0	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	140	98	0	0	135	0
Stage 1	98	-	-	-	-	-
Stage 2	42	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	858	963	-	-	1462	-
Stage 1	931	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	858	963	-	-	1462	-
Mov Cap-2 Maneuver	858	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	858	1462	-
HCM Lane V/C Ratio	-	-	0.076	-	-
HCM Control Delay (s)	-	-	9.5	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

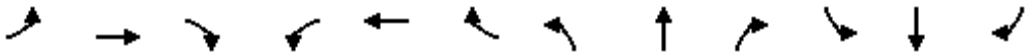
Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	48	0	5	46	1	0	6	4	0	0	1
Future Vol, veh/h	5	48	0	5	46	1	0	6	4	0	0	1
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	67	0	7	64	1	0	8	6	0	0	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	17	2	46	14	13	2	0	0	15	0	0
Stage 1	2	2	-	12	12	-	-	-	-	-	-	-
Stage 2	45	15	-	34	2	-	-	-	-	-	-	-
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	959	881	1088	961	884	1073	1634	-	-	1616	-	-
Stage 1	1026	898	-	1014	890	-	-	-	-	-	-	-
Stage 2	974	887	-	987	898	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	903	879	1087	904	882	1071	1634	-	-	1614	-	-
Mov Cap-2 Maneuver	903	879	-	904	882	-	-	-	-	-	-	-
Stage 1	1025	897	-	1013	889	-	-	-	-	-	-	-
Stage 2	902	886	-	914	897	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.4	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1634	-	-	881	887	1614	-	-
HCM Lane V/C Ratio	-	-	-	0.084	0.081	-	-	-
HCM Control Delay (s)	0	-	-	9.5	9.4	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1038	78	44	743	25	60	1	22	21	1	55
Future Volume (vph)	71	1038	78	44	743	25	60	1	22	21	1	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1662	3190		1614	3152			1635	1467		1558	
Flt Permitted	0.95	1.00		0.95	1.00			0.56	1.00		0.89	
Satd. Flow (perm)	1662	3190		1614	3152			961	1467		1410	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	89	1298	98	55	929	31	75	1	28	26	1	69
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	25	0	62	0
Lane Group Flow (vph)	89	1393	0	55	958	0	0	76	3	0	34	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	11.4	70.9		7.3	66.8			9.8	9.8		9.8	
Effective Green, g (s)	11.4	70.9		7.3	66.8			9.8	9.8		9.8	
Actuated g/C Ratio	0.11	0.71		0.07	0.67			0.10	0.10		0.10	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	189	2261		117	2105			94	143		138	
v/s Ratio Prot	c0.05	c0.44		0.03	0.30							
v/s Ratio Perm								c0.08	0.00		0.02	
v/c Ratio	0.47	0.62		0.47	0.46			0.81	0.02		0.24	
Uniform Delay, d1	41.5	7.5		44.5	7.9			44.2	40.8		41.7	
Progression Factor	1.00	1.00		1.03	0.87			1.00	1.00		1.00	
Incremental Delay, d2	1.3	1.3		2.0	0.7			37.3	0.0		0.7	
Delay (s)	42.8	8.8		48.0	7.5			81.4	40.8		42.4	
Level of Service	D	A		D	A			F	D		D	
Approach Delay (s)		10.8			9.7			70.5			42.4	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

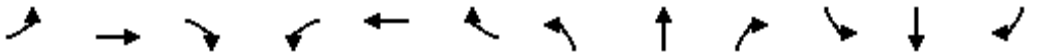
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1086	811	8	48	32
Future Vol, veh/h	2	1086	811	8	48	32
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	3	1358	1014	10	60	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1030	0	-	0	1715	524
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	690	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	682	-	-	-	83	503
Stage 1	-	-	-	-	312	-
Stage 2	-	-	-	-	465	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	678	-	-	-	82	497
Mov Cap-2 Maneuver	-	-	-	-	205	-
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	460	-

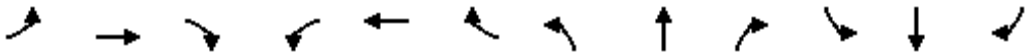
Approach	EB	WB	SB
HCM Control Delay, s	0	0	26.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	678	-	-	-	268
HCM Lane V/C Ratio	0.004	-	-	-	0.373
HCM Control Delay (s)	10.3	-	-	-	26.2
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	1.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	876	249	322	775	13	103	6	150	24	32	12
Future Volume (vph)	9	876	249	322	775	13	103	6	150	24	32	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	1.00
Satd. Flow (prot)	1662	3163		1662	3283			1659	1459		1710	1458
Flt Permitted	0.95	1.00		0.95	1.00			0.69	1.00		0.85	1.00
Satd. Flow (perm)	1662	3163		1662	3283			1194	1459		1478	1458
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	11	1109	315	408	981	16	130	8	190	30	41	15
RTOR Reduction (vph)	0	26	0	0	1	0	0	0	157	0	0	12
Lane Group Flow (vph)	11	1398	0	408	996	0	0	138	33	0	71	3
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	0.9	39.0		30.1	68.2			17.4	17.4		17.4	17.4
Effective Green, g (s)	1.4	40.0		30.6	69.2			17.4	17.4		17.4	17.4
Actuated g/C Ratio	0.01	0.40		0.31	0.69			0.17	0.17		0.17	0.17
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	23	1265		508	2271			207	253		257	253
v/s Ratio Prot	0.01	c0.44		c0.25	0.30							
v/s Ratio Perm								c0.12	0.02		0.05	0.00
v/c Ratio	0.48	1.10		0.80	0.44			0.67	0.13		0.28	0.01
Uniform Delay, d1	48.9	30.0		31.9	6.8			38.6	34.9		35.8	34.2
Progression Factor	1.13	1.20		1.06	1.65			1.00	1.00		1.00	1.00
Incremental Delay, d2	9.4	57.6		7.0	0.5			7.1	0.2		0.4	0.0
Delay (s)	64.6	93.7		40.9	11.7			45.7	35.1		36.3	34.2
Level of Service	E	F		D	B			D	D		D	C
Approach Delay (s)		93.4			20.2			39.5			35.9	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	975	19	31	1090	7	6	2	19	125	2	29
Future Volume (vph)	36	975	19	31	1090	7	6	2	19	125	2	29
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3280		1662	3289		1659	1495		1656	1488	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00		0.74	1.00	
Satd. Flow (perm)	1662	3280		1662	3289		1278	1495		1289	1488	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	45	1219	24	39	1362	9	8	2	24	156	2	36
RTOR Reduction (vph)	0	1	0	0	0	0	0	20	0	0	30	0
Lane Group Flow (vph)	45	1242	0	39	1372	0	8	7	0	156	9	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.4	64.0		4.6	63.2		17.9	17.9		17.9	17.9	
Effective Green, g (s)	5.9	65.0		5.1	64.2		17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.06	0.65		0.05	0.64		0.18	0.18		0.18	0.18	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	98	2132		84	2111		228	267		230	266	
v/s Ratio Prot	c0.03	0.38		0.02	c0.42			0.00			0.01	
v/s Ratio Perm							0.01			c0.12		
v/c Ratio	0.46	0.58		0.46	0.65		0.04	0.03		0.68	0.04	
Uniform Delay, d1	45.5	9.9		46.1	11.0		33.9	33.9		38.4	33.9	
Progression Factor	1.36	0.29		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3		2.9	1.6		0.0	0.0		7.0	0.0	
Delay (s)	62.5	3.2		49.1	12.6		33.9	33.9		45.4	34.0	
Level of Service	E	A		D	B		C	C		D	C	
Approach Delay (s)		5.3			13.6			33.9			43.1	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	151	0	77	147	0	109
Future Vol, veh/h	151	0	77	147	0	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	216	0	110	210	0	109

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	324	215	0	0	320	0
Stage 1	215	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	674	830	-	-	1251	-
Stage 1	826	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	674	830	-	-	1251	-
Mov Cap-2 Maneuver	674	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	674	1251	-
HCM Lane V/C Ratio	-	-	0.32	-	-
HCM Control Delay (s)	-	-	12.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1.4	0	-

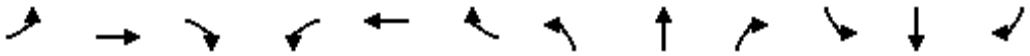
Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	140	0	8	147	1	0	6	6	2	3	4
Future Vol, veh/h	7	140	0	8	147	1	0	6	6	2	3	4
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	200	0	11	210	1	0	9	9	3	4	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	134	32	8	127	31	15	11	0	0	18	0	0
Stage 1	14	14	-	14	14	-	-	-	-	-	-	-
Stage 2	120	18	-	113	17	-	-	-	-	-	-	-
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	842	865	1080	851	866	1070	1621	-	-	1612	-	-
Stage 1	1011	888	-	1011	888	-	-	-	-	-	-	-
Stage 2	889	884	-	897	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	681	862	1079	697	863	1068	1621	-	-	1610	-	-
Mov Cap-2 Maneuver	681	862	-	697	863	-	-	-	-	-	-	-
Stage 1	1010	885	-	1010	887	-	-	-	-	-	-	-
Stage 2	677	883	-	693	882	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	10.7	0	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1621	-	-	851	854	1610	-	-
HCM Lane V/C Ratio	-	-	-	0.247	0.261	0.002	-	-
HCM Control Delay (s)	0	-	-	10.6	10.7	7.2	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1092	201	135	1284	47	234	3	146	50	10	200
Future Volume (vph)	174	1092	201	135	1284	47	234	3	146	50	10	200
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	0.99			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1662	3144		1614	3151			1635	1467		1553	
Flt Permitted	0.95	1.00		0.95	1.00			0.44	1.00		0.86	
Satd. Flow (perm)	1662	3144		1614	3151			762	1467		1353	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	193	1213	223	150	1427	52	260	3	162	56	11	222
RTOR Reduction (vph)	0	14	0	0	2	0	0	0	108	0	113	0
Lane Group Flow (vph)	193	1422	0	150	1477	0	0	263	54	0	176	0
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	12.0	48.0		10.0	46.0			35.0	35.0		35.0	
Effective Green, g (s)	12.0	48.0		10.0	46.0			35.0	35.0		35.0	
Actuated g/C Ratio	0.11	0.46		0.10	0.44			0.33	0.33		0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	
Lane Grp Cap (vph)	189	1437		153	1380			254	489		451	
v/s Ratio Prot	c0.12	0.45		0.09	c0.47							
v/s Ratio Perm								c0.35	0.04		0.13	
v/c Ratio	1.02	0.99		0.98	1.07			1.04	0.11		0.39	
Uniform Delay, d1	46.5	28.2		47.4	29.5			35.0	24.2		26.8	
Progression Factor	1.00	1.00		0.82	0.97			1.00	1.00		1.00	
Incremental Delay, d2	71.1	21.4		59.7	43.3			66.0	0.1		0.4	
Delay (s)	117.6	49.6		98.7	71.8			101.0	24.3		27.2	
Level of Service	F	D		F	E			F	C		C	
Approach Delay (s)		57.7			74.3			71.8			27.2	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1299	1473	19	40	29
Future Vol, veh/h	4	1299	1473	19	40	29
Conflicting Peds, #/hr	6	0	0	6	6	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	3	5	0	0	0
Mvmt Flow	5	1624	1841	24	50	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1871	0	-	0	2687	945
Stage 1	-	-	-	-	1859	-
Stage 2	-	-	-	-	828	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	326	-	-	-	~ 18	267
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	394	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	324	-	-	-	~ 18	264
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	386	-

