



EXPIRES: 12/31/2021

## MEMORANDUM

Date: December 18, 2020

Project #: 24369

To: Jamie Fleckenstein, PLA, & Heather Richards, PCED, City of McMinnville  
Dorothy Upton, PE, Keith Blair, PE, Dan Fricke, & Michael Duncan, ODOT Region 2

Cc: Michael Strahs, Kimco Realty & Alan Roodhouse, RPS Development Company

From: Kristine Connolly, PE, Marc Butorac, PE, PTOE, PMP & Alec Kauffman

Project: Three Mile Lane Rezone

Subject: Transportation Impact Analysis

Kimco McMinnville, LLC (Kimco) is proposing a rezone of approximately 33.5 acres of vacant land in McMinnville, Oregon. The proposed site is located on the southwest corner of OR-18 (Salmon River Highway) and NE Cumulus Avenue. The site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial). The site location and overall site vicinity are shown in Exhibit 1. This transportation impact analysis (TIA) report documents the transportation impacts associated with the rezone and a near-term reasonable worst-case development scenario under the proposed rezone. The TIA is intended to address City of McMinnville and Oregon Department of Transportation (ODOT) review criteria and evaluate compliance with the Transportation Planning Rule (TPR). The results of this study indicate that the proposed rezone can be approved assuming implementation of the identified mitigation measures that result in no significant impacts under Oregon Administrative Rule (OAR) 660-012-0060.

### Exhibit 1. Site Vicinity and Proposed Study Intersections



## SUMMARY OF FINDINGS

### Year 2020 Existing Conditions

- Two of the nine study intersections were found to exceed the applicable review agency mobility targets:
  - NE Three Mile Lane/NE 1<sup>st</sup> Street
  - OR-18/SE Cruickshank Road
- The recent five-year crash history of one study intersection exceeds statewide 90<sup>th</sup> percentile crash rates:
  - OR-18/SE Cruickshank Road: This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%) over the five-year review period, and approximately 70% of the reported crashes involved a vehicle making a northbound left-turn movement. This suggests a need to potentially restrict left-turns from SE Cruickshank Road onto OR-18 due to the insufficient number gaps in eastbound traffic.

### Year 2022 Background Conditions

- The two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

### Proposed Development Plan

- The 33.5-acre site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial).
- Table 1 provides the trip generation estimates under the existing and proposed zoning:

**Table 1. Trip Generation Potential Comparison – 33.5-acre Zone Change**

Land Use	ITE Code	Size	Daily Trips	PM Peak Hour		
				Total	In	Out
<b>Existing M-2 General Industrial Zone Reasonable Worst-Case Development Scenario</b>						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
<b>Net New Trips</b>			<b>6,050</b>	<b>535</b>	<b>138</b>	<b>397</b>
<b>Proposed C-3 General Commercial Zone Reasonable Worst-Case Development Scenario</b>						
Shopping Center (33.5 acres at 25%) <i>Less Pass-by Trips (34%)</i>	820	364,815 SF	14,496 <i>(4,929)</i>	1,416 <i>(480)</i>	680 <i>(240)</i>	736 <i>(240)</i>
<b>Net New Trips</b>			<b>9,567</b>	<b>936</b>	<b>440</b>	<b>496</b>
<b>Difference = Proposed – Existing</b>			<b>3,517</b>	<b>401</b>	<b>302</b>	<b>99</b>

## Year 2022 Total Conditions

- The two study intersections that do not satisfy applicable review agency mobility targets under 2022 background conditions experience additional delay with site development.
- Three additional intersections do not satisfy applicable mobility targets with the addition of site-generated trips:
  - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - OR-18/SE Norton Lane
  - OR-18/NE Cumulus Avenue

## Year 2037 Background Conditions (Without Proposed Zone Change)

- Assuming the recommendations to mitigate 2022 site impacts are in place, six of the nine study intersections were found to exceed the applicable review agency mobility targets in the planning horizon year 2037, which was selected to represent fifteen years after opening per guidance in the Oregon Highway Plan (OHP, Reference 1):
  - NE 3<sup>rd</sup> Street/NE Johnson Street
  - NE Three Mile Lane/NE 1<sup>st</sup> Street
  - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - OR-18/SE Norton Lane
  - OR-18/NE Cumulus Avenue
  - OR-18/SE Loop Road

## Year 2037 Total Conditions (With Proposed Zone Change)

- The six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with site development, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

## RECOMMENDATIONS

The following mitigation measures are recommended for implementation in conjunction with the proposed development and to address impacts of the proposed zone change:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Install a traffic signal and restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an improved connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
  - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
  - Modify the existing traffic signal and construct a 275-foot exclusive eastbound right-turn lane and 500-foot northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements. Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.
- OR-18/SE Loop Road
  - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway.
- OR-18/SE Cruickshank Road
  - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via the OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange.

The proposed rezone can be approved without creating significant impacts per OAR 660-012-0060 assuming these mitigation measures are implemented.



Regardless of the proposed rezone and subsequent development, the following intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations:

- NE 3<sup>rd</sup> Street/NE Johnson Street
- NE Three Mile Lane/NE 1<sup>st</sup> Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Additional details of the study methodology, findings and recommendations are provided in the remaining sections of this report.

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## STUDY SCOPE & ANALYSIS METHODOLOGY

This section provides an overview of the TIA study scope, study intersections, traffic analysis time periods and scenarios, analysis methodology and applicable review agency mobility targets.

### Study Scope

This study identifies the transportation-related impacts associated with the proposed rezone and was prepared in accordance with the City of McMinnville and Oregon Department of Transportation (ODOT) requirements. Details of the TIA assumptions and methodology are documented herein and reflect the outcome of the preliminary scoping meeting held with agency staff on March 19, 2020, and agency feedback on the preliminary scoping letter dated April 23, 2020.

### Study Intersections

The study intersections are listed below and are identified by a numerical identification corresponding with the analysis figures in this report. Exhibit 1 illustrates the study intersection locations.

1. NE Three Mile Lane/NE 1<sup>st</sup> Street
2. NE 3<sup>rd</sup> Street/NE Johnson Street
3. NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
4. SE Norton Lane/NE Cumulus Avenue
5. OR-18/SE Norton Lane
6. OR-18/NE Cumulus Avenue
7. OR-18/SE Armory Way
8. OR-18/SE Loop Road
9. OR-18/SE Cruickshank Road

### Traffic Analysis Time Periods and Scenarios

Based on historical traffic data, the weekday PM peak time period represents both the peak travel times along OR-18 and peak weekday commercial site traffic. Therefore, intersection operations were evaluated during the weekday afternoon peak hour occurring between 3:00 – 6:00 PM.

This report evaluates the following transportation scenarios:

- 2020 Existing traffic conditions;
- Forecast year 2022 background traffic conditions, without development of the subject site;
- Forecast year 2022 total traffic conditions with reasonable worst-case development of the subject site under the proposed commercial zoning;
- Horizon year 2037 background traffic conditions with development of the subject site under the existing industrial zoning; and,

- Horizon year 2037 total traffic conditions with reasonable worst-case development of the subject site under the proposed commercial zoning.

Year 2037 was selected as the planning horizon per guidance in the OHP (Reference 1), which states that the planning horizon shall be “the greater of 15 years or the planning horizon of the applicable local and regional transportation system plans for amendments to transportation plans, comprehensive plans or land use regulations.” The planning horizon of McMinnville’s currently adopted Transportation System Plan (TSP, Reference 3) is 2023.

## Analysis Methodology

All intersection capacity analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual, 6<sup>th</sup> Edition* (HCM, Reference 4) using PTV Vistro 2020 software in accordance with analysis guidance provided in the ODOT Analysis Procedures Manual (APM, Reference 5). Intersection V/C is the operational performance measures reported in this study. In Vistro, the shared lane volume-to-capacity (V/C) ratio is the sum of the reported V/C for each movement in the shared lane at unsignalized intersections. Overall intersection V/C is reported for signalized intersections.

To ensure that the analyses were based on a reasonable worst-case scenario, peak 15-minute flow rates were used in the evaluation of all intersection levels of service. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour.

Queueing analyses presented in this report reflect 95<sup>th</sup> percentile queues and were obtained from PTV Vistro 2020 software.

## Performance Measures & Operating Standards

Study intersection operating standards adopted by the respective transportation review authorities for the facilities they operate and maintain are summarized below.

### ***City of McMinnville Operating Standards***

Four study intersections are within City of McMinnville jurisdiction (Intersections #1 through #4). According to the City’s TSP (Reference 3), a v/c ratio of 0.90 is the acceptable operating standard for these intersections.

### ***ODOT Mobility Targets***

The 1999 Oregon Highway Plan (OHP, Reference 1) defines ODOT v/c ratio mobility targets based on facility type. Mobility targets vary for intersections along OR-18 (Intersections #5 through #9).

**Summary of Applicable Agency Operating Standards**

Table 2 summarizes the operation standards and jurisdiction administering each study intersection.

**Table 2. Study Intersection Mobility Targets**

	Study Intersection	Traffic Control	Jurisdiction	Mobility Target (V/C) <sup>1</sup>
1	NE 3rd Street/NE Johnson Street	Signalized	City of McMinnville	0.90
2	NE Three Mile Lane/NE 1st Street	Two Way Stop Control	City of McMinnville	0.90
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	Two Way Stop Control	City of McMinnville	0.90
4	SE Norton Lane/NE Cumulus Avenue	Two Way Stop Control	City of McMinnville	0.90
5	OR-18/SE Norton Lane	Signalized	ODOT	0.80
6	OR-18/NE Cumulus Avenue	Signalized	ODOT	0.80
7	OR-18/SE Armory Way	Two Way Stop Control	ODOT	major approaches = 0.80 minor approaches = 0.95
8	OR-18/SE Loop Road	Two Way Stop Control	ODOT	major approaches = 0.80 minor approaches = 0.90
9	OR-18/SE Cruickshank Road	Two Way Stop Control	ODOT	major approaches = 0.70 minor approaches = 0.75

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

## EXISTING CONDITIONS

The existing conditions analysis identifies field conditions and the current operational, traffic control, and geometric characteristics of the roadways and other transportation facilities within the study area.

### Site Conditions and Adjacent Land Uses

The proposed site is currently vacant and zoned for industrial use. The land uses in the vicinity of the site include Evergreen Aviation and McMinnville Municipal Airport to the east, vacant industrial land immediately west, and a mix of industrial, commercial and residential land uses to the north, including the Evergreen Aviation and Space Museum.

### Transportation Facilities

Table 3 summarizes roadways in the site vicinity that will be assessed as part of the TIA.

**Table 3. Existing Transportation Facilities**

Street	Functional Classification <sup>1</sup>	Jurisdictional Authority	Motor Vehicle Travel Lanes	Posted Speed (mph)	Sidewalks	Striped Bicycle Lanes	On-Street Parking
OR-18	Urban Statewide Expressway (Freight Route) (ODOT) Major Arterial and State Highway (McMinnville)	ODOT	4-5	45-55	No	No	No
NE Three Mile Lane/NE 3 <sup>rd</sup> Street	Major Collector	City of McMinnville	2-3	20-40	Yes	Partial <sup>2</sup>	No
NE Johnson Street	Minor Arterial	City of McMinnville	2-3	25	Yes	Yes	No
NE 1st Street	Minor Collector	City of McMinnville	2	25	Partial <sup>3</sup>	No	No
SE Nehemiah Lane	Local Street	City of McMinnville	2	35	Partial <sup>4</sup>	No	No
NE Cumulus Avenue	Minor Collector (North) Major Collector (South)	City of McMinnville	2	35	Partial <sup>5</sup>	No	No
SE Norton Lane	Minor Collector	City of McMinnville	2-3	NP	Partial <sup>6</sup>	No	No
SE Armory Way	Minor Collector	City of McMinnville	2	25	No	No	No
SE Loop Road	N/A	City of McMinnville	2	35	No	No	No
SE Cruickshank Road	N/A	City of McMinnville	2	NP	No	No	No

NP = Not Posted

<sup>1</sup>Per Oregon Highway Plan (OHP, Reference 1) and *City of McMinnville Transportation System Plan*, Exhibit 2-3 (Reference 3).

<sup>2</sup>There is a striped bicycle lane on both side from Johnson Street to 1<sup>st</sup> Street.

<sup>3</sup>There are sidewalks on the north side of 1<sup>st</sup> Street west Three Mile Lane.

<sup>4</sup>There are sidewalks on the north side of Nehemiah west of the intersection of Nehemiah Lane and Three Mile Lane.

<sup>5</sup>There are sidewalks on the north side of Cumulus (north) west of Norton Lane and on the west side of Cumulus north of OR-18.

<sup>6</sup>There are sidewalks on the east side of Norton north of OR-18, and on both sides of Norton south of OR-18.

### Transit Facilities

Weekday bus service is currently provided by the Yamhill County Transit Area (YCTA) “East-West” Loops along Three Mile Lane between Norton Lane and west side of McMinnville at approximately 60-minute headways between 7:00 AM to 6:00 PM. Weekday headways are approximately 60 minutes.

### Intersection Crash History

Reported crash history for each study intersection was reviewed in an effort to identify potential safety issues. ODOT provided crash records for the five-year period from January 1, 2013 through December 31, 2017. Table 4 summarizes the crash data. Appendix A contains the ODOT crash data. No crashes were reported at OR-18/SE Armory Way (Intersection #7).

**Table 4. Intersection Crash History (January 1, 2013 through December 31, 2017)**

Intersection	Collision Type					Severity			Total Crashes
	Rear End	Turning	Angle	Bike /Ped	Other	PDO <sup>1</sup>	Injury	Fatal	
1 NE 3rd Street/NE Johnson Street	8	4	3	0	1	9	7	0	16
2 NE Three Mile Lane/NE 1st Street	1	1	1	0	0	0	0	0	3
3 NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	4	0	3	0	1	5	3	0	8
4 SE Norton Lane/NE Cumulus Avenue	1	0	0	0	1	1	1	0	2
5 OR-18/SE Norton Lane	12	2	3	1	1	7	12	0	19
6 OR-18/NE Cumulus Avenue	0	2	0	0	0	0	2	0	2
7 OR-18/SE Armory Way	0	0	0	0	0	0	0	0	0
8 OR-18/SE Loop Road	0	0	1	0	0	0	1	0	1
9 OR-18/SE Cruickshank Road	3	2	33	0	4	14	28	0	42

<sup>1</sup>PDO = Property Damage Only

ODOT provides an annual list of safety priority index system (SPIS) locations which are based on reported crash data. The intent of the SPIS list is to identify roadway segments exhibiting an unusually high occurrence of crashes and is used to select locations for investigation. Review of the SPIS list determined that the section of OR-18 near Loop Road and Cruickshank Road is within the top fifteen percent of intersections.