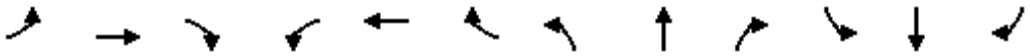
Approach	EB	WB	SB
HCM Control Delay, s	0	0	92
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	324	-	-	-	118
HCM Lane V/C Ratio	0.015	-	-	-	0.731
HCM Control Delay (s)	16.3	-	-	-	92
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	4

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1267	100	87	1418	33	185	21	255	55	12	40
Future Volume (vph)	23	1267	100	87	1418	33	185	21	255	55	12	40
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.98		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		1.00	1.00
Frt	1.00	0.99		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1662	3249		1662	3278			1663	1459		1674	1457
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.56	1.00
Satd. Flow (perm)	1662	3249		1662	3278			1214	1459		972	1457
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)	24	1306	103	90	1462	34	191	22	263	57	12	41
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	207	0	0	32
Lane Group Flow (vph)	24	1405	0	90	1495	0	0	213	56	0	69	9
Confl. Peds. (#/hr)	9		8	8		9	8		7	7		8
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	2.1	59.7		9.3	66.9			22.5	22.5		22.5	22.5
Effective Green, g (s)	2.6	60.7		9.8	67.9			22.5	22.5		22.5	22.5
Actuated g/C Ratio	0.02	0.58		0.09	0.65			0.21	0.21		0.21	0.21
Clearance Time (s)	4.5	5.0		4.5	5.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.0		2.5	4.0			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	41	1878		155	2119			260	312		208	312
v/s Ratio Prot	0.01	c0.43		c0.05	c0.46							
v/s Ratio Perm								c0.18	0.04		0.07	0.01
v/c Ratio	0.59	0.75		0.58	0.71			0.82	0.18		0.33	0.03
Uniform Delay, d1	50.7	16.5		45.6	12.1			39.3	33.7		34.9	32.6
Progression Factor	1.28	0.84		0.72	1.69			1.00	1.00		1.00	1.00
Incremental Delay, d2	10.7	1.8		1.7	0.7			17.5	0.2		0.7	0.0
Delay (s)	75.6	15.5		34.6	21.1			56.8	33.9		35.6	32.6
Level of Service	E	B		C	C			E	C		D	C
Approach Delay (s)		16.6			21.8			44.2			34.5	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	1428	6	6	1414	76	17	6	29	394	2	98
Future Volume (vph)	108	1428	6	6	1414	76	17	6	29	394	2	98
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1662	3290		1662	3264		1659	1509		1656	1472	
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00		0.73	1.00	
Satd. Flow (perm)	1662	3290		1662	3264		1190	1509		1277	1472	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	1503	6	6	1488	80	18	6	31	415	2	103
RTOR Reduction (vph)	0	0	0	0	4	0	0	21	0	0	70	0
Lane Group Flow (vph)	114	1509	0	6	1564	0	18	16	0	415	35	0
Confl. Peds. (#/hr)	2		12	12		2	2		4	4		2
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	7.5	56.6		0.9	50.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)	8.0	57.6		1.4	51.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.08	0.55		0.01	0.49		0.32	0.32		0.32	0.32	
Clearance Time (s)	4.5	5.0		4.5	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2		2.5	4.2		2.0	2.0		2.5	2.5	
Lane Grp Cap (vph)	126	1804		22	1585		385	488		413	476	
v/s Ratio Prot	c0.07	0.46		0.00	c0.48			0.01			0.02	
v/s Ratio Perm							0.02			c0.32		
v/c Ratio	0.90	0.84		0.27	0.99		0.05	0.03		1.00	0.07	
Uniform Delay, d1	48.1	19.8		51.3	26.7		24.4	24.3		35.5	24.6	
Progression Factor	1.25	0.53		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.1	3.6		4.8	19.7		0.0	0.0		45.5	0.0	
Delay (s)	102.2	14.1		56.1	46.4		24.4	24.3		81.0	24.6	
Level of Service	F	B		E	D		C	C		F	C	
Approach Delay (s)		20.3			46.4			24.3			69.6	
Approach LOS		C			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1092	201	135	1284	47	234	3	146	50	10	200
Future Volume (vph)	174	1092	201	135	1284	47	234	3	146	50	10	200
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		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		1.00	1.00
Frt	1.00	0.98		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.96	1.00
Satd. Flow (prot)	1662	3144		1614	3151			1635	1467		1679	1488
Flt Permitted	0.95	1.00		0.95	1.00			0.68	1.00		0.56	1.00
Satd. Flow (perm)	1662	3144		1614	3151			1166	1467		984	1488
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	193	1213	223	150	1427	52	260	3	162	56	11	222
RTOR Reduction (vph)	0	13	0	0	2	0	0	0	119	0	0	151
Lane Group Flow (vph)	193	1423	0	150	1477	0	0	263	43	0	67	71
Confl. Peds. (#/hr)	6		3	3		6			1	1		
Heavy Vehicles (%)	0%	3%	2%	3%	5%	0%	2%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	16.3	51.6		13.7	49.0			27.7	27.7		27.7	27.7
Effective Green, g (s)	16.3	51.6		13.7	49.0			27.7	27.7		27.7	27.7
Actuated g/C Ratio	0.16	0.49		0.13	0.47			0.26	0.26		0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5			2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	258	1545		210	1470			307	387		259	392
v/s Ratio Prot	c0.12	c0.45		0.09	c0.47							
v/s Ratio Perm								c0.23	0.03		0.07	0.05
v/c Ratio	0.75	0.92		0.71	1.00			0.86	0.11		0.26	0.18
Uniform Delay, d1	42.4	24.8		43.8	28.0			36.8	29.3		30.5	29.9
Progression Factor	1.00	1.00		0.85	0.98			1.00	1.00		1.00	1.00
Incremental Delay, d2	10.7	10.5		8.4	22.3			20.1	0.1		0.4	0.2
Delay (s)	53.1	35.3		45.6	49.6			56.8	29.4		30.9	30.0
Level of Service	D	D		D	D			E	C		C	C
Approach Delay (s)		37.4			49.3			46.4			30.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

NOTE:
Base map has been prepared using Douglas County and City of Roseburg GIS contours and aerial imagery. Boundary linework provided by Land Mark Surveying. For exhibit use only.

N W E S

SCALE: 1" = 20'

0 20 40

3J CONSULTING
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

BASE MAP WITH ADDRESSES

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 1 OF 18

P:\16373-ROSEBURG-BLACK AVE EXTENSION\CAD\SD\16373-BLACKAVE-BASE MAPPING.DWG

NOTE:
Base map has been prepared using Douglas County and City of Roseburg GIS contours and aerial imagery. Boundary linework provided by Land Mark Surveying. For exhibit use only.

N
W E
S

SCALE: 1" = 20'
0 20 40

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ISSUE DATE:	MARCH 23, 2017
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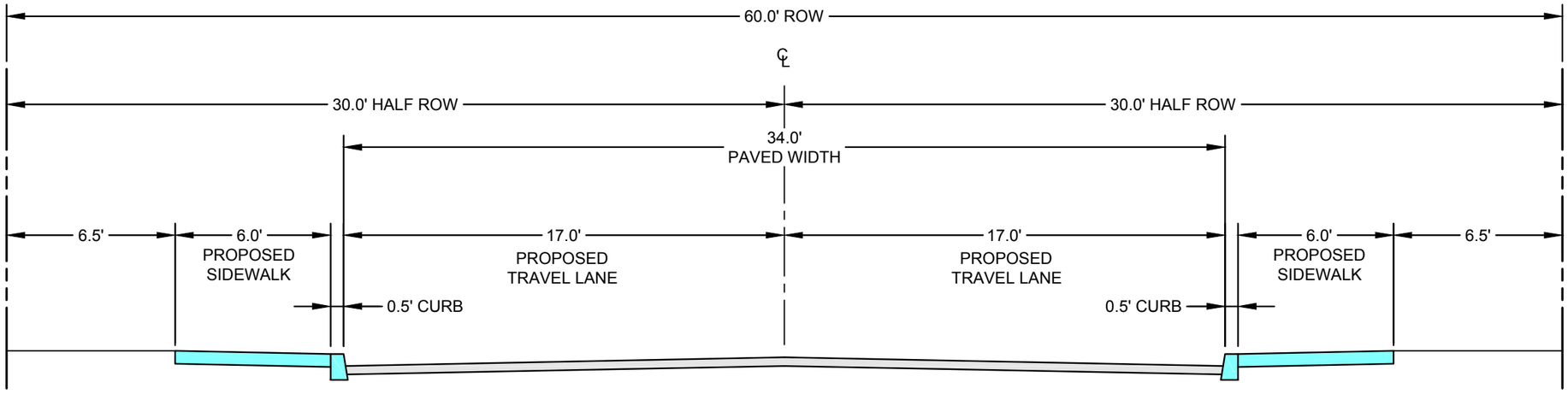
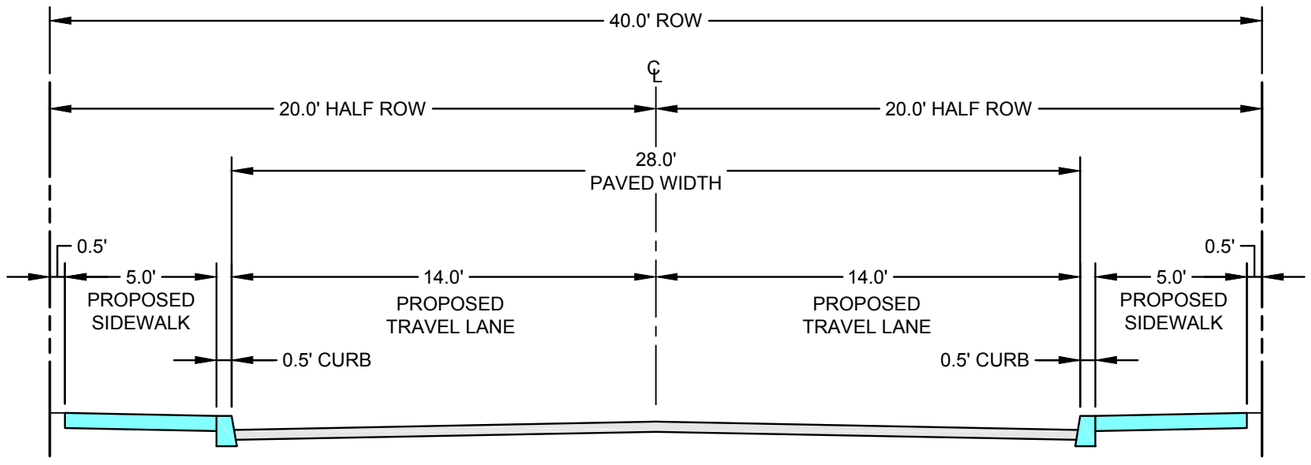
BASE MAP WITH CONTOURS

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR



BLACK AVENUE & DOGWOOD STREET - 60' RIGHT-OF-WAY

LOOKING EAST FROM THE SHOPPING CENTER
(ALTERNATIVES 1A, 1B, 2B, 3B, 4B)



BLACK AVENUE - 40' RIGHT-OF-WAY

LOOKING EAST FROM ESTELLE STREET
(ALTERNATIVES 2A, 3A, 4A)

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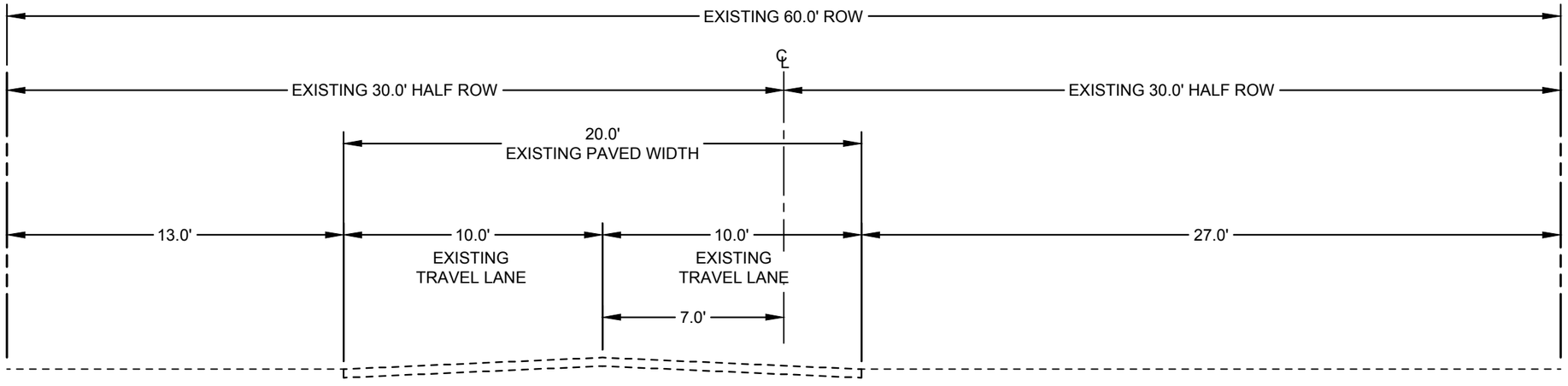
ISSUE DATE:	*MARCH 23, 2017*
ISSUE PURPOSE:	*EXHIBIT USE ONLY*

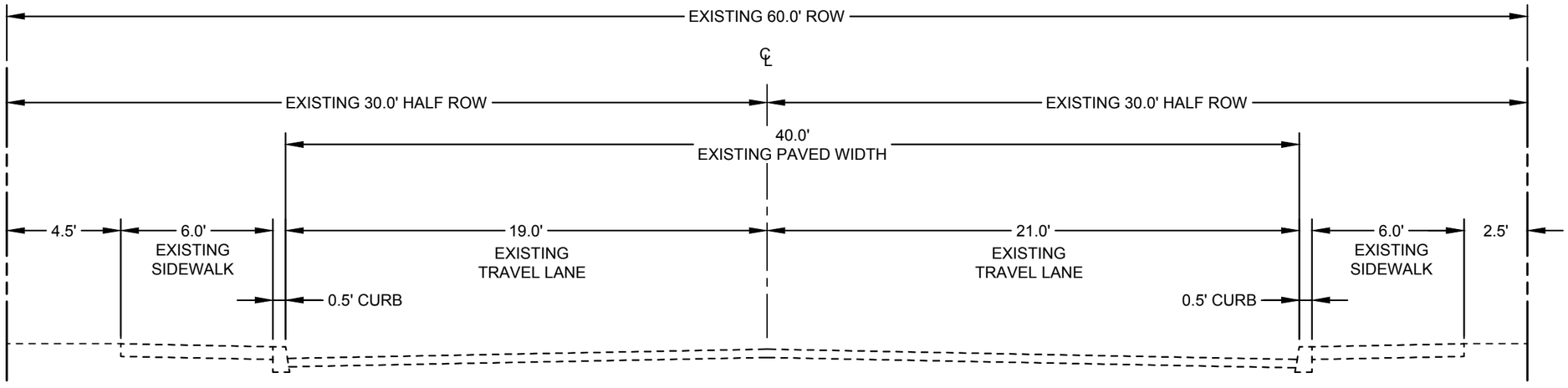
PROPOSED
TYPICAL SECTIONS

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR



DOGWOOD STREET

LOOKING NORTH FROM BLACK AVE



ESTELLE STREET

LOOKING NORTH FROM GARDEN VALLEY BLVD

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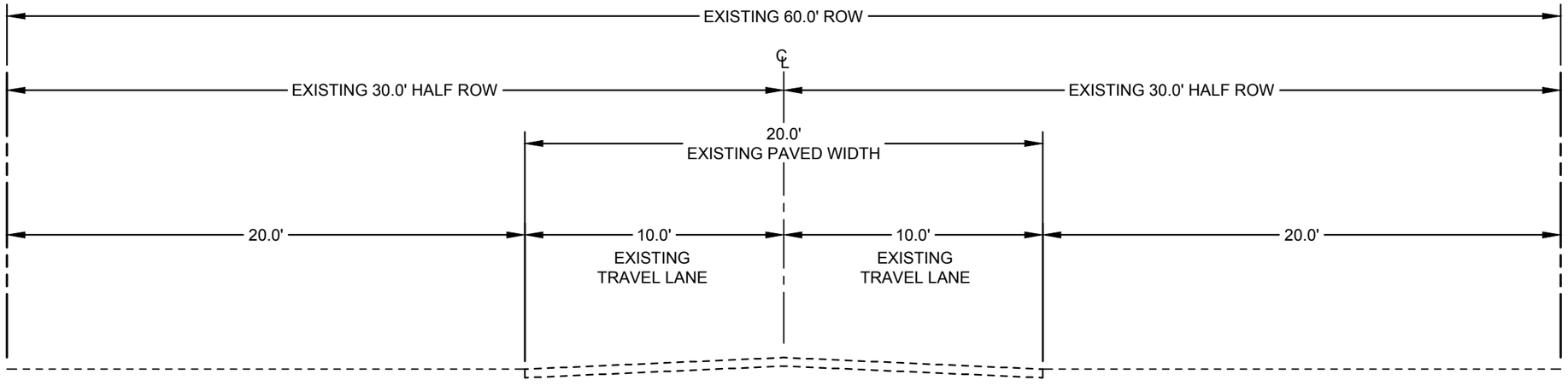
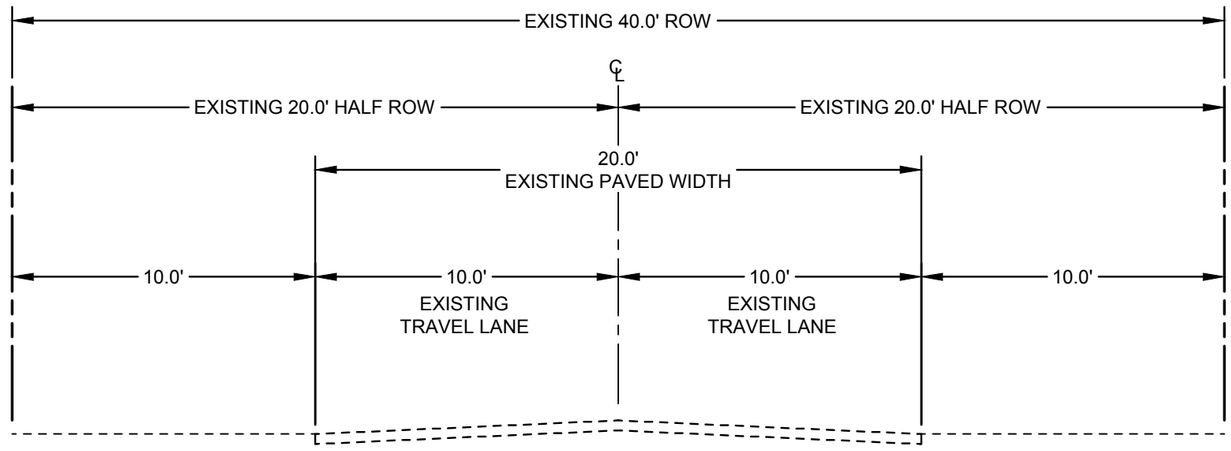
EXISTING TYPICAL SECTIONS