Crash rates were calculated for each of the study intersections following the analysis methodology presented in Exhibit 4-1 of the ODOT Analysis Procedures Manual, Version 2 (APM, Reference 5). The APM provides 90<sup>th</sup> percentile intersection crash rates at a variety of intersection configurations in Oregon based on the number of approaches and traffic control types. Table 5 below shows the comparison of

the five-year crash history with the 90<sup>th</sup> percentile intersection crash rates from the APM. Crash rates are reported per million entering vehicles.

**Table 5. Intersection Crash Rate Assessment**

	Location	Total Crashes	90 <sup>th</sup> Percentile Intersection Crash Rate	Observed Crash Rate at Intersection	Observed>90 <sup>th</sup> Percentile Crash Rate?
1	NE 3rd Street/NE Johnson Street	16	0.860	0.51	No
2	NE Three Mile Lane/NE 1st Street	3	0.408	0.08	No
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	8	0.408	0.23	No
4	SE Norton Lane/NE Cumulus Avenue	2	0.408	0.18	No
5	OR-18/SE Norton Lane	19	0.860	0.35	No
6	OR-18/NE Cumulus Avenue	2	0.860	0.04	No
7	OR-18/SE Armory Way	0	0.293	0.00	No
8	OR-18/SE Loop Road	1	0.293	0.02	No
9	OR-18/SE Cruickshank Road	42	0.293	1.03	Yes

As shown in Table 5 and the ODOT SPIS list, the intersection of OR-18/Cruickshank Road exceeds statewide 90<sup>th</sup> percentile crash rates and is in the top fifteen percent of intersections on the SPIS list. This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%). Upon further review, it was found that a high proportion of the crashes reported at this intersection (approximately 70%) involved a vehicle making a northbound left-turn movement. This suggests a need to restrict the northbound left-turns from SE Cruickshank Road onto OR-18 as identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2).

**Existing Traffic Volumes**

Given the impacted traffic patterns due to the current COVID-19 pandemic and State of Oregon stay at home order, new traffic counts were not collected for this analysis. Rather, historical and detector data was used. Weekday PM peak hour intersection turning movement counts were collected in 2012 for Intersection #3, and ODOT provided 2018 turning movement counts for intersections #2 and #4 through #9 as well as February 2020 signal detector counts at intersection #1. These traffic counts are included in Appendix B.

A 1.3% linear annual growth rate was applied to the 2018 traffic counts and a 1.5% linear annual growth rate was applied to the 2012 traffic counts to estimate year 2020 existing traffic volumes. This rate was calculated based on the average historical traffic volumes recorded at ODOTs Automatic Traffic Recorder (ATR) 36-006 located southwest of the City of McMinnville on Highway 18 and ATR 36-004 located northeast of the City of McMinnville in Newberg on Highway 99W.

A seasonal adjustment factor was calculated and applied to the 2020 traffic volumes to reflect 30<sup>th</sup> highest hour conditions, per the APM (Reference 5) using the same ATRs as noted above. This seasonal adjustment factor calculation is included in Appendix C.

## Existing Traffic Operations

Existing intersection capacity was assessed using the previously described analysis methodology and compared to the respective agency operating standards. Existing lane configurations and traffic control devices at the study intersections are included in Appendix C.

Table 6 summarizes the existing 2020 traffic operations for the weekday PM peak hour. Appendix C includes the existing conditions intersection operations analysis worksheets.

**Table 6. Estimated 2020 Existing Traffic Operations for Weekday PM Peak Hour**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.70
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	<b>0.98</b>
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.74
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.21
5	OR-18/SE Norton Lane	0.80	-	0.68
6	OR-18/NE Cumulus Avenue	0.80	-	0.54
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.12
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.27
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	<b>1.09</b>

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 6, all but two study intersections were found to operate acceptably under 2020 existing conditions. The following intersections exceed the applicable performance requirement:

- NE Three Mile Lane/NE 1st Street
  - This intersection (#2) does not satisfy the City of McMinnville’s standard of a V/C ratio ≤ 0.90. Over-capacity conditions on the eastbound approach are related to the high southbound through volume on Three Mile Lane.
- OR-18/SE Cruickshank Road
  - This intersection (#9) does not satisfy ODOT’s mobility target of a V/C ratio ≤ 0.75 on the SE Cruickshank Road approach. As stated previously, the crash history at this intersection shows a high proportion of angle crashes associated with the northbound left-turn movement, which likely reflects an inefficient number of available gaps in eastbound OR-18 traffic.



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## TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the future with and without development of the site under the proposed zone change.

### Year 2022 Background Traffic Volumes and Conditions

Future traffic volumes were derived by applying a 2.2% annual background growth rate to the 2020 existing traffic volumes. This annual growth factor was derived from previous studies of the area surrounding the site and the City's EMME 2 model used for the City's TSP, and should thus reflect growth associated with the land use assumptions in the TSP. In addition, the City of McMinnville provided information regarding three recently completed land use actions in the vicinity of the study area. These are generally consistent with existing zoning, and therefore should be included in the 2.2% growth rate associated with the land use assumptions in the TSP.

The City's Transportation System Plan (TSP) calls for two future new interchanges at OR-18/NE Three Mile Lane and OR-18/NE Cumulus Avenue as part of the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2). These two new interchanges are intended to replace the overpass at OR-18/NE Three Mile Lane and signal at OR-18/NE Cumulus Avenue in anticipation of traffic growth. The TSP also identifies a future traffic signal at the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection. These improvements are not funded at this time and conversations with City and ODOT staff have indicated that the identified improvements cannot be relied upon to receive funding within the timeframe of this TIA.

### Year 2022 Background Traffic Operations

Table 7 summarizes the 2022 background traffic conditions for the weekday PM peak hour. Appendix D includes the 2022 background conditions intersection operations analysis worksheets.

As shown in Table 7, the two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

**Table 7. Estimated 2022 Background Traffic Operations for Weekday PM Peak Hour**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.73
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	<b>1.08</b>
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.84
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.22
5	OR-18/SE Norton Lane	0.80	-	0.70
6	OR-18/NE Cumulus Avenue	0.80	-	0.56
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.13
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.32
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	<b>1.20</b>

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

## Year 2022 Background Traffic Mitigations

The following mitigation measures are recommended to address the impacts of anticipated background growth:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Install a traffic signal. Preliminary ODOT traffic signal warrants are met assuming up to a 77% reduction in right-turn volumes in the shared eastbound left-through-right lane. At this location on the urban Three Mile Lane corridor, an 85% reduction (which is typically used by ODOT) is unreasonable given the unique nature of the high southbound through volumes with limited gaps for vehicles turning from the minor approaches.
- OR-18/SE Cruickshank Road
  - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange. Exhibit 2 illustrates these alternatives.

**Exhibit 2. Reroute of Northbound Left-Turns at OR-18/SE Cruickshank Road**

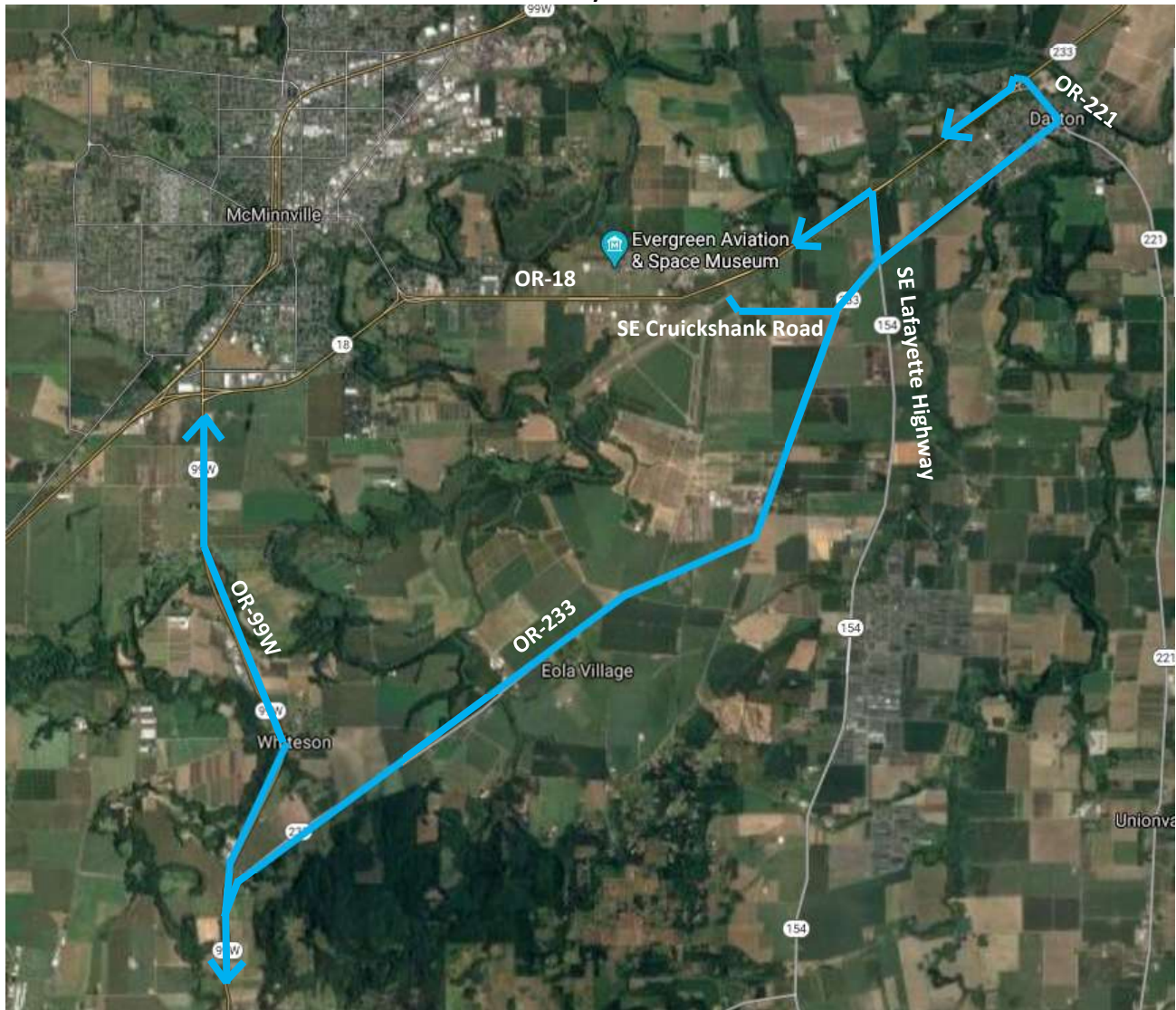


Table 8 summarizes the 2022 background traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix E includes the 2022 background conditions intersection operations analysis worksheets with mitigation.

As shown in Table 8, all study intersections were found to operate acceptably under 2022 background conditions with the identified mitigation.

**Table 8. Estimated 2022 Background Traffic Operations for Weekday PM Peak Hour with Mitigation**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.73
2	NE Three Mile Lane/NE 1st Street	0.90	-	0.85
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.84
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.22
5	OR-18/SE Norton Lane	0.80	-	0.70
6	OR-18/NE Cumulus Avenue	0.80	-	0.56
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.13
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.32
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.04

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

## Trip Generation and Assignment

To provide a conservative analysis, this report assumes a reasonable worst case for the existing and proposed zoning in accordance with the City of McMinnville zoning code. Based on the allowable land uses in the code, it was determined that the reasonable worst-case scenario under the existing M-2 (General Industrial) zoning would consist of the following land uses:

- Based on the site’s close proximity to the Willamette Valley Medical Center, 10 out of the 33.5 acres is assumed to be medical office with a floor area ratio (FAR) of approximately 0.25, for a total floor area of approximately 108,900 square feet.
- The remaining 23.5 acres is assumed to be industrial park with a FAR of approximately 0.40, for a total floor area of approximately 409,464 square feet.

The reasonable worst-case scenario under the proposed C-3 (General Commercial) zoning was calculated assuming a retail development with a FAR of approximately 0.25 over the entire site area of 33.5 acres, for a total floor area of approximately 364,815 square feet.

Trip generation estimates for both scenarios were developed using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition* (Reference 6). The trip generation estimates were adjusted to reflect pass-by trips, or vehicle trips to the site already traveling along OR-18. Pass-by trips to don’t change the traffic conditions on the overall system, but do change the turning movements at the OR-18/NE Cumulus Avenue intersection. Table 9 compares the trip generation estimates under the existing and proposed zoning for the weekday PM peak hour.

**Table 9. Trip Generation Potential Comparison – 33.5-acre Zone Change – Weekday PM Peak Hour**

Land Use	ITE Code	Size	Daily Trips	Total	In	Out
<b>Existing M-2 General Industrial Zone Reasonable Worst Case Development Scenario</b>						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
<b>Net New Trips</b>			6,050	535	138	397
<b>Proposed C-3 General Commercial Zone Reasonable Worst Case Development Scenario</b>						
Shopping Center (33.5 acres at 25%)	820	364,815 SF	14,496	1,416	680	736
<i>Less Pass-by Trips (34%)</i>			<i>(4,929)</i>	<i>(480)</i>	<i>(240)</i>	<i>(240)</i>
<b>Net New Trips</b>			9,567	936	440	496
<b>Difference = Proposed - Existing</b>			<b>3,517</b>	<b>401</b>	<b>302</b>	<b>99</b>

As shown in Table 9, the proposed zone change would increase the trip generation potential of the site compared to the existing industrial zoning by 401 trips during the weekday PM peak hour. These new trips were assigned to the study area roadway system based on existing traffic patterns and forecast market data for the proposed development, also maintaining consistency with the scope of study for the site approved by both agencies in 2012. The site will serve local areas such as McMinnville, Dayton, and as far reaching as Newberg and in addition will also provide services to reach currently underserved locations in the Willamette Valley, and along the central northern Oregon coast. The traffic generated by the proposed development is expected to follow this trip distribution pattern:

- 35 percent to the west on OR-18 (serving southern McMinnville, the parts of the central Willamette Valley and the northern Oregon coast);
- 35 percent to the north on Three-Mile Lane (serving downtown and the majority of McMinnville); and
- 30 percent to the east via OR-18 (serving Dayton, outlying areas, and portions of Newberg).