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR



ESTELLE STREET

LOOKING NORTH FROM BLACK AVE



CROUCH STREET & PATRICIA STREET

LOOKING NORTH FROM BLACK AVE

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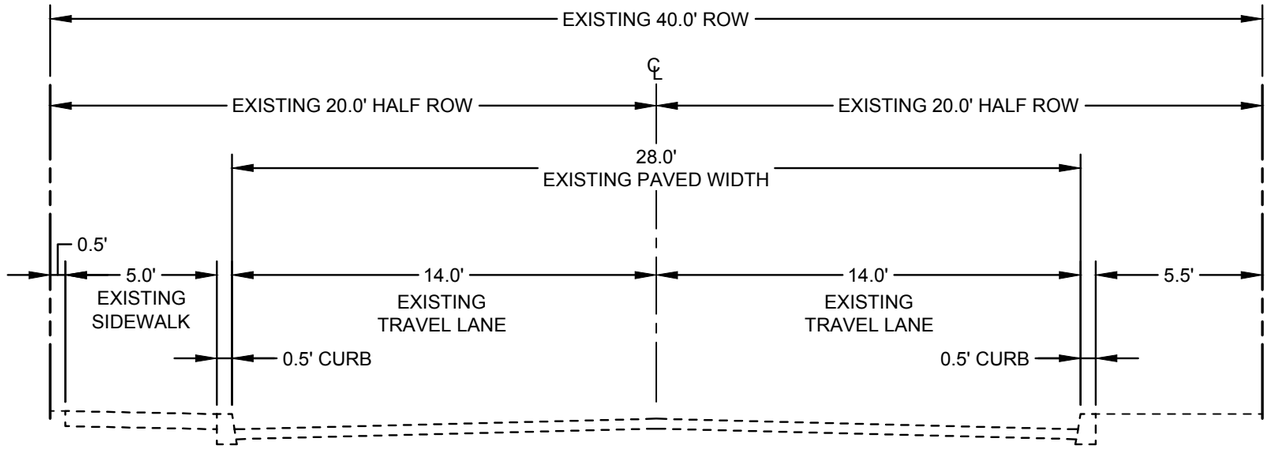
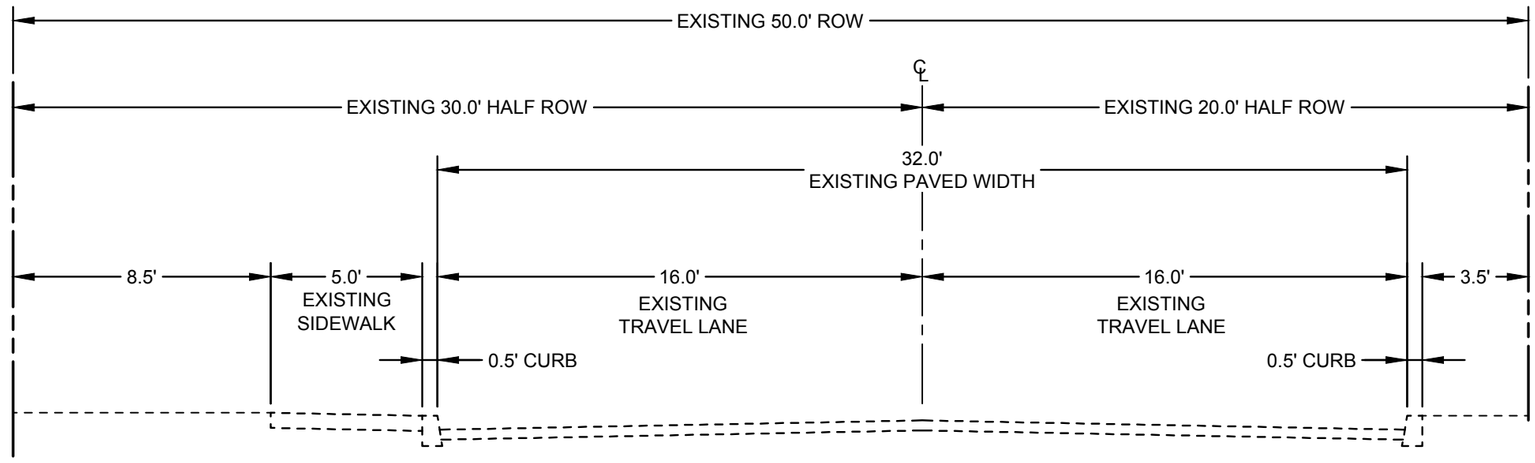


CROUCH STREET

LOOKING NORTH FROM GARDEN VALLEY BLVD



GOETZ STREET

LOOKING NORTH FROM GARDEN VALLEY BLVD

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ISSUE DATE:	*MARCH 23, 2017*
ISSUE PURPOSE:	*EXHIBIT USE ONLY*

EXISTING TYPICAL SECTIONS

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 6 *OF* 18

P:\16373-ROSEBURG-BLACK AVE EXTENSION\CAD\SD\16373-BLACKAVE-TYPICAL SECTIONS.DWG

GENERAL NOTES

1. SHOPPING CENTER TO ESTELLE = 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.

SCALE: 1" = 80'

0 80 160

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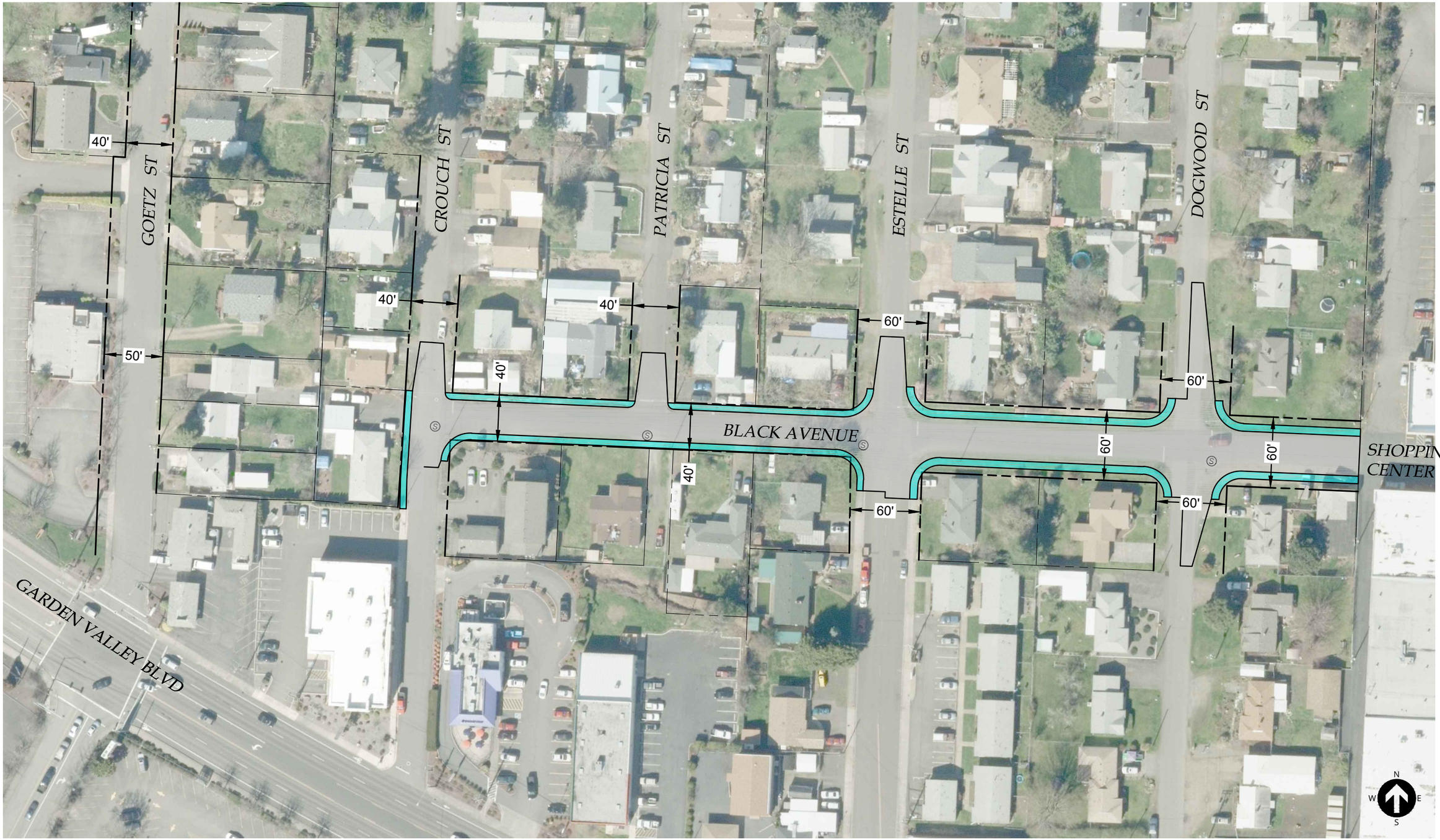

GENERAL NOTES

1. SHOPPING CENTER TO ESTELLE = 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. ESTELLE TO CROUCH = 28' PAVED WIDTH, 5.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.

SCALE: 1" = 80'

0 80 160

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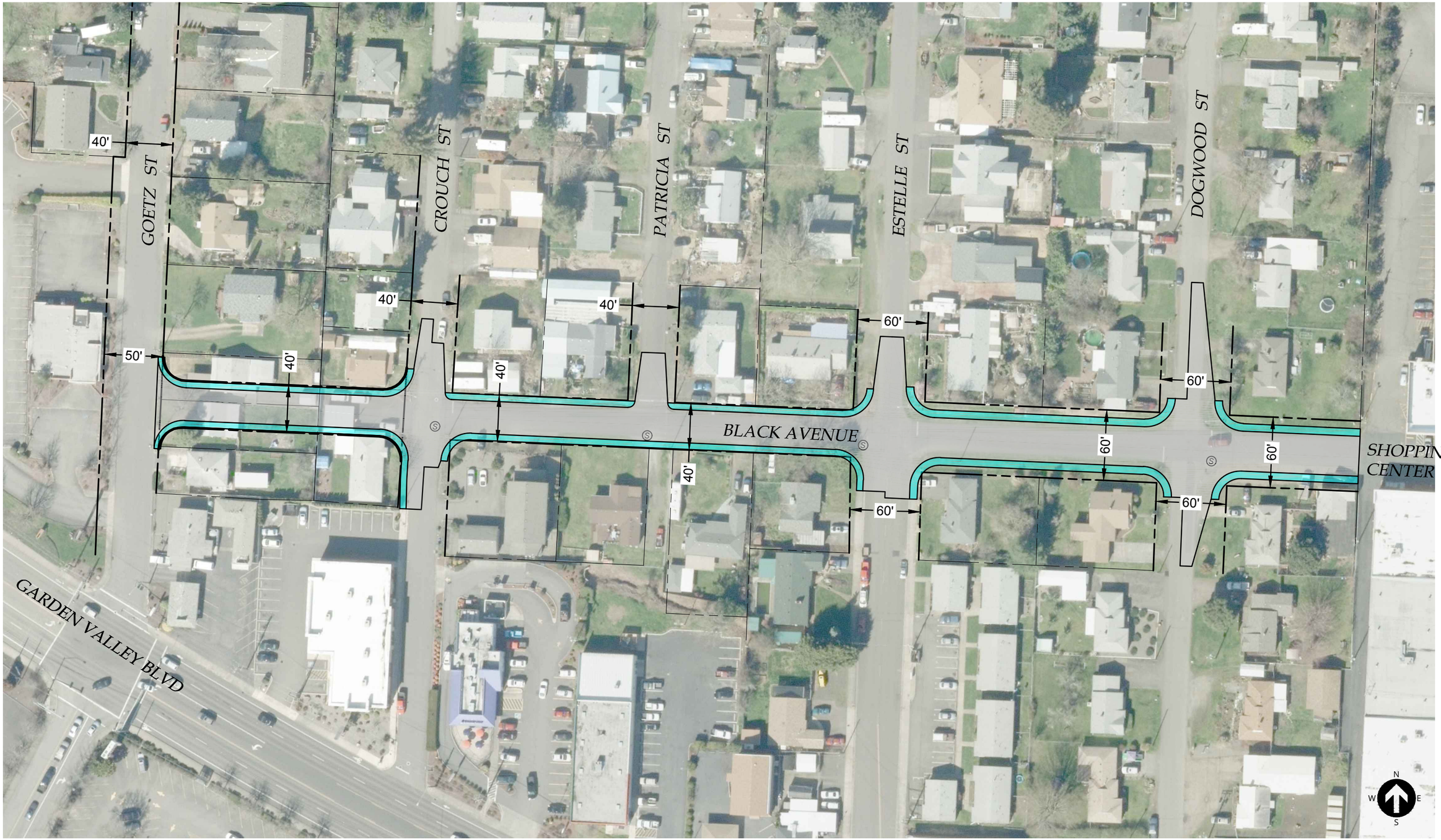
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY: JEJ PREPARED FOR: CITY OF ROSEBURG ISSUE DATE: MARCH 23, 2017 ISSUE PURPOSE: EXHIBIT USE ONLY	ALT. 1 & 2 SHOPPING CENTER TO CROUCH	BLACK AVENUE EXTENSION PROJECT ROSEBURG, OR	SHEET 8 OF 18

P:\16373-ROSEBURG-BLACK AVE EXTENSION\CAD\SD\16373-BLACKAVE-ALT.DWG



GENERAL NOTES

1. SHOPPING CENTER TO ESTELLE = 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. ESTELLE TO GOETZ = 28' PAVED WIDTH, 5.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.

SCALE: 1" = 80'

0 80 160

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5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 1, 2, 3
SHOPPING CENTER TO GOETZ

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 9 OF 18

P:\16373-ROSEBURG-BLACK AVE EXTENSION\CAD\SD\16373-BLACKAVE-ALT.DWG

GENERAL NOTES

1. BLACK AVE - SHOPPING CENTER TO ESTELLE = 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. DOGWOOD - GARDEN VALLEY TO BLACK AVE = 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.

SCALE: 1" = 80'

0 80 160

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ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 1 & 4
SHOPPING CENTER TO ESTELLE & DOGWOOD STREET

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 10 OF 18

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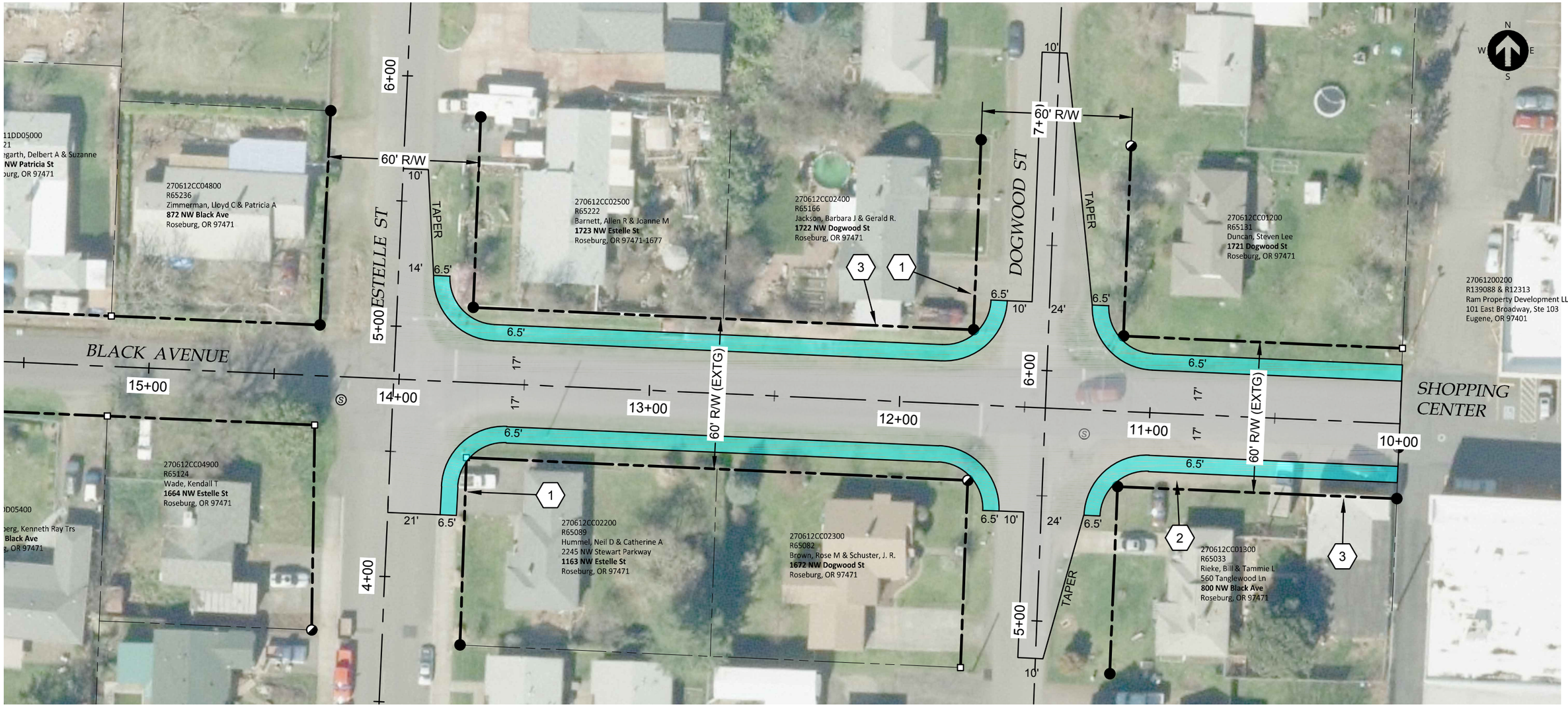

KEY NOTES

1. EXISTING DRIVEWAY MAY NEED TO INTEGRATE INTO THE CURB RETURN AND PED RAMP IN ORDER TO RETAIN IN CURRENT LOCATION.
2. PARKING AREA WILL BE REMOVED WITH SIDEWALK IMPROVEMENTS.
3. EXISTING STRUCTURE APPEARS TO HAVE VERY LITTLE SETBACK FROM R/W.

GENERAL NOTES

1. 60' R/W, 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. CURB RETURN RADII = 25', TYPICAL
3. ADDITIONAL R/W NEEDED FOR CURB RETURN CONSTRUCTION AT ESTELLE, SE QUADRANT.
4. PROPOSED 34' PAVED WIDTH ON DOGWOOD STREET AT INTERSECTION, TAPER TO MATCH EXISTING.

SCALE: 1" = 40'

0 40 80

3J CONSULTING
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 1 - PLAN
SHOPPING CENTER TO ESTELLE

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 11 OF 18

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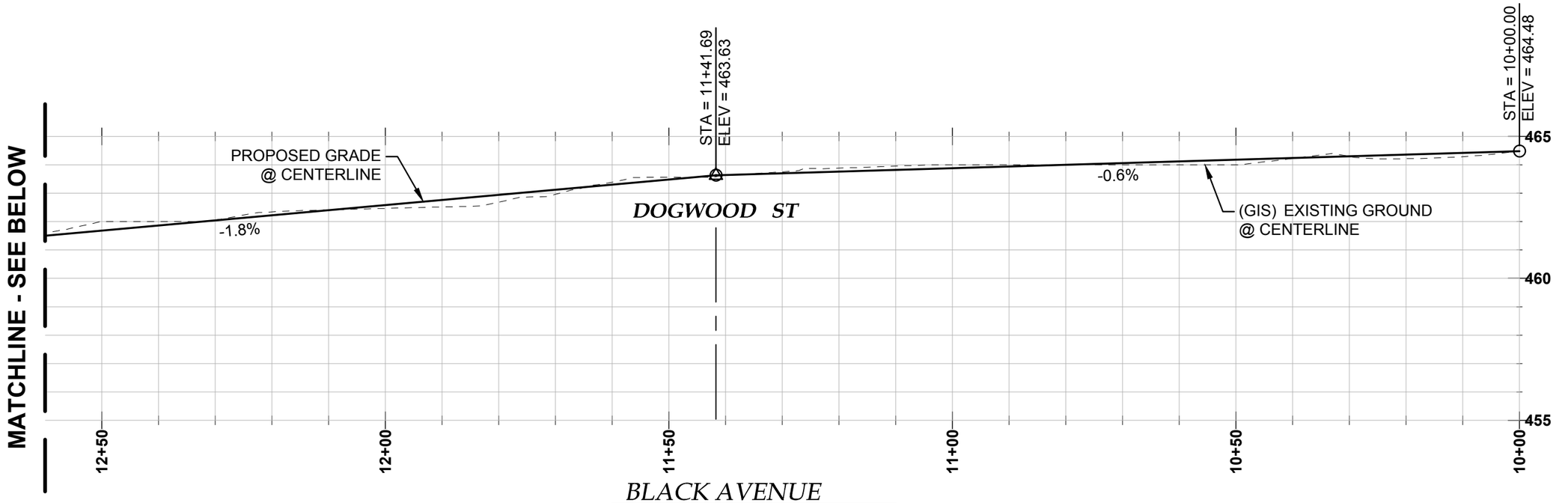
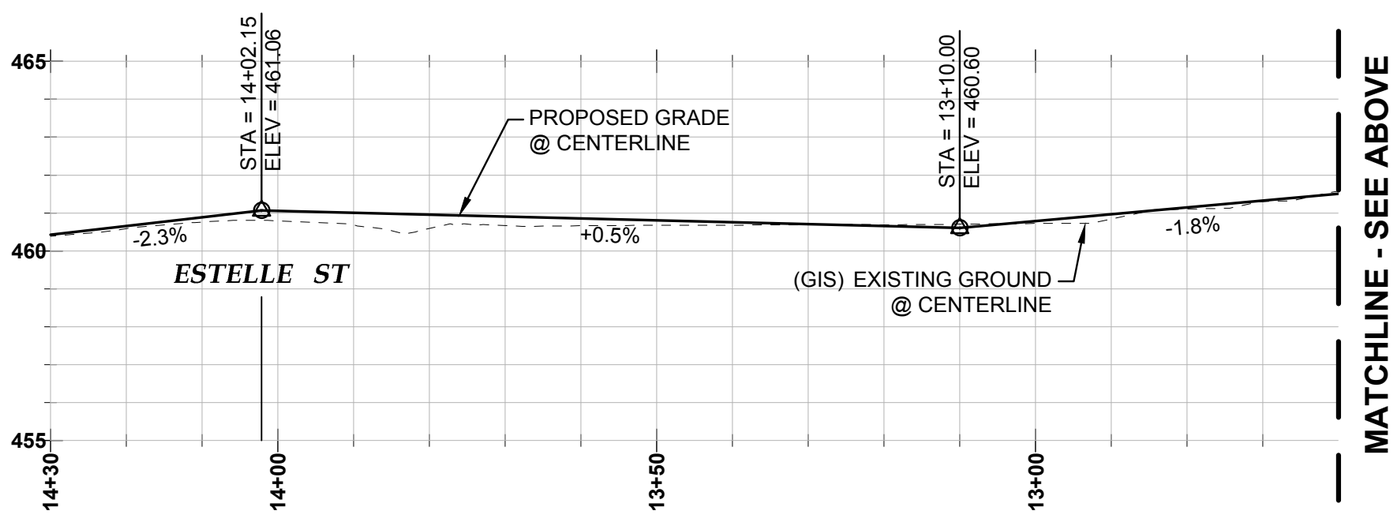


BLACK AVENUE

1" = 20' HORIZONTAL
1" = 4' VERTICAL



BLACK AVENUE

1" = 20' HORIZONTAL
1" = 4' VERTICAL

SCALE: 1" = 20'

0 20 40

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WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