Within the City of McMinnville, it is expected that the commercial uses under the rezoning will result in a re-allocation of trips to/from and within the downtown area. For example, many trips originating from the residential areas along OR-18 and regionally that currently travel to the downtown area today will alter their trips to visit the new commercial businesses and thus reduce trips entering the downtown areas. Conversely, a proportion of the trips already occurring in the downtown areas (e.g., trips from the residential areas to the west of OR-99W that travel to downtown and the southwest commercial areas by the college) may travel to the new commercial area creating new trips on OR-18. The proposed development and type of land uses will also result in capturing more regional trips (e.g., residents in McMinnville that currently travel to Salem or the greater Portland area to shop) that originate in McMinnville and keeping them local. These trips will be shorter in nature and will still travel within the downtown area, but won't represent new trips within that area.

With that in mind, the origins and destinations of commercial trips within McMinnville were assessed to estimate the expected re-routing of some trips at study intersections within the City of McMinnville (Intersections #1 through #3). The details of this analysis assessing the cumulative impacts of new and

re-routed trips within McMinnville are provided in Appendix F. The weekday PM peak hour site-generated trip assignment under the proposed zoning is also included in Appendix F.

### Year 2022 Total Traffic Operations

The total traffic conditions analysis forecasts the operation of the study area’s transportation system with the inclusion of traffic generated by site under the proposed commercial zoning. Total traffic conditions were determined by adding the estimated site-generated trips to the year 2022 background traffic volumes for the weekday PM peak hour.

Table 10 summarizes the 2022 total traffic operations for the weekday PM peak hour. Appendix F includes the 2022 total conditions intersection operations analysis worksheets.

**Table 10. Estimated 2022 Total Traffic Operations for Weekday PM Peak Hour**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.74
2	NE Three Mile Lane/NE 1st Street	0.90	EBR	<b>1.16</b>
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	<b>0.98</b>
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.23
5	OR-18/SE Norton Lane	0.80	-	<b>0.82</b>
6	OR-18/NE Cumulus Avenue	0.80	-	<b>1.21</b>
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.18
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.45
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	<b>1.53</b>

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 10, the two study intersections that do not satisfy applicable mobility targets under existing or 2022 background traffic conditions experience additional delay with site development. In addition, three other intersections do not satisfy applicable mobility targets with the addition of site-generated trips:

- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - The minor street approaches at this intersection (#3) do not satisfy the City of McMinnville’s standard of a V/C ratio ≤ 0.90. Over-capacity conditions on the minor approaches are related to the high through volumes on OR-18.
- OR-18/SE Norton Lane

- This intersection (#5) does not satisfy ODOT's mobility target of a V/C ratio  $\leq 0.80$ . The overall intersection capacity is reduced below the mobility target due to increased eastbound and westbound traffic through the intersection associated with site development.
- OR-18/NE Cumulus Avenue
  - This intersection (#6) does not satisfy ODOT's mobility target of a V/C ratio  $\leq 0.80$ . Additional turn lanes are needed to accommodate site-related traffic at this intersection.

## Year 2022 Total Traffic Mitigations

The following mitigation measures are recommended for implementation in conjunction with the proposed development:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Consistent with 2022 background conditions, install a traffic signal.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an enhanced connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
  - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
  - Modify the existing traffic signal and construct an exclusive eastbound right-turn lane and northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/SE Cruickshank Road
  - Consistent with 2022 background conditions and historical crash trends at the intersection, restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange (see Exhibit 2).

Table 11 summarizes the 2022 total traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix G includes the 2022 total conditions intersection operations analysis worksheets with mitigation.

**Table 11. Estimated 2022 Total Traffic Operations for Weekday PM Peak Hour with Mitigation**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	0.74
2	NE Three Mile Lane/NE 1st Street	0.90	-	0.87
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.58
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.23
5	OR-18/SE Norton Lane	0.80	-	0.80
6	OR-18/NE Cumulus Avenue	0.80	-	0.79
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.18
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.45
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	0.05

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right  
V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)  
CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

### Year 2022 Total Traffic 95<sup>th</sup> Percentile Queues

Year 2022 total traffic weekday PM peak hour 95<sup>th</sup> percentile queues at the OR-18/NE Cumulus Avenue intersection with implementation of recommended mitigation measures are summarized in Table 12.

**Table 12. Summary of 95<sup>th</sup> Percentile Queues, 2022 Total Traffic Conditions**

Intersection	Movement	Available Queue Storage (feet)	95 <sup>th</sup> Percentile Queue (feet)	Queue Storage Adequate?
			Weekday PM Peak Hour	
6 OR-18/NE Cumulus Avenue	NBL	New	525	Yes
	NBTR	Continuous	350	Yes
	SBL	125 (Striped) Additional Storage in excess of 300	100	Yes
	SBT	Continuous	0	Yes
	SBR	125 (Exclusive) Additional Storage in excess of 300 <sup>1</sup>	200	Yes
	EBL	125	75	Yes
	EBT	Continuous	425	Yes
	EBR	New	200	Yes
	WBL	125 (Striped) Additional Storage in excess of 300	225	Yes
	WBT	Continuous	525	Yes
	WBR	175	50	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T = through, R = right-turn

Queues rounded up to the nearest vehicle length, assumed to be 25 feet

<sup>1</sup>During occasions of peak queueing, the southbound through lane may be used for overflow storage from the southbound right-turn lane.



As shown in Table 12, all 95<sup>th</sup> percentile queues during year 2022 total mitigated traffic conditions would be accommodated by the available storage. Based on the anticipated 95<sup>th</sup> percentile queues, it is recommended that the new northbound left-turn lane be constructed with 525 feet of storage, and the new eastbound right-turn lane be constructed with at least 250 feet of storage (the storage length required for anticipated 2037 95<sup>th</sup> percentile queues, to be described in more detail later in this report).

## Year 2037 Background Traffic Volumes and Conditions

Consistent with the 2022 background traffic volumes, future volumes were derived by applying a 2.2% annual background growth rate to the 2022 existing traffic volumes. However, this growth factor already accounts for development of the site under the existing industrial zoning. Therefore, the growth rate to obtain 2037 background traffic volumes was reduced to approximately 1.7% so as not to double-count site trips through the study intersections.

The 2037 background traffic conditions analysis forecasts the operation of the study area's transportation system with the inclusion of traffic generated by site under the existing industrial zoning. Background traffic conditions were determined by adding the estimated site-generated trips (under existing zoning) and additional 15 years of background growth (at 1.7%) to the year 2022 background traffic volumes for the weekday PM peak hour.

This analysis assumes the implementation of all improvements recommended to mitigate year 2022 total traffic conditions.

## Year 2037 Background Operations

Table 13 summarizes the 2037 horizon year background traffic operations for the weekday PM peak hour. Appendix H includes the 2037 background conditions intersection operations analysis worksheets.

As shown in Table 13, the following intersections are expected to exceed the applicable performance requirement in 2037 with the addition of background growth:

- The NE 3<sup>rd</sup> Street/NE Johnson Street intersection (#1) does not satisfy the City of McMinnville's standard of a V/C ratio  $\leq 0.90$ .
- The NE Three Mile Lane/NE 1st Street intersection (#2) does not satisfy the City of McMinnville's standard of a V/C ratio  $\leq 0.90$ .
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street (#3) does not satisfy the City of McMinnville's standard of a V/C ratio  $\leq 0.90$ .
- OR-18/SE Norton Lane (#5) does not satisfy ODOT's mobility target of a V/C ratio  $\leq 0.80$ .
- OR-18/NE Cumulus Avenue (# 6) does not satisfy ODOT's mobility target of a V/C ratio  $\leq 0.80$ .
- The OR-18/SE Loop Road intersection (#8) does not satisfy ODOT's mobility target of a V/C ratio  $\leq 0.90$  on the SE Loop Road approach.

**Table 13. Estimated 2037 Background Traffic Operations for Weekday PM Peak Hour**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	<b>0.97</b>
2	NE Three Mile Lane/NE 1st Street	0.90	-	<b>1.04</b>
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	<b>0.98</b>
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.32
5	OR-18/SE Norton Lane	0.80	-	<b>0.93</b>
6	OR-18/NE Cumulus Avenue	0.80	-	<b>0.83</b>
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.37
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	<b>0.95</b>
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.08

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

## Year 2037 Background Traffic Mitigations

The following mitigation measures are recommended to address the impacts of anticipated long-term growth:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- OR-18/SE Loop Road
  - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway. Exhibit 3 illustrates these alternatives.

Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.

**Exhibit 3. Reroute of Southbound Left-Turns at OR-18/SE Loop Road**

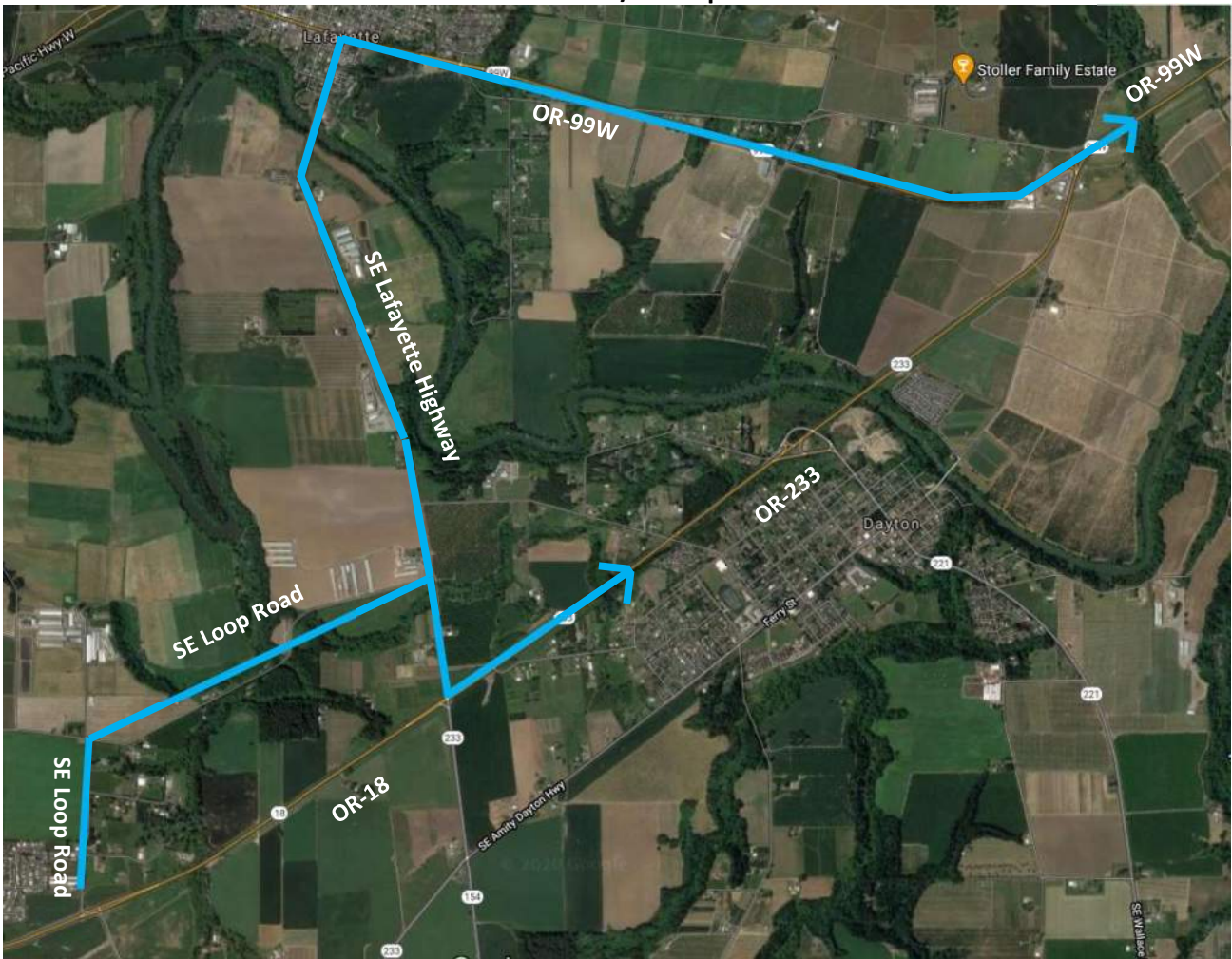


Table 14 summarizes the 2037 background traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix I includes the 2037 background conditions intersection operations analysis worksheets with mitigation.

**Table 14. Estimated 2037 Background Traffic Operations for Weekday PM Peak Hour with Mitigation**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	<b>0.97</b>
2	NE Three Mile Lane/NE 1st Street	0.90	-	<b>0.98</b>
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	<b>0.98</b>
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.32
5	OR-18/SE Norton Lane	0.80	-	<b>0.93</b>
6	OR-18/NE Cumulus Avenue	0.80	-	0.77
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.37
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.09
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.08

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 14, with implementation of the recommended mitigation at NE Three Mile Lane/NE 1<sup>st</sup> Street, intersection operations are still anticipated to exceed the applicable performance requirement in 2037 with the addition of background growth. However, the V/C under 2037 total traffic conditions is improved from 2037 background traffic conditions (as will be demonstrated later in this report). The following three intersections are also expected to exceed the applicable performance requirement in 2037:

- NE 3<sup>rd</sup> Street/NE Johnson Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Regardless of the proposed rezone and subsequent development, these intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. As will be demonstrated later in this report, the change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these four intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

## Year 2037 Total Traffic Volumes

The 2037 total traffic conditions analysis forecasts the operation of the study area’s transportation system with the inclusion of additional site trips associated with the proposed rezone. Total traffic conditions were determined by adding the difference in site-generated trips between the existing and proposed zoning to the year 2037 background traffic volumes for the weekday PM peak hour.