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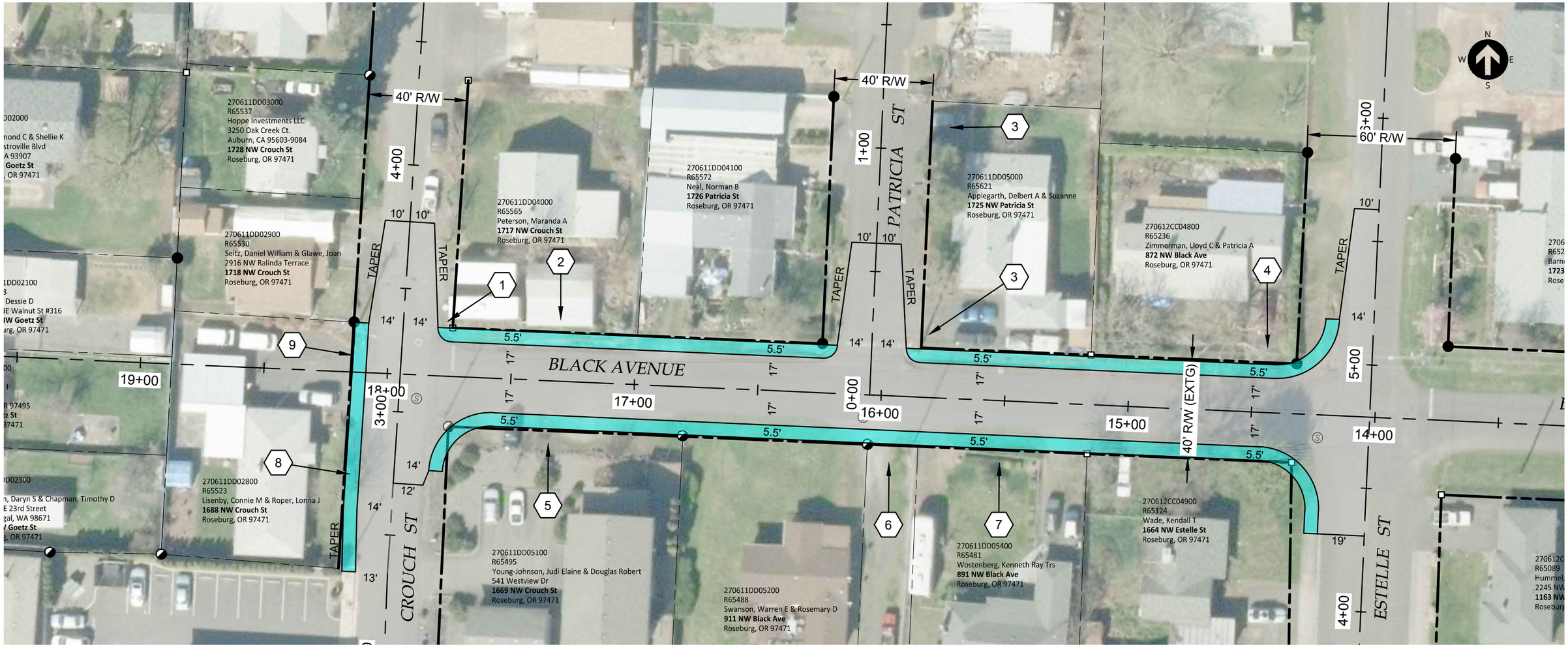
DRAWING BY:	*JEJ*
PREPARED FOR:	*CITY OF ROSEBURG*
ISSUE DATE:	*MARCH 23, 2017*
ISSUE PURPOSE:	*EXHIBIT USE ONLY*

ALT. 1 - PROFILE
SHOPPING CENTER TO ESTELLE

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 12 *OF* 18



KEY NOTES

1. MINIMAL PEDESTRIAN RAMP SHOWN TO AVOID IMPACT TO EXISTING DRIVEWAY AND R/W ACQUISITION. FULL CURB RETURN CONSTRUCTION WOULD PARTIALLY OR FULLY IMPACT EXISTING DRIVEWAY ACCESS. IT APPEARS THAT RESIDENTS USE ON-STREET PARKING ON CROUCH STREET FRONTAGE.
2. EXISTING STRUCTURE (OUTBUILDING/GARAGE) MAY BE IMPACTED.
3. MINIMAL PEDESTRIAN RAMP SHOWN TO AVOID IMPACT TO EXISTING DRIVEWAY AND R/W ACQUISITION. FULL CURB RETURN CONSTRUCTION MAY REQUIRE EXISTING DRIVEWAY TO BE RELOCATED TO THE NORTH SIDE OF THE LOT FOR FULL CURB RETURN CONSTRUCTION. IT APPEARS THAT THE RESIDENT STORES A UTILITY TRAILER ALONGSIDE AN EXISTING OUTBUILDING/GARAGE.
4. EXISTING DRIVEWAY MAY NEED TO INTEGRATE INTO THE CURB RETURN AND PED RAMP IN ORDER TO RETAIN IN CURRENT LOCATION.
5. PARKING AREA WILL BE REMOVED WITH SIDEWALK IMPROVEMENTS.

KEY NOTES

6. IT IS UNKNOWN IF THE ADJACENT LOT TO THE WEST OF THIS FLAG LOT HAS AN ACCESS EASEMENT FOR THIS DRIVEWAY.
7. EXISTING RETAINING WALL MAY NEED TO BE RE-EVALUATED.
8. PROPOSED 5' CURB-TIGHT SIDEWALK TO MATCH EXISTING TO THE SOUTH, CONNECTING A PEDESTRIAN ROUTE BETWEEN THE SHOPPING CENTER AND GARDEN VALLEY BLVD VIA BLACK AVE AND CROUCH STREET.

GENERAL NOTES

1. 40' R/W, 28' PAVED WIDTH, 5.5' CURB & SIDEWALK. FOR TYPICAL SECTIONS, SEE SHEET 3.
2. CURB RETURN RADII = 25', TYPICAL
3. ADDITIONAL R/W NEEDED FOR CURB RETURN CONSTRUCTION AT ESTELLE, SE QUADRANT.

SCALE: 1" = 40'

0 40 80

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WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 2 - PLAN
ESTELLE TO CROUCH

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 13 OF 18

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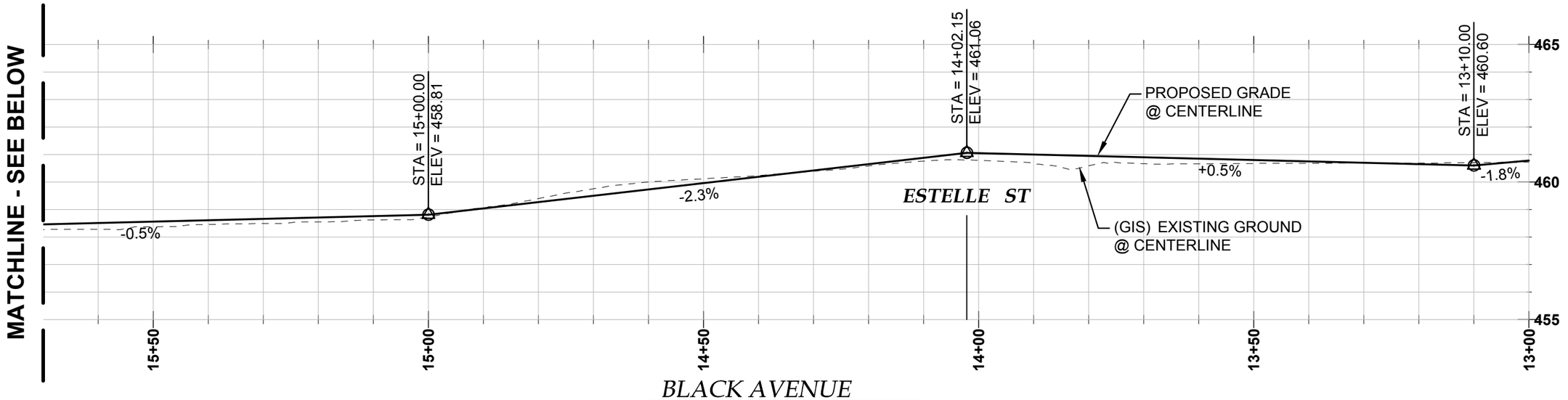
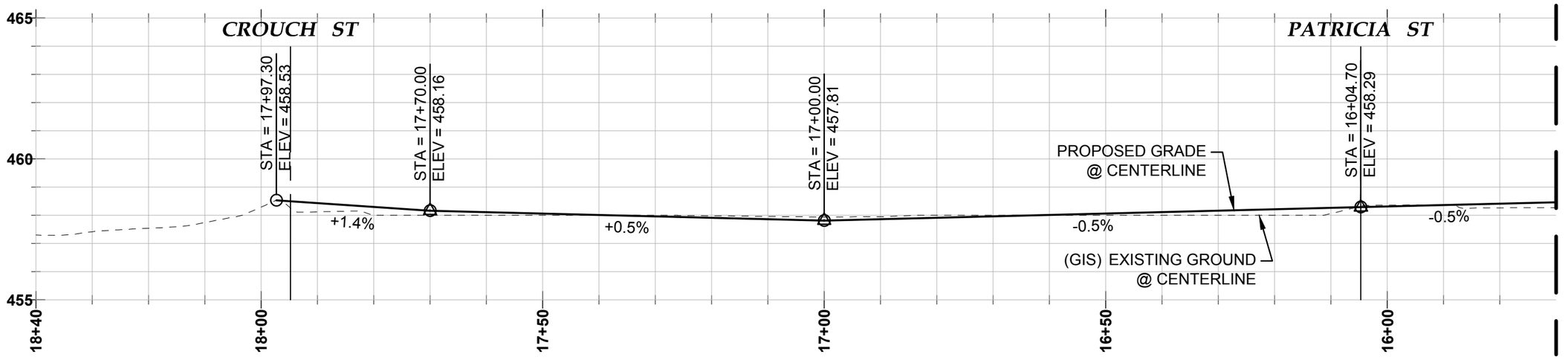


BLACK AVENUE

1" = 20' HORIZONTAL
1" = 4' VERTICAL



BLACK AVENUE

1" = 20' HORIZONTAL
1" = 4' VERTICAL

SCALE: 1" = 20'

0 20 40

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CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 2 - PROFILE
ESTELLE TO CROUCH