## Year 2037 Total Traffic Operations

Table 15 summarizes the 2037 horizon year total traffic operations for the weekday PM peak hour. Appendix K includes the 2037 total conditions intersection operations analysis worksheets.

**Table 15. Estimated 2037 Total Traffic Operations for Weekday PM Peak Hour**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	1.00
2	NE Three Mile Lane/NE 1st Street	0.90	-	1.09
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.93
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.33
5	OR-18/SE Norton Lane	0.80	-	0.96
6	OR-18/NE Cumulus Avenue	0.80	-	0.85
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.42
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	1.14
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.09

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 15, the six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with the proposed rezone, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

## Year 2037 Total Traffic Mitigations

The following additional mitigation measures are recommended for implementation in conjunction with the proposed development to account for the long-term impact of the proposed rezone:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Consistent with 2037 background conditions, restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- OR-18/SE Loop Road
  - Consistent with 2037 background conditions, restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway (see Exhibit 3).

Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.

Table 16 summarizes the 2037 total traffic operations for the weekday PM peak hour with the above recommended mitigation. Appendix L includes the 2037 total conditions intersection operations analysis worksheets with mitigation.

**Table 16. Estimated 2037 Total Traffic Operations for Weekday PM Peak Hour with Mitigation**

Study Intersection		Mobility Target (V/C) <sup>1</sup>	CM	V/C
1	NE 3rd Street/NE Johnson Street	0.90	-	1.00
2	NE Three Mile Lane/NE 1st Street	0.90	-	1.02
3	NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.93
4	SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.33
5	OR-18/SE Norton Lane	0.80	-	0.96
6	OR-18/NE Cumulus Avenue	0.80	-	0.79
7	OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.42
8	OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.09
9	OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBR	0.09

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

As shown in Table 16, with implementation of the recommended mitigation at NE Three Mile Lane/NE 1<sup>st</sup> Street, intersection operations are still anticipated to exceed the applicable performance requirement in 2037. However, the V/C under 2037 total traffic conditions is improved from 2037 background traffic conditions. The following three intersections are also expected to exceed the applicable performance requirement in 2037:

- NE 3<sup>rd</sup> Street/NE Johnson Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Regardless of the proposed rezone and subsequent development, these intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these four intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

### Year 2037 Total Traffic 95<sup>th</sup> Percentile Queues

Year 2037 total traffic weekday PM peak hour 95<sup>th</sup> percentile queues at the OR-18/NE Cumulus Avenue intersection with implementation of recommended mitigation measures are summarized in Table 17.

**Table 17. Summary of 95<sup>th</sup> Percentile Queues, 2037 Total Traffic Conditions**

Intersection	Movement	Available Queue Storage (feet)	95 <sup>th</sup> Percentile Queue (feet)	Queue Storage Adequate?
			Weekday PM Peak Hour	
6 OR-18/NE Cumulus Avenue	NBL (Dual)	New	400	Yes
	NBTR	Continuous	600	Yes
	SBL	125 (Striped) Additional Storage in excess of 300	175	Yes
	SBT	Continuous	0	Yes
	SBR	125 (Exclusive) Additional Storage in excess of 300 <sup>1</sup>	300	Yes
	EBL	125	125	Yes
	EBT	Continuous	650	Yes
	EBR	New	250	Yes
	WBL	125 (Striped) Additional Storage in excess of 300	250	Yes
	WBT	Continuous	900	Yes
	WBR	175	50	Yes

Where: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left-turn, T = through, R = right-turn

Queues rounded up to the nearest vehicle length, assumed to be 25 feet

<sup>1</sup>During occasions of peak queueing, the southbound through lane may be used for overflow storage from the southbound right-turn lane.

As shown in Table 17, all 95<sup>th</sup> percentile queues during year 2037 total mitigated traffic conditions would be accommodated by the available storage. Based on the anticipated 95<sup>th</sup> percentile queues, it is recommended that the second northbound left-turn lane (if appropriate given other area improvements) be constructed with 350 feet of storage, and the new eastbound right-turn lane be constructed with at least 250 feet of storage.

### Traffic Operations Summary

Table 18 compares the traffic operations for all scenarios analyzed in this study.

**Table 18. Traffic Operations for all Study Scenarios for Weekday PM Peak Hour**

Study Intersection	Mobility Target (V/C) <sup>1</sup>	2020 Existing		2022 Background		2022 Background (Mitigated)		2022 Total		2022 Total (Mitigated)		Year 2022 Mitigations	2037 Background		2037 Background (Mitigated)		2037 Total		2037 Total (Mitigated)		Year 2037 Mitigations
		CM	V/C	CM	V/C	CM	V/C	CM	V/C	CM	V/C		CM	V/C	CM	V/C	CM	V/C	CM	V/C	
1 NE 3rd Street/NE Johnson Street	0.90	-	0.70	-	0.73	-	-	-	0.74	-	-	-	0.97 <sup>2</sup>	-	-	-	1.00 <sup>2</sup>	-	-	-	-
2 NE Three Mile Lane/NE 1st Street	0.90	EBR	0.98	EBR	1.08	-	0.85	EBR	1.16	-	0.87	Install traffic signal	-	1.04	-	0.98	-	1.09	-	1.02 <sup>3</sup>	Add EBR
3 NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street	0.90	WBR	0.74	WBR	0.84	-	-	WBR	0.98	WBR	0.58	Restrict EBL and WBL, provide neighborhood connection	WBR	0.98 <sup>2</sup>	-	-	WBR	0.93 <sup>2,4</sup>	-	-	-
4 SE Norton Lane/NE Cumulus Avenue	0.90	EBL	0.21	EBL	0.22	-	-	EBL	0.23	-	-	-	EBL	0.32	-	-	EBL	0.33	-	-	-
5 OR-18/SE Norton Lane	0.80	-	0.68	-	0.70	-	-	-	0.82	-	0.80	Signal timing optimization	-	0.93 <sup>2</sup>	-	-	-	0.96 <sup>2</sup>	-	-	-
6 OR-18/NE Cumulus Avenue	0.80	-	0.54	-	0.56	-	-	-	1.21	-	0.79	Add NBL, signal timing optimization	-	0.83	-	0.77	-	0.85	-	0.79	Add second NBL
7 OR-18/SE Armory Way	major approaches = 0.80 minor approaches = 0.95	NBL	0.12	NBL	0.13	-	-	NBL	0.18	-	-	-	NBL	0.37	-	-	NBL	0.42	-	-	-
8 OR-18/SE Loop Road	major approaches = 0.80 minor approaches = 0.90	SBL	0.27	SBL	0.32	-	-	SBL	0.45	-	-	-	SBL	0.95	SBR	0.09	SBL	1.14	SBR	0.09	Restrict SBL
9 OR-18/SE Cruickshank Road	major approaches = 0.70 minor approaches = 0.75	NBL	1.09	NBL	1.20	NBR	0.04	NBL	1.53	NBR	0.05	Restrict NBL	NBR	0.08	-	-	NBR	0.09	-	-	-

WB= Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, T = Through, R = Right

V/C= Intersection volume-to-capacity ratio (signalized) / Critical lane group volume-to-capacity ratio (unsignalized)

CM= Critical Movement

<sup>1</sup>Mobility targets at Intersections #7 through #9 provided by ODOT based on Table 6 in the OHP (Reference 1) and the functional classification and location of each section of roadway.

<sup>2</sup>The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J).

<sup>3</sup>Intersection operations with implementation of the recommended mitigation at Intersection #2 still exceed the mobility target. However, the V/C is improved from 2037 background traffic conditions.

<sup>4</sup>The shift in travel patterns on Three Mile Lane associated with the proposed zone change improve the operating capacity of Intersection #3 by creating more gaps for the critical WBR movement.



## TRANSPORTATION PLANNING RULE ANALYSIS

The Transportation Planning Rule (TPR, Oregon Administrative Rule (OAR) 660-012-0060) analysis identifies how the study area’s transportation system would operate in the year 2037 under the existing industrial zoning of M-2 and the proposed commercial zoning of C-3 during the weekday PM peak hour. OAR 660-012-0060(1) and (2) establish a two-step process for evaluating an amendment’s impacts on roads. The first step in assessing an amendment’s potential transportation impact is to compare the trip generation potential of the site assuming a “reasonable worst-case” development scenario under the existing and proposed zoning. If the trip generation potential increases under the proposed zoning, additional operational analysis is required to assess whether the rezone will “significantly affect” the transportation system.

### Summary of Applicable Oregon Administrative Rule Criteria

OAR Section 660-12-0060 of the TPR sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 19 summarizes the criteria in Section 660-012-0060 and the applicability to the proposed zoning designation change application.

**Table 19. Summary of Criteria in OAR 660-012-0060**

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant effect.	Yes
2	Describes measures for complying with Criteria #1 where a significant effect is determined.	Yes
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	Yes
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No
7	Outlines requirements for a local street plan, access management plan, or future street plan.	No
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No
9	A significant effect may not occur if the rezone is identified on the City’s Comprehensive Plan and assumed in the adopted Transportation System Plan.	No
10	Agencies may consider measures other than vehicular capacity if within an identified multimodal mixed-use area (MMA).	No
11	Allows agencies to override the finding of a significant effect if the application meets the balancing test.	No

As shown in Table 19, there are eleven criteria that apply to Plan and Land Use Regulation Amendments. Of these, only Criteria #1 through #4 are applicable to the proposed land use action. These criteria are provided below in italics with our response shown in standard font.

*OAR 660-12-0060(1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10)*

*of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:*

*(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);*

*(b) Change standards implementing a functional classification system; or*

*(c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.*

*(A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;*

*(B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or*

*(C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.*

**Response:** As demonstrated in the transportation impact analysis detailed in this report, the impact of the 401 additional site-generated trips associated with reasonable worst-case development for the proposed commercial rezoning during the weekday PM peak hour (See Table 8) is expected to have a “significant effect” under year 2037 conditions.

*OR 660-12-0060(2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.*

*(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.*

*(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.*

*(c) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.*

*(d) Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.*

*(e) Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if:*

*(A) The provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards;*

*(B) The providers of facilities being improved at other locations provide written statements of approval; and*

*(C) The local jurisdictions where facilities are being improved provide written statements of approval*

**Response:** As demonstrated in the transportation impact analysis detailed in this report, there are two intersections anticipated to exceed mobility targets at which the proposed rezone has a “significant effect” on intersection operations under year 2037 conditions:

1. NE Three Mile Lane/NE 1<sup>st</sup> Street
2. OR-18/SE Loop Road

The impact of site-generated trips associated with the proposed rezone can be mitigated by implementing the mitigation measures recommended in the prior sections of this report.

*OAR 660-12-0060 (3) Notwithstanding sections (1) and (2) of this rule, a local government may approve an amendment that would significantly affect an existing transportation facility without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility where:*

*(a) In the absence of the amendment, planned transportation facilities, improvements and services as set forth in section (4) of this rule would not be adequate to achieve consistency with the identified function, capacity or performance standard for that facility by the end of the planning period identified in the adopted TSP;*

*(b) Development resulting from the amendment will, at a minimum, mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development through one or a combination of transportation improvements or measures;*

*(c) The amendment does not involve property located in an interchange area as defined in paragraph (4)(d)(C); and*

*(d) For affected state highways, ODOT provides a written statement that the proposed funding and timing for the identified mitigation improvements or measures are, at a minimum, sufficient to avoid further degradation to the performance of the affected state highway. However, if a local government provides the appropriate ODOT regional office with written notice of a proposed amendment in a manner that provides ODOT reasonable opportunity to submit a written statement into the record of the local government proceeding, and ODOT does not provide a written statement, then the local government may proceed with applying subsections (a) through (c) of this section.*

**Response:** As demonstrated in the prior sections of this report, there are three intersections anticipated to exceed mobility targets at which the proposed rezone does not have a “significant effect” on intersection operations under year 2037 conditions:

1. NE 3<sup>rd</sup> Street/NE Johnson Street
2. NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
3. OR-18/SE Norton Lane

While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations. The change in capacity between 2037 background and 2037 total traffic conditions is less than or equal to +0.03 V/C, and therefore considered to be an insignificant impact per the guidance provided in the May 25, 2011, Oregon Highway Plan – Policy Intent Statements memorandum from ODOT (see Appendix J). Therefore, no additional mitigation is recommended as part of this report at these three intersections which continue to exceed applicable agency mobility targets under 2037 mitigated conditions.

*OAR 660-12-0060 (4) Determinations under sections (1)–(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.*

**Response:** The transportation impact study and TPR analysis for this project have been coordinated with the City of McMinnville and ODOT Region 2.

## SUMMARY OF FINDINGS

### Year 2020 Existing Conditions

- Two of the nine study intersections were found to exceed the applicable review agency mobility targets:
  - NE Three Mile Lane/NE 1<sup>st</sup> Street
  - OR-18/SE Cruickshank Road
- The recent five-year crash history of one study intersection exceeds statewide 90<sup>th</sup> percentile crash rates:
  - OR-18/SE Cruickshank Road: This unsignalized intersection experienced a large proportion of angle crashes (approximately 80%) over the five-year review period, and approximately 70% of the reported crashes involved a vehicle making a northbound left-turn movement. This suggests a need to potentially restrict left-turns from SE Cruickshank Road onto OR-18 due to the insufficient number gaps in eastbound traffic.

### Year 2022 Background Conditions

- The two study intersections that do not satisfy applicable mobility targets under existing conditions experience additional delay with background growth.