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 14 OF 18

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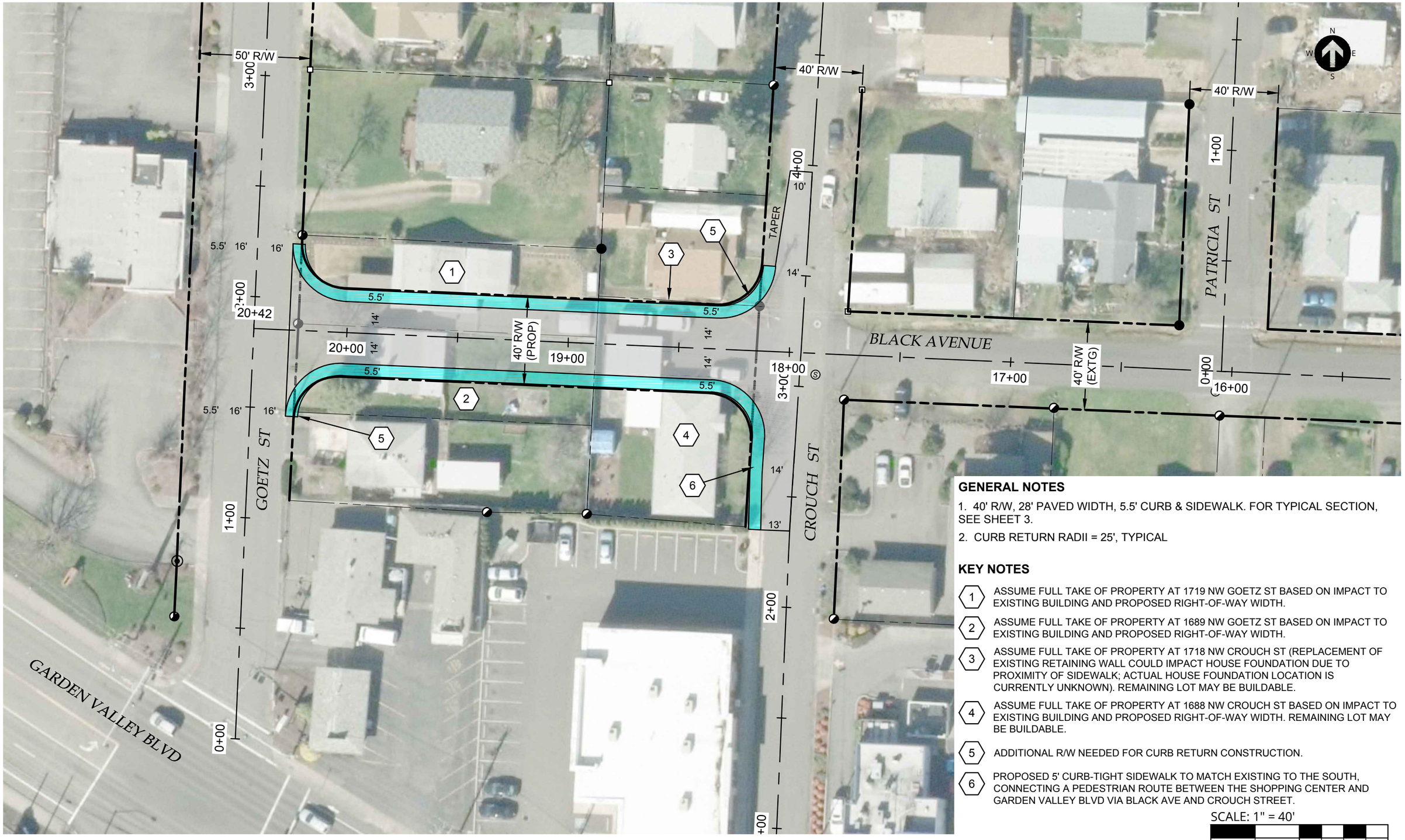

GENERAL NOTES

1. 40' R/W, 28' PAVED WIDTH, 5.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. CURB RETURN RADII = 25', TYPICAL

KEY NOTES

1. ASSUME FULL TAKE OF PROPERTY AT 1719 NW GOETZ ST BASED ON IMPACT TO EXISTING BUILDING AND PROPOSED RIGHT-OF-WAY WIDTH.
2. ASSUME FULL TAKE OF PROPERTY AT 1689 NW GOETZ ST BASED ON IMPACT TO EXISTING BUILDING AND PROPOSED RIGHT-OF-WAY WIDTH.
3. ASSUME FULL TAKE OF PROPERTY AT 1718 NW CROUCH ST (REPLACEMENT OF EXISTING RETAINING WALL COULD IMPACT HOUSE FOUNDATION DUE TO PROXIMITY OF SIDEWALK; ACTUAL HOUSE FOUNDATION LOCATION IS CURRENTLY UNKNOWN). REMAINING LOT MAY BE BUILDABLE.
4. ASSUME FULL TAKE OF PROPERTY AT 1688 NW CROUCH ST BASED ON IMPACT TO EXISTING BUILDING AND PROPOSED RIGHT-OF-WAY WIDTH. REMAINING LOT MAY BE BUILDABLE.
5. ADDITIONAL R/W NEEDED FOR CURB RETURN CONSTRUCTION.
6. PROPOSED 5' CURB-TIGHT SIDEWALK TO MATCH EXISTING TO THE SOUTH, CONNECTING A PEDESTRIAN ROUTE BETWEEN THE SHOPPING CENTER AND GARDEN VALLEY BLVD VIA BLACK AVE AND CROUCH STREET.

SCALE: 1" = 40'

0 40 80

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WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

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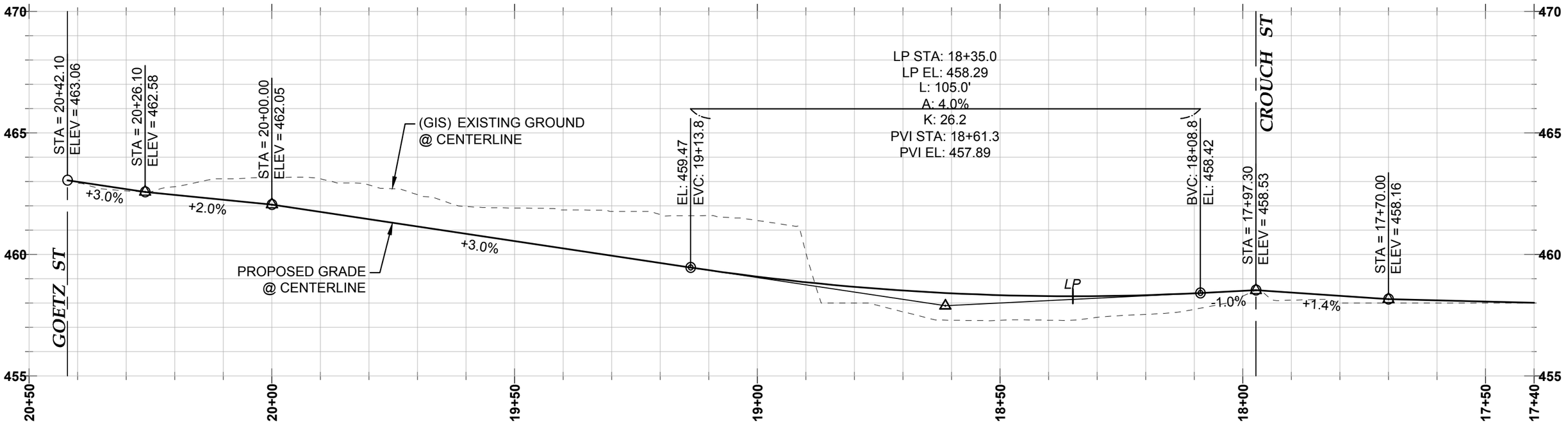
DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 3 - PLAN
CROUCH TO GOETZ

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR



BLACK AVENUE

1" = 20' HORIZONTAL
1" = 4' VERTICAL

SCALE: 1" = 20'

0 20 40

3J CONSULTING
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 3 - PROFILE
CROUCH TO GOETZ

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 16 OF 18

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KEY NOTES

1. MATCH EXISTING CURB, SIDEWALK, AND PAVED WIDTH.
2. PARKING AREA WILL BE REMOVED WITH SIDEWALK IMPROVEMENTS.
3. FULL CURB EXPOSURE WOULD RESULT IN LOSS OF PARKING STALLS. REGRADING MAY BE NEEDED TO AVOID DRAINAGE ISSUES IN ORDER TO RETAIN EXISTING PARKING.

GENERAL NOTES

1. 60' R/W, 34' PAVED WIDTH, 6.5' CURB & SIDEWALK. FOR TYPICAL SECTION, SEE SHEET 3.
2. CURB RETURN RADII = 25', TYPICAL
3. COUNTY TAX ASSESSORS MAPS SHOW 60' R/W WIDTH ALONG DOGWOOD.ADDITIONAL R/W RESEARCH REQUIRED TO CONFIRM R/W IMPACTS AND ACQUISITION NEEDS ON DOGWOOD SOUTH OF BLACK AVE.

SCALE: 1" = 60'

0 60 120

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WATER RESOURCES
LAND USE PLANNING
5075 SW GRIFFITH DRIVE, SUITE 150; BEAVERTON, OR 97005

DRAWING BY:	JEJ
PREPARED FOR:	CITY OF ROSEBURG
ISSUE DATE:	MARCH 23, 2017
ISSUE PURPOSE:	EXHIBIT USE ONLY

ALT. 4 - PLAN
DOGWOOD

BLACK AVENUE EXTENSION PROJECT
ROSEBURG, OR

SHEET 17 OF 18

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BLACK AVENUE EXTENSION

ALTERNATIVE ANALYSIS COST COMPARISON

ALT. 1

SECTION	*Client*		*COUNTY*
60' R/W - Black Ave (Shopping Center to Estelle)	*City of Roseburg*		*Douglas*
KIND OF WORK	***LENGTH***	***DATE***	***NAME***
Grading, Drainage, Paving, Signing, Striping, & Roadside Development	*400 Feet*	*3/27/2017*	*3J Consulting, Inc.*

ITEM	UNIT	QTY	UNIT PRICE	TOTAL	SECTION TOTALS
TEMPORARY FEATURES AND APPURTENANCES					*$ 49,600*
MOBILIZATION (10%)	LS	All	10%	$ 36,000	
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC (2%)	LS	All	3%	$ 10,400	
EROSION CONTROL	FOOT	400	$ 8	$ 3,200	
ROADWORK					*$ 76,000*
CONSTRUCTION SURVEY WORK (5%)	LS	All	5%	$ 16,000	
REMOVAL OF STRUCTURES AND OBSTRUCTIONS (5%)	LS	All	5%	$ 16,000	
EARTHWORK	FOOT	400	$ 110	$ 44,000	
DRAINAGE					*$ 103,450*
42 INCH STORM SEWER PIPE, 10 FT DEPTH	EACH	335	$ 230	$ 77,050	
- Includes removal of existing 42" storm pipe					
DRAINAGE	FOOT	400	$ 66	$ 26,400	
- Includes manole(s), catch basin(s), and storm pipe					
ROADWAY					*$ 158,000*
34' WIDE ROADWAY	FOOT	400	$ 395	$ 158,000	
- Includes 6" AC / 12" Agg Base, subgrade geotextile, 6" curb, 6' walk					
PERMANENT TRAFFIC CONTROL					*$ 800*
SIGNING AND STRIPING	FOOT	400	$ 2	$ 800	
RIGHT-OF-WAY DEVELOPMENT AND CONTROL					*$ 2,000*
LANDSCAPING	FOOT	400	$ 5	$ 2,000	
ADDITIONAL ITEMS					*$ 16,000*
HALF STREET CONNECTION TO SIDE STREETS	EACH	4	$ 4,000	$ 16,000	
UTILITY RELOCATIONS	FOOT		$ -	$ -	
SUBTOTAL					**$ 405,850**
CONTINGENCIES (40%)			40%		$ 162,340
TOTAL CONSTRUCTION COST, Less Right-of-Way					**$ 568,190**
RIGHT-OF-WAY ACQUISITIONS	FOOT	NA	$ 50		$ -
PUBLIC UTILITY EASEMENT	FOOT		$ -		$ -
TOTAL COST, Including Right-of-Way					**$ 568,190**
TOTAL COST, Including Right-of-Way (ROUNDED)					**$ 570,000**

General Notes and Assumptions:

- Quantities based on electronic CAD files by 3J Consulting, field visits, record drawings, aerial photography, & preliminary R/W survey Land Mark Surveying.
- Contractor to furnish all materials, labor, and equipment to complete the above construction schedule items.
- All unit prices assume in-place construction including all ancillary items required (ie. Backfill, fittings, shoring, etc).
- This estimate does not include costs associated with franchise utility service fees.
- This estimate does not include permitting, consulting, fees in lieu or testing fees that may be associated with this project.
- This estimate does not include street lighting/illumination.

BLACK AVENUE EXTENSION

ALTERNATIVE ANALYSIS COST COMPARISON

ALT. 2

SECTION	*Client*		*COUNTY*
40' R/W - Black Ave (Estelle to Crouch)	*City of Roseburg*		*Douglas*
KIND OF WORK	***LENGTH***	***DATE***	***NAME***
Grading, Drainage, Paving, Signing, Striping, & Roadside Development	*400 Feet*	*3/27/2017*	*3J Consulting, Inc.*

ITEM	UNIT	QTY	UNIT PRICE	TOTAL	SECTION TOTALS
TEMPORARY FEATURES AND APPURTENANCES					*$ 46,100*
MOBILIZATION (10%)	LS	All	10%	$ 33,000	
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC (2%)	LS	All	3%	$ 9,500	
EROSION CONTROL	FOOT	450	$ 8	$ 3,600	
ROADWORK					*$ 68,250*
CONSTRUCTION SURVEY WORK (5%)	LS	All	5%	$ 15,000	
REMOVAL OF STRUCTURES AND OBSTRUCTIONS (5%)	LS	All	5%	$ 15,000	
EARTHWORK	FOOT	450	$ 85	$ 38,250	
DRAINAGE					*$ 105,850*
42 INCH STORM SEWER PIPE, 10 FT DEPTH	EACH	335	$ 230	$ 77,050	
- Includes removal of existing 42" storm pipe					
DRAINAGE	FOOT	450	$ 64	$ 28,800	
- Includes manole(s), catch basin(s), and storm pipe					
ROADWAY					*$ 135,000*
34' WIDE ROADWAY	FOOT	450	$ 300	$ 135,000	
- Includes 6" AC / 12" Agg Base, subgrade geotextile, 6" curb, 6' walk					
PERMANENT TRAFFIC CONTROL					*$ 900*
SIGNING AND STRIPING	FOOT	450	$ 2	$ 900	
RIGHT-OF-WAY DEVELOPMENT AND CONTROL					*$ 2,250*
LANDSCAPING	FOOT	450	$ 5	$ 2,250	
ADDITIONAL ITEMS					*$ 28,000*
HALF STREET CONNECTION TO SIDE STREETS	EACH	7	$ 4,000	$ 28,000	
UTILITY RELOCATIONS	FOOT		$ -	$ -	
SUBTOTAL					**$ 386,350**
CONTINGENCIES (40%)			40%		$ 154,540
TOTAL CONSTRUCTION COST, Less Right-of-Way					**$ 540,890**
RIGHT-OF-WAY ACQUISITIONS	FOOT	20	$ 50		$ 1,000
PUBLIC UTILITY EASEMENT	FOOT		$ -		$ -
TOTAL COST, Including Right-of-Way					**$ 541,890**
TOTAL COST, Including Right-of-Way (ROUNDED)					**$ 550,000**

General Notes and Assumptions:

- Quantities based on electronic CAD files by 3J Consulting, field visits, record drawings, aerial photography, & preliminary R/W survey Land Mark Surveying.
- Contractor to furnish all materials, labor, and equipment to complete the above construction schedule items.
- All unit prices assume in-place construction including all ancillary items required (ie. Backfill, fittings, shoring, etc).
- This estimate does not include costs associated with franchise utility service fees.
- This estimate does not include permitting, consulting, fees in lieu or testing fees that may be associated with this project.
- This estimate does not include street lighting/illumination.

BLACK AVENUE EXTENSION

ALTERNATIVE ANALYSIS COST COMPARISON

ALT. 3

SECTION	*Client*		*COUNTY*
40' R/W - Black Ave (Crouch to Goetz)	*City of Roseburg*		*Douglas*
KIND OF WORK	***LENGTH***	***DATE***	***NAME***
Grading, Drainage, Paving, Signing, Striping, & Roadside Development	*230 Feet*	*3/27/2017*	*3J Consulting, Inc.*

ITEM	UNIT	QTY	UNIT PRICE	TOTAL	SECTION TOTALS
TEMPORARY FEATURES AND APPURTENANCES					*$ 22,540*
MOBILIZATION (10%)	LS	All	10%	$ 16,000	
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC (2%)	LS	All	3%	$ 4,500	
EROSION CONTROL	FOOT	255	$ 8	$ 2,040	
ROADWORK					*$ 57,350*
CONSTRUCTION SURVEY WORK (5%)	LS	All	5%	$ 7,000	
REMOVAL OF STRUCTURES AND OBSTRUCTIONS (5%)	LS	All	5%	$ 7,000	
EARTHWORK	FOOT	255	$ 170	$ 43,350	
DRAINAGE					*$ 11,730*
42 INCH STORM SEWER PIPE, 10 FT DEPTH	EACH	-	$ 230	$ -	
- Includes removal of existing 42" storm pipe					
DRAINAGE	FOOT	255	$ 46	$ 11,730	
- Includes manole(s), catch basin(s), and storm pipe					
ROADWAY					*$ 76,500*
28' WIDE ROADWAY	FOOT	255	$ 300	$ 76,500	
- Includes 6" AC / 12" Agg Base, subgrade geotextile, 6" curb, 6' walk					
PERMANENT TRAFFIC CONTROL					*$ 510*
SIGNING AND STRIPING	FOOT	255	$ 2	$ 510	
RIGHT-OF-WAY DEVELOPMENT AND CONTROL					*$ 1,530*
LANDSCAPING	FOOT	255	$ 6	$ 1,530	
ADDITIONAL ITEMS					*$ 4,000*
HALF STREET CONNECTION TO SIDE STREETS	EACH	1	$ 4,000	$ 4,000	
UTILITY RELOCATIONS	FOOT		$ -	$ -	
SUBTOTAL					**$ 174,160**
CONTINGENCIES (40%)			40%		$ 69,664
TOTAL CONSTRUCTION COST, Less Right-of-Way					**$ 243,824**
RIGHT-OF-WAY ACQUISITIONS	LS	All	$ 1,000,000		$ 1,000,000
PUBLIC UTILITY EASEMENT	FOOT		$ -		$ -
TOTAL COST, Including Right-of-Way					**$ 1,243,824**
TOTAL COST, Including Right-of-Way (ROUNDED)					**$ 1,250,000**

General Notes and Assumptions:

- Quantities based on electronic CAD files by 3J Consulting, field visits, record drawings, aerial photography, & preliminary R/W survey Land Mark Surveying.
- Contractor to furnish all materials, labor, and equipment to complete the above construction schedule items.
- All unit prices assume in-place construction including all ancillary items required (ie. Backfill, fittings, shoring, etc).
- This estimate does not include costs associated with franchise utility service fees.
- This estimate does not include permitting, consulting, fees in lieu or testing fees that may be associated with this project.
- This estimate does not include street lighting/illumination.

BLACK AVENUE EXTENSION

ALTERNATIVE ANALYSIS COST COMPARISON

ALT. 4

SECTION	*Client*		*COUNTY*
60' R/W - Dogwood Street (Garden Valley Blvd to Black Ave)	*City of Roseburg*		*Douglas*
KIND OF WORK	***LENGTH***	***DATE***	***NAME***
Grading, Drainage, Paving, Signing, Striping, & Roadside Development	*490 Feet*	*3/27/2017*	*3J Consulting, Inc.*

ITEM	UNIT	QTY	UNIT PRICE	TOTAL	SECTION TOTALS
TEMPORARY FEATURES AND APPURTENANCES					*$ 49,020*
MOBILIZATION (10%)	LS	All	10%	$ 35,000	
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC (2%)	LS	All	3%	$ 10,100	
EROSION CONTROL	FOOT	490	$ 8	$ 3,920	
ROADWORK					*$ 83,900*
CONSTRUCTION SURVEY WORK (5%)	LS	All	5%	$ 15,000	
REMOVAL OF STRUCTURES AND OBSTRUCTIONS (5%)	LS	All	5%	$ 15,000	
EARTHWORK	FOOT	490	$ 110	$ 53,900	
DRAINAGE					*$ 49,000*
42 INCH STORM SEWER PIPE, 10 FT DEPTH	EACH	-	$ 230	$ -	
- Includes removal of existing 42" storm pipe					
DRAINAGE	FOOT	490	$ 100	$ 49,000	
- Includes manole(s), catch basin(s), and storm pipe					
ROADWAY					*$ 193,550*
34' WIDE ROADWAY	FOOT	490	$ 395	$ 193,550	
- Includes 6" AC / 12" Agg Base, subgrade geotextile, 6" curb, 6' walk					
PERMANENT TRAFFIC CONTROL					*$ 980*
SIGNING AND STRIPING	FOOT	490	$ 2	$ 980	
RIGHT-OF-WAY DEVELOPMENT AND CONTROL					*$ 2,450*
LANDSCAPING	FOOT	490	$ 5	$ 2,450	
ADDITIONAL ITEMS					*$ -*
HALF STREET CONNECTION TO SIDE STREETS	EACH	-	$ 4,000	$ -	
UTILITY RELOCATIONS	FOOT		$ -	$ -	
SUBTOTAL					**$ 378,900**
CONTINGENCIES (40%)			40%		$ 151,560
TOTAL CONSTRUCTION COST, Less Right-of-Way					**$ 530,460**
RIGHT-OF-WAY ACQUISITIONS	FOOT	NA	$ 50		$ -
PUBLIC UTILITY EASEMENT	FOOT		$ -		$ -
TOTAL COST, Including Right-of-Way					**$ 530,460**
TOTAL COST, Including Right-of-Way (ROUNDED)					**$ 540,000**

General Notes and Assumptions:

- Quantities based on electronic CAD files by 3J Consulting, field visits, record drawings, aerial photography, & preliminary R/W survey Land Mark Surveying.
- Contractor to furnish all materials, labor, and equipment to complete the above construction schedule items.
- All unit prices assume in-place construction including all ancillary items required (ie. Backfill, fittings, shoring, etc).
- This estimate does not include costs associated with franchise utility service fees.
- This estimate does not include permitting, consulting, fees in lieu or testing fees that may be associated with this project.
- This estimate does not include street lighting/illumination.