### Proposed Development Plan

- The 33.5-acre site is currently zoned M-2 (General Industrial). Kimco is proposing to rezone to C-3 (General Commercial).
- Table 20 provides the trip generation estimates under the existing and proposed zoning:

**Table 20. Trip Generation Potential Comparison – 33.5-acre Zone Change**

Land Use	ITE Code	Size	Daily Trips	PM Peak Hour		
				Total	In	Out
<b>Existing M-2 General Industrial Zone Reasonable Worst-Case Development Scenario</b>						
Medical-Dental Office Building (10 acres at 25%)	720	108,900 SF	4,096	371	104	267
Industrial Park (23.5 acres at 40%)	130	409,464 SF	1,954	164	34	130
<b>Net New Trips</b>			<b>6,050</b>	<b>535</b>	<b>138</b>	<b>397</b>
<b>Proposed C-3 General Commercial Zone Reasonable Worst-Case Development Scenario</b>						
Shopping Center (33.5 acres at 25%) <i>Less Pass-by Trips (34%)</i>	820	364,815 SF	14,496 <i>(4,929)</i>	1,416 <i>(480)</i>	680 <i>(240)</i>	736 <i>(240)</i>
<b>Net New Trips</b>			<b>9,567</b>	<b>936</b>	<b>440</b>	<b>496</b>
<b>Difference = Proposed – Existing</b>			<b>3,517</b>	<b>401</b>	<b>302</b>	<b>99</b>

### Year 2022 Total Conditions

- The two study intersections that do not satisfy applicable review agency mobility targets under 2022 background conditions experience additional delay with site development.
- Three additional intersections do not satisfy applicable mobility targets with the addition of site-generated trips:
  - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - OR-18/SE Norton Lane
  - OR-18/NE Cumulus Avenue

### Year 2037 Background Conditions (Without Proposed Zone Change)

- Assuming the recommendations to mitigate 2022 site impacts are in place, six of the nine study intersections were found to exceed the applicable review agency mobility targets in the planning horizon year 2037, which was selected to represent fifteen years after opening per guidance in the Oregon Highway Plan (OHP, Reference 1):
  - NE 3<sup>rd</sup> Street/NE Johnson Street
  - NE Three Mile Lane/NE 1<sup>st</sup> Street
  - NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - OR-18/SE Norton Lane
  - OR-18/NE Cumulus Avenue
  - OR-18/SE Loop Road

### Year 2037 Total Conditions (With Proposed Zone Change)

- The six intersections that do not satisfy applicable review agency mobility targets under 2037 background conditions experience additional delay with site development, with the exception of the NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street intersection at which the shift in travel patterns associated with the zone change improve the operating capacity of the intersection.

## RECOMMENDATIONS

The following mitigation measures are recommended for implementation in conjunction with the proposed development and to address impacts of the proposed zone change:

- NE Three Mile Lane/NE 1<sup>st</sup> Street
  - Install a traffic signal and restripe the west leg of the intersection to provide an exclusive right-turn lane with overlap phasing.
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
  - Restrict left-turns from the minor approaches onto Three Mile Lane (left-turns from Three Mile Lane can be maintained). Alternative access can be provided to the approximately ten homes south of Three Mile Lane via an improved connection to SE Mountain View Lane. North of Three Mile Lane, there is alternative access to OR-18 via SE Norton Lane.
- OR-18/SE Norton Lane
  - Optimize signal timing to provide additional time to eastbound and westbound through movements.
- OR-18/NE Cumulus Avenue
  - Modify the existing traffic signal and construct a 275-foot exclusive eastbound right-turn lane and 500-foot northbound left-turn lane (left-turns from NE Cumulus Avenue should have permitted/protected phasing). Optimize signal timing to provide additional time to eastbound and westbound through movements. Note that the addition of a second (dual) northbound left-turn lane at the OR-18/NE Cumulus Avenue would accommodate long-term traffic volumes at the intersection. However, it is not recommended at this time as the future improvements identified in the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) will likely eliminate the need for the lane via the construction of a future interchange.
- OR-18/SE Loop Road
  - Restrict southbound left-turns from SE Loop Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via SE Lafayette Highway.
- OR-18/SE Cruickshank Road
  - Restrict northbound left-turns from SE Cruickshank Road onto OR-18 (left-turns from OR-18 can be maintained). This improvement is consistent with the 1996 McMinnville (OR-18) Corridor Refinement Plan (Reference 2) and alternative access to OR-18 is provided via the OR-99W/OR-18 interchange, SE Lafayette Highway, and/or the OR-221/OR-18 interchange.

The proposed rezone can be approved without creating significant impacts per OAR 660-012-0060 assuming these mitigation measures are implemented.

Regardless of the proposed subsequent development, the following intersections should continue to be monitored by the responsible agency and may require additional mitigation in future years based on Year 2037 conditions. While these locations are projected to require additional mitigation in the future as a function of continued local and regional growth, the proposed zone change has a negligible long-term impact on intersection operations:

- NE 3<sup>rd</sup> Street/NE Johnson Street
- NE Three Mile Lane/NE 1<sup>st</sup> Street
- NE Three Mile Lane/SE Nehemiah Lane – NE Cumulus Avenue – NE Pacific Street
- OR-18/SE Norton Lane

Please contact us if you need any additional information regarding our analyses.



## REFERENCES

- 1.) Oregon Department of Transportation. *1999 Oregon Highway Plan*. May 2015 Update
- 2.) City of McMinnville. *McMinnville Corridor Refinement Plan*. February 1996
- 3.) City of McMinnville. *City of McMinnville Transportation System Plan*. 2010
- 4.) Transportation Research Board. *Highway Capacity Manual 6<sup>th</sup> Edition*. 2016
- 5.) Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. March 2020 Update
- 6.) Institute of Transportation Engineers. *Trip Generation Manual, 10<sup>th</sup> Edition*. 2017

## APPENDICES

Appendix A – Crash Data

Appendix B – Traffic Count Data

Appendix C – 2020 Existing Traffic Volumes and Analysis

Appendix D – 2022 Background Traffic Volumes and Analysis

Appendix E – 2022 Mitigated Background Traffic Analysis

Appendix F – 2022 Total Traffic Volumes and Analysis

Appendix G – 2022 Mitigated Total Traffic Analysis

Appendix H – 2037 Background Traffic Volumes and Analysis

Appendix I – 2037 Mitigated Background Traffic Analysis

Appendix J – Oregon Highway Plan Policy Intent Statements

Appendix K – 2037 Total Traffic Volumes and Analysis

Appendix L – 2037 Mitigated Total Traffic Analysis

## Appendix A Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Third Sst & Johnson St  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	1	1	1	1	1	2	0	0
2017 TOTAL	0	1	2	3	0	1	2	2	1	2	1	3	0	0
YEAR: 2016														
REAR-END	0	0	2	2	0	0	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	0	1	0	2	2	0	0
2016 TOTAL	0	1	3	4	0	1	0	1	2	1	3	4	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	1	0	0	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	0	1	0	1	1	0	0
2015 TOTAL	0	2	0	2	0	3	0	0	1	1	1	2	0	0
YEAR: 2014														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR: 2013														
ANGLE	0	1	1	2	0	2	0	2	0	2	0	2	0	0
REAR-END	0	1	2	3	0	1	0	2	0	3	0	3	0	0
2013 TOTAL	0	2	3	5	0	3	0	4	0	5	0	5	0	0
FINAL TOTAL	0	7	9	16	0	9	2	9	4	11	5	16	0	0

**Disclaimers:** Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).









OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Three Mile Ln & First St  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
2016 TOTAL	0	0	1	1	0	0	1	1	0	1	0	1	0	0
YEAR: 2014														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2013														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	3	3	0	0	1	3	0	3	0	3	0	0

**Disclaimers:** Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).





OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Three Mile Ln, McMinnville Spur (483) & Nehemiah Ln / Cumulus Ave  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	1	1	1	1	2	0	0
2017 TOTAL	0	2	2	4	0	2	0	3	1	3	1	4	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	1	0	1
REAR-END	0	1	1	2	0	4	0	2	0	2	0	2	0	0
2014 TOTAL	0	1	2	3	0	4	0	3	0	2	1	3	0	1
YEAR: 2013														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	3	5	8	0	6	0	7	1	6	2	8	0	1

**Disclaimers:** Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CONTINUOUS SYSTEM CRASH LISTING

483 MCMINNVILLE SPUR  
 D  
 R  
 S  
 U  
 P G S W

Intersectional Crashes at Three Mile Ln, McMinnville Spur (483) & Nehemiah Ln / Cumulus Ave  
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	P E	LICNS	PED	ACTN	EVENT	CAUSE	
INVEST	E L M H R	DAY/TIME	CITY	RD CHAR	DIRECT	FIRST STREET	(MEDIAN)	TRLR QTY	OWNER	G E	RES	LOC	ERROR				
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	LOCTN		INTERSECTION SEQ#	(#LANES)	V#	VEH TYPE	E X							
00534	N N N	05/21/2014	YAMHILL	1	14		5-LEG	01 NONE	0 STRGHT						013	07	
NONE	N	Wed 3P		UN	0		STOP SIGN	PRVTE	N S					000		00	
			MCMINVL UA	06	0			PSNGR CAR		01	DRVR	NONE	53 F	OR-Y	026	000	07
No	45 12	8.44 -123 10	46.21			048300100S00											OR<25
								02 NONE	0 STOP						011	013	00
								PRVTE	N S					000	000	00	
								PSNGR CAR		01	DRVR	NONE	25 F	OR-Y	000	000	00
																	OR<25
										02	PSNG	NO<5	01 M	000	000	00	
										03	PSNG	NO<5	01 F	000	000	00	
								03 NONE	0 STOP						011		00
								PRVTE	N S					000	000	00	
								PSNGR CAR		01	DRVR	NONE	27 F	OR-Y	000	000	00
																	OR<25
00314	N N N N N	03/30/2017	YAMHILL	1	14		5-LEG	01 NONE	0 STRGHT							07,27	
CITY	N	Thu 9A		MN	0		UNKNOWN	PRVTE	N S					000		00	
			MCMINVL UA	06	0			PSNGR CAR		01	DRVR	NONE	34 M	OR-Y	043,016	038	07,27
No	45 12	8.44 -123 10	46.21			048300100S00											OR<25
								02 NONE	0 STOP						011		00
								PRVTE	N S					000	000	00	
								PSNGR CAR		01	DRVR	INJC	28 F	OR-Y	000	000	00
																	OR<25
00022	Y N N N N	01/07/2017	YAMHILL	1	14		5-LEG	01 NONE	0 TURN-R						124	01,08	
CITY	N	Sat 1P		MN	0		STOP SIGN	PRVTE	S E					000	124	00	
			MCMINVL UA	06	0			PSNGR CAR		01	DRVR	NONE	19 F	OR-Y	047,001,007	017	01,08
No	45 12	8.44 -123 10	46.21			048300100S00											OR<25
								02 NONE	0 STOP						012		00
								PRVTE	E W					000	000	00	
								PSNGR CAR		01	DRVR	INJC	61 F	OR-Y	000	000	00
																	OR>25
00275	N N N N N	03/17/2014	YAMHILL	1	14		5-LEG	01 NONE	0 STRGHT							07	
CITY	N	Mon 12P		MN	0		STOP SIGN	PRVTE	S N					000		00	
			MCMINVL UA	06	0			PSNGR CAR		01	DRVR	NONE	39 F	OR-Y	026	000	07
No	45 12	8.44 -123 10	46.21			048300100S00											OR<25
								02 NONE	0 STOP						011		00
								PRVTE	S N					000	000	00	
								PSNGR CAR		01	DRVR	INJC	19 M	OR-Y	000	000	00
																	OR<25
										02	PSNG	INJC	43 F	000	000	00	



OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Norton Ln & Cumulus Ave  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2014														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
2014 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	1
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	1

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Norton Ln  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	1	1	2	0	0
2017 TOTAL	0	2	0	2	0	3	0	2	0	1	1	2	0	0
YEAR: 2016														
ANGLE	0	1	0	1	0	3	0	1	0	1	0	1	0	0
PEDESTRIAN	0	1	0	1	0	1	0	0	1	0	1	1	0	0
REAR-END	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	3	0	1	1	2	0	2	0	0
2016 TOTAL	0	4	2	6	0	8	0	4	2	5	1	6	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
2015 TOTAL	0	1	0	1	0	3	0	1	0	1	0	1	0	0
YEAR: 2014														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	1	0	1
REAR-END	0	2	2	4	0	2	0	0	3	4	0	4	0	0
2014 TOTAL	0	2	3	5	0	2	0	0	4	5	0	5	0	1
YEAR: 2013														
REAR-END	0	3	2	5	0	4	0	3	2	4	1	5	0	0
2013 TOTAL	0	3	2	5	0	4	0	3	2	4	1	5	0	0
FINAL TOTAL	0	12	7	19	0	20	0	10	8	16	3	19	0	1

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CONTINUOUS SYSTEM CRASH LISTING

039 SALMON RIVER

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Norton Ln  
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	PED	ACTN	EVENT	CAUSE							
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD WTHR	CRASH TYP	TRLR QTY	OWNER	FROM	PRTC INJ	G E LICNS	LOC ERROR					
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT SURF	COLL TYP	#	VEH TYPE	TO	#	TYPE SVRTRY	E X RES					
											02 NONE	0	TURN-L								
											PRVTE		N E				000	013	00		
											PSNGR CAR			01 DRVR	NONE	86 M	OR-Y	000	000	00	
																				OR<25	
											03 NONE	0	STOP								
											PRVTE		W E					022	00		
											PSNGR CAR			01 DRVR	NONE	49 M	OR-Y	000	000	00	
																				OR<25	
01603	N N N N N	12/30/2016	YAMHILL	1	14						01 NONE	0	STRGHT								
STATE	N	Fri	9A	MCMINNVILLE	MN	0	NE NORTON LN	INTER	CROSS	N	PRVTE		E W							32,04	
				MCMINVL UA	46.69		SALMON RIVER HY	CN		TRF SIGNAL										000	
No	45	12	3.32	-123	9	59.72		02	0	N DAY	PSNGR CAR			01 DRVR	INJC	29 F	SUSP	052,020	000	32,04	
				003900100S00																	OR<25
											02 NONE	0	STRGHT								
											PRVTE		S N							000	
											PSNGR CAR			01 DRVR	INJC	66 M	OR-Y	000	000	00	
																					OR<25
														02 PSNG	INJC	61 F		000	000	00	
01420	N N N N N	12/23/2017	YAMHILL	1	14						01 NONE	0	STRGHT								
STATE	N	Sat	6P	MCMINNVILLE	MN	0	NE NORTON LN	INTER	CROSS	N	PRVTE		E W							000	
				MCMINVL UA	46.69		SALMON RIVER HY	CN		TRF SIGNAL										000	
No	45	12	3.32	-123	9	59.72		02	0	N DLIT	PSNGR CAR			01 DRVR	INJC	69 F	OR-Y	020	000	04	
				003900100S00																	OR<25
											02 NONE	0	TURN-L								
											PRVTE		W N							000	
											PSNGR CAR			01 DRVR	INJA	57 M	OR-Y	000	000	00	
																					OR<25
00234	N Y N N N	02/29/2016	YAMHILL	1	14						01 NONE	0	TURN-L								
STATE	N	Mon	7P	MCMINNVILLE	MN	0	NE NORTON LN	INTER	CROSS	N	PRVTE		N E							000	
				MCMINVL UA	46.69		SALMON RIVER HY	CN		TRF SIGNAL										000	
No	45	12	3.32	-123	9	59.72		04	0	N DLIT	PSNGR CAR			01 DRVR	NONE	85 M	OR-Y	000	000	00	
				003900100S00																	OR<25
														01 PED	INJC	44 F		01	020,055	035	04,19
																					STRGHT N S
01434	Y N N N N	11/26/2016	YAMHILL	1	14						01 NONE	0	STRGHT								
STATE	N	Sat	9A	MCMINNVILLE	MN	0	SE NORTON LN	INTER	CROSS	N	PRVTE		W E							000	
				MCMINVL UA	46.69		SALMON RIVER HY	CN		TRF SIGNAL										000	
No	45	12	3.32	-123	9	59.72		04	0	N DAY	PSNGR CAR			01 DRVR	INJC	54 F	OR-Y	000	000	00	
				003900100S00																	OR<25
														02 PSNG	INJC	76 F		000	000	00	



OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cumulus Ave  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2016 TOTAL	0	1	0	1	0	1	0	0	1	1	0	1	0	0
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	2	0	2	0	2	0	1	1	2	0	2	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Armory Way  
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Loop Rd  
 January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
TURNING MOVEMENTS	0	1	0	1	0	4	0	1	0	0	1	1	0	0
2016 TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0
FINAL TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CONTINUOUS SYSTEM CRASH LISTING

039 SALMON RIVER  
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Intersectional Crashes at OR-18, Salmon River Hwy (039) & Loop Rd  
 January 1, 2013 through December 31, 2017

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	TRLR QTY	MOVE	A S					ACTN	EVENT	CAUSE								
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	OWNER	FROM	PRTC	INJ	G E	LICNS	PED							
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR					
01604	N N N N N	12/30/2016	YAMHILL	1	14		INTER	3-LEG	N		N CLR	ANGL-OTH	01	NONE	0	STRGHT									02	
STATE	N	Fri 5P	MCMINNVILLE	MN	0	SE LOOP RD	CN		STOP SIGN	N DRY	TURN		PRVTE	E W											00	
			MCMINVL UA	48.53		SALMON RIVER HY	01	1		N DLIT	INJ		PSNGR CAR		01	DRVR	INJC	19	F	OR-Y		000		000	00	
No	45	12 8.79 -123	7 44.80	003900100S00																OR<25					00	
															02	PSNG	INJC	49	F			000		000	00	
															02	NONE	0	TURN-L								
																PRVTE	N E								015	00
																PSNGR CAR										
																01	DRVR	INJC	68	F	OR-Y		028		000	02
																				OR<25						
																02	PSNG	INJC	68	M			000		000	00

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cruickshank Rd  
January 1, 2013 through December 31, 2017

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
TURNING MOVEMENTS	0	6	2	8	0	15	1	4	4	7	1	8	0	0
2017 TOTAL	0	6	2	8	0	15	1	4	4	7	1	8	0	0
YEAR: 2016														
TURNING MOVEMENTS	0	4	1	5	0	9	0	4	1	4	1	5	0	0
2016 TOTAL	0	4	1	5	0	9	0	4	1	4	1	5	0	0
YEAR: 2015														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	9	3	12	0	24	0	10	2	10	2	12	0	0
2015 TOTAL	0	9	6	15	0	24	1	12	3	11	4	15	0	0
YEAR: 2014														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	0	1	0	1	0	1
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	2	1	3	0	2	0	1	2	2	1	3	0	0
2014 TOTAL	0	2	4	6	0	2	0	3	2	4	2	6	0	1
YEAR: 2013														
BACKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
REAR-END	0	1	0	1	0	1	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	5	0	5	0	9	0	4	1	5	0	5	0	0
2013 TOTAL	0	7	1	8	0	11	0	6	2	7	1	8	0	1
FINAL TOTAL	0	28	14	42	0	61	2	29	12	33	9	42	0	2

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CONTINUOUS SYSTEM CRASH LISTING

039 SALMON RIVER

Intersectional Crashes at OR-18, Salmon River Hwy (039) & Cruickshank Rd  
 January 1, 2013 through December 31, 2017

SER#	E A / C O DATE	COUNTY	RD# FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	ACTN	EVENT	CAUSE
INVEST	E L M H R DAY/TIME	CITY	CMPT/MLG	FIRST STREET	RD CHAR	TRLR QTY	FROM	G E LICNS			
UNLOC?	D C J L K LAT/LONG	URBAN AREA	MILEPNT	SECOND STREET	DIRECT	OWNER	PRTC INJ	PED			
			LRS	INTERSECTION SEQ#	LOCTN	V# VEH TYPE	TO	LOC ERROR			
						02 NONE	0 STRGHT				
						PRVTE	W E		000		00
						PSNGR CAR		01 DRVR INJC	37 F OR-Y	000	000
									OR<25		
00203	N N N N N 01/18/2013	YAMHILL	1 02		INTER	02 NONE	0 BACK				10
STATE	N Fri 3P		MN 0		UN	PRVTE	N S			000	00
			48.59		06			01 DRVR NONE	27 F OR-Y	011	000
No	45 12 9.91 -123 7 40.92		003900100S00						OR<25		10
						02 NONE	0 STOP				
						PRVTE	S N			011	00
						PSNGR CAR		01 DRVR NONE	43 M OR-Y	000	000
									OR<25		
00152	Y N N 02/08/2014	YAMHILL	1 02		INTER	02 NONE	0 STRGHT				079,058
NONE	N Sat 11A		MN 0		UN	PRVTE	W E			000	079,058
			48.59		06			01 DRVR NONE	32 F OR-Y	081	000
No	45 12 9.91 -123 7 40.92		003900100S00						OR<25		01
						02 NONE	0 TURN-R				08,01
01417	Y N N N N 12/24/2017	YAMHILL	1 14		INTER	02 NONE	0 TURN-R				00
COUNTY	N Sun 6P		MN 0		UN	PRVTE	W S			000	00
		MCMINVL UA	48.59		06			01 DRVR NONE	60 M OR-Y	001,047	000
No	45 12 9.91 -123 7 40.92		003900100S00						OR<25		08,01
						02 NONE	0 STRGHT				
						PRVTE	S N			000	00
						PSNGR CAR		01 DRVR INJB	24 M OR-Y	000	000
									N-RES		
								02 PSNG INJC	78 M	000	000
								03 PSNG INJB	63 F	000	000
00833	N N N 08/01/2014	YAMHILL	1 02		INTER	02 NONE	0 STRGHT				07
NONE	N Fri 5A		MN 0		E	PRVTE	E W			000	00
			48.59		06			01 DRVR NONE	57 F OR-Y	026	000
No	45 12 9.91 -123 7 40.92		003900100S00						OR<25		07
						02 NONE	0 STOP				
						PRVTE	E W			012	00
						PSNGR CAR		01 DRVR NONE	00 F UNK	000	000
									UNK		
00260	N N N 03/14/2015	YAMHILL	1 14		INTER	02 NONE	0 TURN-R				08
NO RPT	N Sat 6P		MN 0		S	PRVTE	W S			000	00
		MCMINVL UA	48.59		06			01 DRVR INJC	29 F OR-Y	001	000
No	45 12 9.91 -123 7 40.92		003900100S00						OR<25		08





















ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSuing OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION



CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED
4	EXP	EXPIRED
8	N-VAL	OTHER NON-VALID LICENSE
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNEED FROM WRONG LANE
007	TO WRONG	TURNEED INTO WRONG LANE
008	ILLEG U	U-TURNEED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

## EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

## EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUplet
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

**MOVEMENT TYPE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

**NON-MOTORIST LOCATION CODE TRANSLATION LIST**

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

**ROAD CHARACTER CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

**PARTICIPANT TYPE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYAL
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN (
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

**TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFGR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE



VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

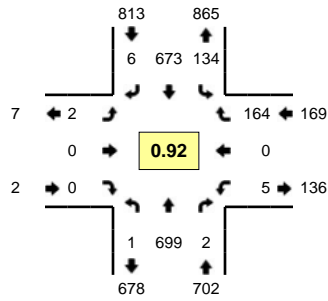
WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

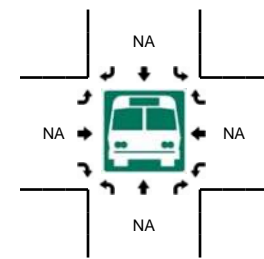
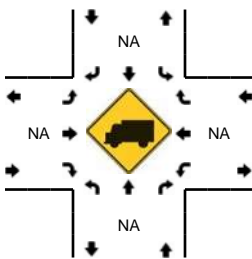
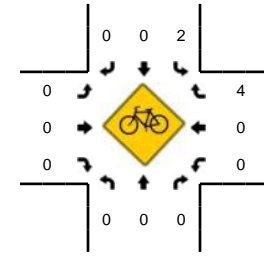
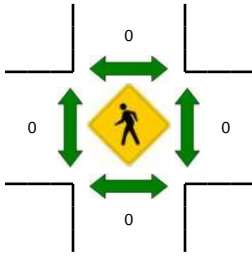
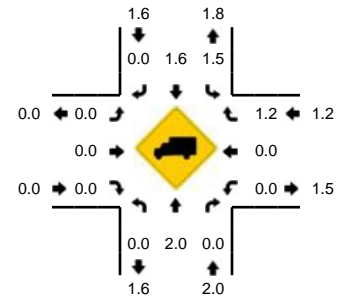
Appendix B Intersection Turning  
Movement Count Data

**LOCATION:** NE 3 Mile Ln -- NE Cumulus Ave/SE Nehemiah Ln  
**CITY/STATE:** McMinnville, OR

**QC JOB #:** 10766601  
**DATE:** Wed, May 23 2012



**Peak-Hour: 4:30 PM -- 5:30 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**



5-Min Count Period Beginning At	NE 3 Mile Ln (Northbound)				NE 3 Mile Ln (Southbound)				NE Cumulus Ave/SE Nehemiah Ln (Eastbound)				NE Cumulus Ave/SE Nehemiah Ln (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	0	43	0	0	4	49	1	0	0	0	0	0	0	0	0	10	0	107	
4:05 PM	0	36	0	0	7	44	0	0	1	0	0	0	1	0	18	0	107		
4:10 PM	0	53	1	0	11	43	0	0	0	0	1	0	1	0	18	0	128		
4:15 PM	1	60	0	0	9	43	1	0	0	0	0	0	0	0	15	0	129		
4:20 PM	0	46	0	0	9	46	0	0	0	0	0	0	0	0	7	0	108		
4:25 PM	0	54	0	0	7	43	1	0	0	0	0	0	1	0	13	0	119		
4:30 PM	0	60	0	0	18	47	0	0	0	0	0	0	1	0	21	0	147		
4:35 PM	0	46	0	0	4	67	0	0	0	0	0	0	0	0	13	0	130		
4:40 PM	1	53	0	0	9	58	0	0	0	0	0	0	0	0	15	0	136		
4:45 PM	0	55	0	0	13	43	0	0	0	0	0	0	0	0	8	0	119		
4:50 PM	0	51	0	0	13	62	1	0	0	0	0	0	0	0	16	0	143		
4:55 PM	0	49	0	0	11	55	0	0	0	0	0	0	0	0	12	0	127	1500	
5:00 PM	0	58	1	0	10	66	1	0	1	0	0	0	1	0	17	0	155	1548	
5:05 PM	0	53	0	0	18	68	0	0	0	0	0	0	1	0	12	0	152	1593	
5:10 PM	0	59	0	0	15	60	0	0	0	0	0	0	0	0	13	0	147	1612	
5:15 PM	0	82	1	0	12	51	0	0	1	0	0	0	1	0	9	0	157	1640	
5:20 PM	0	62	0	0	4	39	1	0	0	0	0	0	0	0	13	0	119	1651	
5:25 PM	0	71	0	0	7	57	3	0	0	0	0	0	1	0	15	0	154	1686	
5:30 PM	0	36	0	0	13	55	1	0	0	0	0	0	1	1	6	0	113	1652	
5:35 PM	0	44	0	0	12	48	0	0	0	0	0	0	0	0	10	0	114	1636	
5:40 PM	0	45	0	0	10	40	0	0	0	0	1	0	1	0	12	0	109	1609	
5:45 PM	0	46	1	0	14	35	0	0	0	0	0	0	0	0	9	0	105	1595	
5:50 PM	0	37	0	0	14	33	1	0	0	0	0	0	1	0	14	0	100	1552	
5:55 PM	0	31	1	0	7	39	0	0	0	0	0	0	1	0	13	0	92	1517	
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	776	4	0	180	716	0	0	4	0	0	0	8	0	136	0	1824		
Heavy Trucks	0	12	0	0	0	8	0	0	0	0	0	0	0	0	8	0	28		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	1		1		
Railroad																			
Stopped Buses																			

Comments:

**Summary of Traffic Count  
Transportation Development Division**

Site: 48445  
County: Yamhill  
City: McMinnville

Date: 4/3/2018  
Hours: 6:00 AM-10:00 PM  
Highway #: 039  
SALMON RIVER HIGHWAY NO. 39  
Location: (OR18) at Norton Ln (483 AB)  
Weather:

Milepoint: 46.69  
Count Number: 1.00

Time of Day	Summary By Movements												Entering Volumes				
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	North	East	South	West
6:00	10	0	2	8	6	51	0	2	5	11	129	8	232	12	65	7	148
6:15	10	0	8	6	7	66	0	5	9	10	143	17	281	18	79	14	170
6:30	15	1	4	5	13	80	1	10	12	12	169	18	340	20	98	23	199
6:45	16	3	10	18	17	106	4	6	8	11	175	52	426	29	141	18	238
7:00	17	1	5	17	9	124	3	3	17	8	189	21	414	23	150	23	218
7:15	11	2	13	26	14	165	1	2	18	21	161	34	468	26	205	21	216
7:30	9	2	18	29	17	192	4	6	23	25	164	28	517	29	238	33	217
7:45	14	2	16	38	22	221	4	6	25	26	178	60	612	32	281	35	264
8:00	9	2	13	45	12	162	6	5	10	52	160	58	534	24	219	21	270
8:15	28	4	13	51	12	157	4	7	21	47	151	41	536	45	220	32	239
8:30	19	6	14	34	9	142	5	7	20	41	148	30	475	39	185	32	219
8:45	16	3	9	34	10	139	8	10	22	31	133	34	449	28	183	40	198
9:00	14	4	17	14	12	130	3	7	30	22	129	29	411	35	156	40	180
9:15	13	1	14	22	10	111	9	7	33	19	124	25	388	28	143	49	168
9:30	19	1	18	15	13	127	5	5	29	23	143	37	435	38	155	39	203
9:45	15	8	27	22	10	133	6	9	41	29	143	34	477	50	165	56	206
10:00	24	2	27	21	9	121	7	11	36	28	140	20	446	53	151	54	188
10:15	25	4	21	19	6	158	5	11	31	34	145	33	492	50	183	47	212
10:30	15	7	21	28	9	161	8	13	39	27	145	27	500	43	198	60	199
10:45	27	4	24	27	9	140	9	11	34	19	125	41	470	55	176	54	185
11:00	27	6	27	22	7	123	8	7	40	31	127	24	449	60	152	55	182
11:15	19	3	21	24	6	177	8	10	41	16	133	27	485	43	207	59	176
11:30	41	11	30	17	14	156	7	8	41	24	141	23	513	82	187	56	188
11:45	28	8	46	21	13	159	11	10	48	31	148	19	542	82	193	69	198
12:00	36	7	39	19	14	171	14	12	48	35	151	29	575	82	204	74	215
12:15	22	5	27	35	11	144	7	9	44	28	132	24	488	54	190	60	184
12:30	24	5	37	30	4	162	10	10	32	29	160	25	528	66	196	52	214
12:45	21	4	20	15	7	152	3	13	23	21	159	32	470	45	174	39	212
13:00	14	4	20	23	8	135	4	15	27	20	173	24	467	38	166	46	217
13:15	32	2	29	20	7	132	6	10	33	23	137	39	470	63	159	49	199
13:30	27	4	20	30	11	135	4	11	33	23	136	36	470	51	176	48	195
13:45	21	3	30	20	7	172	3	15	42	18	138	28	497	54	199	60	184
14:00	15	1	29	21	6	190	6	11	48	24	130	25	506	45	217	65	179
14:15	19	3	19	23	6	166	5	11	45	19	148	28	492	41	195	61	195
14:30	33	2	25	16	7	167	5	10	39	20	157	33	514	60	190	54	210
14:45	19	0	23	25	7	164	6	10	59	28	176	30	547	42	196	75	234
15:00	26	4	19	19	5	208	3	6	37	17	183	19	546	49	232	46	219
15:15	17	1	31	25	12	175	3	11	36	22	167	27	527	49	212	50	216
15:30	23	4	36	21	10	183	5	13	45	20	206	23	589	63	214	63	249
15:45	23	4	20	26	6	198	5	9	47	17	201	23	579	47	230	61	241
16:00	15	2	29	35	15	236	4	21	67	28	216	20	688	46	286	92	264
16:15	19	1	27	24	14	250	4	8	37	20	199	17	620	47	288	49	236
16:30	28	2	29	27	9	246	6	15	48	18	196	13	637	59	282	69	227
16:45	18	2	36	21	8	260	4	14	47	23	200	18	651	56	289	65	241
17:00	39	2	40	16	5	237	5	9	64	20	209	25	671	81	258	78	254
17:15	26	2	30	19	11	237	1	12	37	26	203	17	621	58	267	50	246
17:30	22	3	18	18	6	209	2	13	50	9	169	20	539	43	233	65	198
17:45	15	3	19	13	8	236	3	4	29	17	132	20	499	37	257	36	169
18:00	12	2	11	15	7	166	7	6	27	12	127	14	406	25	188	40	153
18:15	14	3	14	20	7	184	2	4	19	17	149	12	445	31	211	25	178
18:30	10	3	16	11	9	137	5	8	23	17	134	20	393	29	157	36	171
18:45	11	0	8	22	9	125	0	7	18	9	122	17	348	19	156	25	148
19:00	7	1	7	16	1	139	2	2	27	10	134	10	356	15	156	31	154
19:15	16	0	14	10	2	102	0	13	32	10	116	13	328	30	114	45	139
19:30	9	1	18	9	3	86	3	3	28	8	109	9	286	28	98	34	126
19:45	8	1	8	7	1	83	3	9	11	7	89	12	239	17	91	23	108
20:00	10	3	8	2	2	82	0	2	12	8	91	5	225	21	86	14	104
20:15	9	0	11	5	1	92	0	3	7	14	71	14	227	20	98	10	99
20:30	13	2	15	7	4	88	0	6	6	7	92	10	250	30	99	12	109
20:45	11	1	10	6	2	68	1	3	8	3	56	2	171	22	76	12	61
21:00	6	0	3	4	1	64	0	0	6	5	51	2	142	9	69	6	58
21:15	15	2	4	6	0	54	3	1	5	5	63	4	162	21	60	9	72
21:30	5	0	5	7	0	45	0	2	6	1	51	8	130	10	52	8	60
21:45	5	1	3	3	2	59	2	2	3	4	40	3	127	9	64	7	47
Total Count	1156	175	1225	1254	521	9440	272	521	1888	1260	9116	1490	28318	2556	11215	2681	11866
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	1272	193	1348	1380	574	10384	300	574	2077	1386	10028	1639	31150	2812	12337	2950	13053

**Summary of Traffic Count  
Transportation Development Division**

Site: 48446 Date: 4/3/2018  
 County: Yamhill Hours: 6:00 AM-10:00 PM  
 City: McMinnville Highway #: 039  
 Milepoint: 47.39 SALMON RIVER HIGHWAY  
 Location: NO. 39 at Cumulus Ave  
 Count Number: 1.00 Weather:

Time of Day	Summary By Movements							TOTAL	Entering Volumes		
	N-E	N-W	E-N	E-W	W-N	W-E	North		East	West	
6:00	4	15	2	54	4	139	218	19	56	143	
6:15	7	8	1	69	4	148	237	15	70	152	
6:30	7	12	0	89	9	186	303	19	89	195	
6:45	9	14	5	138	8	196	370	23	143	204	
7:00	3	14	4	134	3	187	345	17	138	190	
7:15	6	16	7	180	8	180	397	22	187	188	
7:30	3	15	6	230	9	175	438	18	236	184	
7:45	3	32	22	260	25	169	511	35	282	194	
8:00	3	12	10	201	25	150	401	15	211	175	
8:15	2	15	6	206	27	158	414	17	212	185	
8:30	1	15	10	158	20	150	354	16	168	170	
8:45	3	15	9	173	22	139	361	18	182	161	
9:00	1	14	10	153	15	135	328	15	163	150	
9:15	2	15	10	125	20	128	300	17	135	148	
9:30	3	24	7	120	21	149	324	27	127	170	
9:45	5	17	10	159	25	132	348	22	169	157	
10:00	5	14	8	151	19	142	339	19	159	161	
10:15	5	21	11	147	22	173	379	26	158	195	
10:30	7	28	6	165	20	154	380	35	171	174	
10:45	3	16	7	163	33	128	350	19	170	161	
11:00	6	12	7	142	30	140	337	18	149	170	
11:15	6	16	21	195	25	130	393	22	216	155	
11:30	7	34	19	154	24	162	400	41	173	186	
11:45	0	28	15	164	32	158	397	28	179	190	
12:00	7	24	14	165	28	168	406	31	179	196	
12:15	4	31	11	168	35	132	381	35	179	167	
12:30	10	27	16	169	29	162	413	37	185	191	
12:45	8	22	16	156	35	157	394	30	172	192	
13:00	10	26	11	136	27	161	371	36	147	188	
13:15	9	23	12	134	19	182	379	32	146	201	
13:30	4	27	9	147	30	135	352	31	156	165	
13:45	2	31	16	179	32	156	416	33	195	188	
14:00	13	46	6	167	18	139	389	59	173	157	
14:15	9	29	8	160	22	149	377	38	168	171	
14:30	7	21	6	169	34	179	416	28	175	213	
14:45	11	28	14	179	29	175	436	39	193	204	
15:00	17	36	7	184	28	175	447	53	191	203	
15:15	9	21	12	191	28	170	431	30	203	198	
15:30	11	36	7	182	43	199	478	47	189	242	
15:45	15	30	13	211	34	205	508	45	224	239	
16:00	20	27	9	245	28	211	540	47	254	239	
16:15	17	32	7	259	34	204	553	49	266	238	
16:30	18	36	9	253	25	207	548	54	262	232	
16:45	13	35	11	241	16	212	528	48	252	228	
17:00	29	26	9	244	24	239	571	55	253	263	
17:15	16	43	15	225	31	220	550	59	240	251	
17:30	12	28	11	212	30	163	456	40	223	193	
17:45	9	38	7	204	14	146	418	47	211	160	
18:00	8	36	5	153	13	130	345	44	158	143	
18:15	13	32	7	179	22	144	397	45	186	166	
18:30	10	17	2	138	26	129	322	27	140	155	
18:45	13	22	5	139	19	121	319	35	144	140	
19:00	11	22	11	128	15	122	309	33	139	137	
19:15	9	31	3	82	17	132	274	40	85	149	
19:30	5	12	5	87	12	106	227	17	92	118	
19:45	2	6	1	85	15	98	207	8	86	113	
20:00	3	10	1	74	17	84	189	13	75	101	
20:15	0	9	2	96	12	78	197	9	98	90	
20:30	1	9	0	83	12	87	192	10	83	99	
20:45	4	10	1	69	13	69	166	14	70	82	
21:00	3	12	3	52	5	41	116	15	55	46	
21:15	0	8	1	55	14	70	148	8	56	84	
21:30	2	2	2	49	5	59	119	4	51	64	
21:45	2	9	0	53	6	41	111	11	53	47	
Total Count	467	1392	518	9832	1346	9465	23020	1859	10350	10811	
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
24hr Volume	514	1532	570	10816	1481	10412	25322	2045	11385	11893	

## Summary of Traffic Count Transportation Development Division

Site: 49196	Date: 4/3/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 039
Milepoint: 47.67	HIGHWAY NO. 39 (OR18)
Count Number: 1.00	Location: at Armory Way
	Weather:

Time of Day	Summary By Movements							Entering Volumes		
	E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	East	South	West
14:00	0	167	1	0	150	0	318	167	1	150
14:15	0	173	1	1	165	0	340	173	2	165
14:30	0	169	0	2	183	1	355	169	2	184
14:45	1	193	0	0	177	2	373	194	0	179
15:00	1	201	1	0	190	1	394	202	1	191
15:15	2	189	1	2	186	2	382	191	3	188
15:30	1	190	0	2	202	1	396	191	2	203
15:45	1	222	1	4	220	0	448	223	5	220
16:00	1	258	3	1	230	2	495	259	4	232
16:15	0	268	2	1	212	1	484	268	3	213
16:30	0	248	3	6	229	0	486	248	9	229
16:45	0	262	1	0	236	0	499	262	1	236
17:00	0	249	1	0	260	1	511	249	1	261
17:15	0	236	2	0	228	0	466	236	2	228
17:30	0	221	0	0	183	1	405	221	0	184
17:45	0	213	0	1	157	1	372	213	1	158
Total Count	7	3459	17	20	3208	13	6724	3466	37	3221
24hr Factor	1	1	1	1	1	1	1	1	1	1
24hr Volume	7	3459	17	20	3208	13	6724	3466	37	3221

**Summary of Traffic Count  
Transportation Development Division**

Site: 48441	Date: 4/13/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 039
Milepoint: 48.53	SALMON RIVER HIGHWAY
Count Number: 1.00	Location: NO. 39 at SE Loop Rd (local)
	Weather:

Time of Day	Summary By Movements							Entering Volumes		
	N-E	N-W	E-N	E-W	W-N	W-E	TOTAL	North	East	West
14:00	2	11	3	156	3	141	316	13	159	144
14:15	0	2	1	156	5	149	313	2	157	154
14:30	2	9	1	155	5	157	329	11	156	162
14:45	3	2	1	177	6	179	368	5	178	185
15:00	2	7	4	190	5	180	388	9	194	185
15:15	4	4	1	176	3	174	362	8	177	177
15:30	1	5	2	173	4	181	366	6	175	185
15:45	1	5	0	223	4	206	439	6	223	210
16:00	1	4	0	241	3	226	475	5	241	229
16:15	2	5	0	261	1	205	474	7	261	206
16:30	2	4	2	241	3	228	480	6	243	231
16:45	4	5	1	247	2	220	479	9	248	222
17:00	3	4	0	236	1	257	501	7	236	258
17:15	0	5	1	215	1	226	448	5	216	227
17:30	1	5	0	213	1	181	401	6	213	182
17:45	3	1	3	207	3	146	363	4	210	149
Total Count	31	78	20	3267	50	3056	6502	109	3287	3106
24hr Factor	1	1	1	1	1	1	1	1	1	1
24hr Volume	31	78	20	3267	50	3056	6502	109	3287	3106

**Summary of Traffic Count  
Transportation Development Division**

Site: 48447	Date: 4/3/2018
County: Yamhill	Hours: 6:00 AM-10:00 PM
City:	Highway #: 039
Milepoint: 48.59	SALMON RIVER HIGHWAY
Count Number: 1.00	Location: NO. 39 at SE Cruickshank Rd
	Weather:

Time of Day	Summary By Movements						Entering Volumes			
	E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	East	South	West
6:00	2	48	7	11	126	19	213	50	18	145
6:15	2	48	7	14	141	23	235	50	21	164
6:30	1	64	1	27	144	44	281	65	28	188
6:45	3	102	1	36	137	56	335	105	37	193
7:00	1	109	9	34	146	46	345	110	43	192
7:15	3	133	6	61	148	46	397	136	67	194
7:30	2	151	8	77	143	30	411	153	85	173
7:45	2	204	6	91	138	25	466	206	97	163
8:00	0	133	3	48	112	32	328	133	51	144
8:15	1	175	3	55	114	28	376	176	58	142
8:30	1	127	2	35	134	29	328	128	37	163
8:45	2	140	2	50	115	24	333	142	52	139
9:00	1	92	2	40	101	22	258	93	42	123
9:15	1	101	0	31	95	31	259	102	31	126
9:30	1	105	0	27	114	32	279	106	27	146
9:45	3	118	2	33	111	22	289	121	35	133
10:00	0	126	1	33	99	33	292	126	34	132
10:15	0	114	1	24	134	28	301	114	25	162
10:30	2	130	2	25	112	26	297	132	27	138
10:45	0	117	1	42	100	32	292	117	43	132
11:00	3	121	0	21	100	26	271	124	21	126
11:15	0	133	1	43	102	27	306	133	44	129
11:30	1	117	2	35	136	23	314	118	37	159
11:45	2	148	4	30	116	25	325	150	34	141
12:00	1	133	3	34	125	36	332	134	37	161
12:15	3	119	2	30	86	20	260	122	32	106
12:30	3	143	3	27	131	26	333	146	30	157
12:45	1	131	1	23	124	25	305	132	24	149
13:00	1	105	3	32	132	37	310	106	35	169
13:15	1	118	2	31	132	38	322	119	33	170
13:30	2	118	1	24	98	35	278	120	25	133
13:45	0	135	4	43	114	30	326	135	47	144
14:00	1	125	0	32	118	25	301	126	32	143
14:15	3	124	2	36	125	24	314	127	38	149
14:30	2	117	4	36	141	18	318	119	40	159
14:45	2	140	0	38	145	37	362	142	38	182
15:00	2	151	0	45	150	32	380	153	45	182
15:15	3	130	4	46	133	43	359	133	50	176
15:30	1	143	6	32	141	46	369	144	38	187
15:45	2	178	1	46	167	44	438	180	47	211
16:00	8	179	2	61	171	55	476	187	63	226
16:15	5	197	3	64	168	39	476	202	67	207
16:30	5	184	1	58	183	49	480	189	59	232
16:45	7	184	3	64	171	51	480	191	67	222
17:00	4	168	3	67	203	64	509	172	70	267
17:15	4	156	4	61	171	55	451	160	65	226
17:30	4	166	7	47	128	53	405	170	54	181
17:45	3	164	2	47	121	27	364	167	49	148
18:00	4	110	1	31	113	17	276	114	32	130
18:15	2	134	0	36	108	31	311	136	36	139
18:30	0	114	2	33	119	22	290	114	35	141
18:45	0	100	1	32	107	23	263	100	33	130
19:00	1	102	0	20	106	32	261	103	20	138
19:15	3	57	1	23	95	32	211	60	24	127
19:30	1	68	1	17	83	30	200	69	18	113
19:45	3	62	1	17	70	20	173	65	18	90
20:00	3	63	1	25	65	15	172	66	26	80
20:15	0	66	2	12	58	15	153	66	14	73
20:30	2	65	0	13	65	13	158	67	13	78
20:45	1	57	1	14	67	9	149	58	15	76
21:00	1	43	0	9	30	14	97	44	9	44
21:15	0	41	0	9	49	13	112	41	9	62
21:30	0	47	0	10	43	13	113	47	10	56
21:45	2	35	0	14	30	7	88	37	14	37
Total Count	125	7528	143	2262	7504	1944	19506	7653	2405	9448
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
24hr Volume	138	8281	158	2489	8255	2139	21457	8419	2646	10393



**Summary of Traffic Count  
Transportation Development Division**

Site: 48443	Date: 4/3/2018
County: Yamhill	Hours: 2:00 PM-6:00 PM
City: McMinnville	Highway #: 483
Milepoint: 47.16	HIGHWAY NO. 483 E.
Count Number: 1.00	Location: MCMINNVILLE FRONTAGE RD
	Weather:

Time of Day	Summary By Movements							Entering Volumes			
	N-S	N-W	S-N	S-W	W-N	W-S		TOTAL	North	South	West
14:00	39	12	35	16	16	5		123	51	51	21
14:15	32	16	32	14	14	9		117	48	46	23
14:30	50	19	26	14	13	13		135	69	40	26
14:45	31	16	38	20	14	10		129	47	58	24
15:00	38	10	20	16	11	13		108	48	36	24
15:15	35	18	33	17	12	13		128	53	50	25
15:30	46	14	32	14	16	14		136	60	46	30
15:45	37	22	28	19	17	12		135	59	47	29
16:00	41	16	39	28	9	9		142	57	67	18
16:15	34	13	26	21	7	8		109	47	47	15
16:30	41	6	31	20	10	18		126	47	51	28
16:45	46	9	31	17	9	12		124	55	48	21
17:00	54	20	33	8	13	26		154	74	41	39
17:15	39	7	26	20	10	17		119	46	46	27
17:30	26	5	21	8	10	16		86	31	29	26
17:45	21	8	21	11	8	14		83	29	32	22
Total Count	610	211	472	263	189	209		1954	821	735	398
24hr Factor	1	1	1	1	1	1		1	1	1	1
24hr Volume	610	211	472	263	189	209		1954	821	735	398

**Summary of Traffic Count  
Transportation Development Division**

Site: 48444  
County: Yamhill  
City: McMinnville

Date: 4/3/2018  
Hours: 6:00 AM-10:00 PM  
Highway #: 7077

Milepoint: 46.99  
Count Number: 1.00

Location: 3 Mile Ln at First St  
Weather:

Time of Day	Summary By Movements													TOTAL	Entering Volumes			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	North		East	South	West	
6:00	0	49	0	1	0	0	29	0	11	0	1	31	122	49	1	40	32	
6:15	1	53	1	0	0	0	33	0	7	1	0	33	129	55	0	40	34	
6:30	0	91	0	0	0	1	40	0	11	0	0	46	189	91	1	51	46	
6:45	1	102	2	1	0	1	71	0	15	0	0	55	248	105	2	86	55	
7:00	0	89	0	1	0	0	63	0	17	1	0	47	218	89	1	80	48	
7:15	0	96	0	0	1	0	95	0	31	1	0	53	277	96	1	126	54	
7:30	0	90	1	0	0	0	115	0	40	0	0	45	291	91	0	155	45	
7:45	0	130	6	1	0	0	167	0	58	1	0	62	425	136	1	225	63	
8:00	1	151	0	2	0	0	119	0	27	0	0	61	361	152	2	146	61	
8:15	1	145	2	0	0	0	81	0	29	1	0	52	311	148	0	110	53	
8:30	0	90	0	0	0	0	99	0	26	0	0	48	263	90	0	125	48	
8:45	0	108	0	0	0	0	112	0	30	1	0	36	287	108	0	142	37	
9:00	0	95	1	2	0	0	103	1	30	0	0	38	270	96	2	134	38	
9:15	0	112	0	1	0	0	109	1	28	0	0	29	280	112	1	138	29	
9:30	1	110	0	1	0	0	83	1	31	0	0	30	257	111	1	115	30	
9:45	3	95	1	2	1	0	113	1	36	1	0	28	281	99	3	150	29	
10:00	0	116	1	0	0	0	119	0	26	2	0	47	311	117	0	145	49	
10:15	0	123	0	0	1	0	106	2	40	1	0	46	319	123	1	148	47	
10:30	0	107	0	1	0	0	123	0	34	1	0	38	304	107	1	157	39	
10:45	0	106	1	1	0	0	105	0	32	0	0	38	283	107	1	137	38	
11:00	0	109	0	0	0	0	112	1	22	1	0	33	278	109	0	135	34	
11:15	1	88	0	1	0	0	123	0	36	2	0	40	291	89	1	159	42	
11:30	0	114	0	0	0	0	129	0	39	0	0	37	319	114	0	168	37	
11:45	1	107	1	0	0	0	134	1	38	1	0	23	306	109	0	173	24	
12:00	0	143	3	0	0	0	131	0	46	1	0	42	366	146	0	177	43	
12:15	1	112	1	0	0	0	121	0	44	1	1	42	323	114	0	165	44	
12:30	0	114	1	0	1	0	112	0	24	2	0	38	292	115	1	136	40	
12:45	1	103	3	0	0	0	120	0	33	1	0	49	310	107	0	153	50	
13:00	1	115	1	0	0	0	96	1	30	0	0	37	281	117	0	127	37	
13:15	1	126	1	1	0	0	110	0	26	0	1	56	322	128	1	136	57	
13:30	1	99	0	2	0	0	104	0	28	1	0	51	286	100	2	132	52	
13:45	0	109	0	0	0	0	127	0	37	3	0	26	302	109	0	164	29	
14:00	0	119	0	0	0	0	158	2	33	0	0	43	355	119	0	193	43	
14:15	0	129	1	1	0	0	119	0	36	0	0	42	328	130	1	155	42	
14:30	1	144	0	2	0	0	142	0	38	1	0	39	367	145	2	180	40	
14:45	2	123	7	0	0	0	138	0	57	1	0	56	384	132	0	195	57	
15:00	1	138	2	0	0	0	143	0	38	0	0	48	370	141	0	181	48	
15:15	0	141	0	0	1	0	135	0	38	0	0	42	357	141	1	173	42	
15:30	3	184	0	0	0	1	140	1	43	0	0	43	415	187	1	184	43	
15:45	0	165	0	0	2	0	112	0	39	1	0	44	363	165	2	151	45	
16:00	0	151	0	1	0	0	184	1	53	0	0	49	439	151	1	238	49	
16:15	1	170	1	0	0	0	159	0	65	0	0	42	438	172	0	224	42	
16:30	1	157	2	2	1	0	149	2	58	0	0	64	436	160	3	209	64	
16:45	2	196	2	0	0	0	138	0	55	2	0	74	469	200	0	193	76	
17:00	0	219	0	0	0	0	170	1	59	2	0	60	511	219	0	230	62	
17:15	2	184	0	1	0	0	158	2	65	2	0	61	475	186	1	225	63	
17:30	1	147	0	0	0	0	146	0	50	0	0	42	386	148	0	196	42	
17:45	1	128	1	0	0	0	140	0	60	1	0	37	368	130	0	200	38	
18:00	3	98	0	0	0	0	153	0	71	0	0	41	366	101	0	224	41	
18:15	1	121	1	0	0	0	120	1	42	0	0	42	328	123	0	163	42	
18:30	0	132	0	0	0	0	96	1	42	1	0	37	309	132	0	139	38	
18:45	0	109	2	2	0	0	63	1	36	0	1	37	251	111	2	100	38	
19:00	3	106	0	0	0	0	83	0	24	0	1	27	244	109	0	107	28	
19:15	0	81	0	0	0	0	89	0	33	1	0	31	235	81	0	122	32	
19:30	3	88	0	1	0	0	70	0	29	0	0	16	207	91	1	99	16	
19:45	1	68	0	2	0	0	48	0	21	1	0	26	167	69	2	69	27	
20:00	1	79	0	1	0	0	48	1	23	0	0	18	171	80	1	72	18	
20:15	0	69	0	0	0	0	57	0	14	0	0	12	152	69	0	71	12	
20:30	1	44	0	1	0	0	43	0	23	0	0	25	137	45	1	66	25	
20:45	2	43	0	0	0	0	53	0	21	2	0	14	135	45	0	74	16	
21:00	0	30	0	0	0	0	29	0	16	0	0	7	82	30	0	45	7	
21:15	2	41	0	0	0	0	39	0	15	1	0	11	109	43	0	54	12	
21:30	0	33	0	1	0	0	26	0	12	0	0	14	86	33	1	38	14	
21:45	0	25	0	0	0	0	24	0	12	0	0	15	76	25	0	36	15	
Total Count	47	7059	46	33	8	3	6676	22	2183	40	5	2496	18618	7152	44	8881	2541	
24hr Factor	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
24hr Volume	52	7765	51	37	9	4	7344	25	2402	44	6	2746	20480	7868	49	9770	2796	

### 3rd St at Johnson St (McMinnville)

Time	Ph1	Ph2	Ph3	Ph4	Ph5	Ph6	Ph7	Ph8
15:15	24	84		264	56	116	360	256
15:30	16	192		304	56	124	548	244
Peak Hour 15:45	8	120		352	32	136	512	352
17:00 16:00	20	120		304	56	120	400	228
18:00 16:15	20	92		300	44	152	376	184
16:30	32	128		340	60	156	516	232
16:45	28	132		332	24	200	532	292
17:00	36	236		400	28	180	516	312
17:15	28	160		424	48	180	508	272
17:30	16	92		272	40	112	440	196
17:45	28	76		288	28	104	324	176
18:00	20	96		212	64	132	360	172
18:15	12	60		296	28	140	316	124
18:30	4	124		276	36	124	348	240
18:45	16	108		308	48	104	280	132
19:00	0	56		212	24	76	232	108
19:15	4	40		140	16	72	196	88
19:30	16	76		144	16	40	228	92
19:45	4	84		140	40	36	116	100
20:00	20	48		132	28	56	168	224
20:15	4	76		120	40	56	128	132
20:30	0	40		128	4	52	116	76
20:45	4	60		68	28	52	108	88
21:00	8	36		76	20	32	96	84
21:15	0	20		92	24	48	84	36
21:30	0	36		108	16	32	80	60
21:45	12	16		44	8	40	56	44
22:00	12	24		68	0	40	68	32
22:15	0	12		52	4	12	32	44
22:30	4	24		48	16	24	48	20
22:45	0	20		24	4	24	32	12
23:00	0	12		24	4	20	28	12

**TOTAL COUNTS:** 214 1495 3653 624 1872 5027 3389  
**PEAK HOUR VOLUME:** 44 236 424 80 200 548 436  
**PEAK HOUR TIME:** 12:00 17:00 17:15 13:15 12:00 15:30 7:45

**Col=** 21 22 23 24 25 26 27 28 29  
**Col Letter=** U V W X Y Z AA AB AC

**PED Total**

1160	5404	32
1484	5412	24
1512	5392	8
1248	5420	8
1168	5880	8
1464	6332	4
1540	6036	12
1708	5520	16
1620	4868	8
1168	4224	8
1024	4208	8
1056	4180	0
976	3832	4
1152	3412	8
996	2872	4
708	2396	4
556	2364	4
612	2364	4
520	2168	0
676	2056	4
556	1732	8
416	1480	0
408	1396	4
352	1208	0
304	1100	0
332	952	0
220	804	4
244	700	0
156	556	4
184		0
116		4
100		0

158

1708 6332

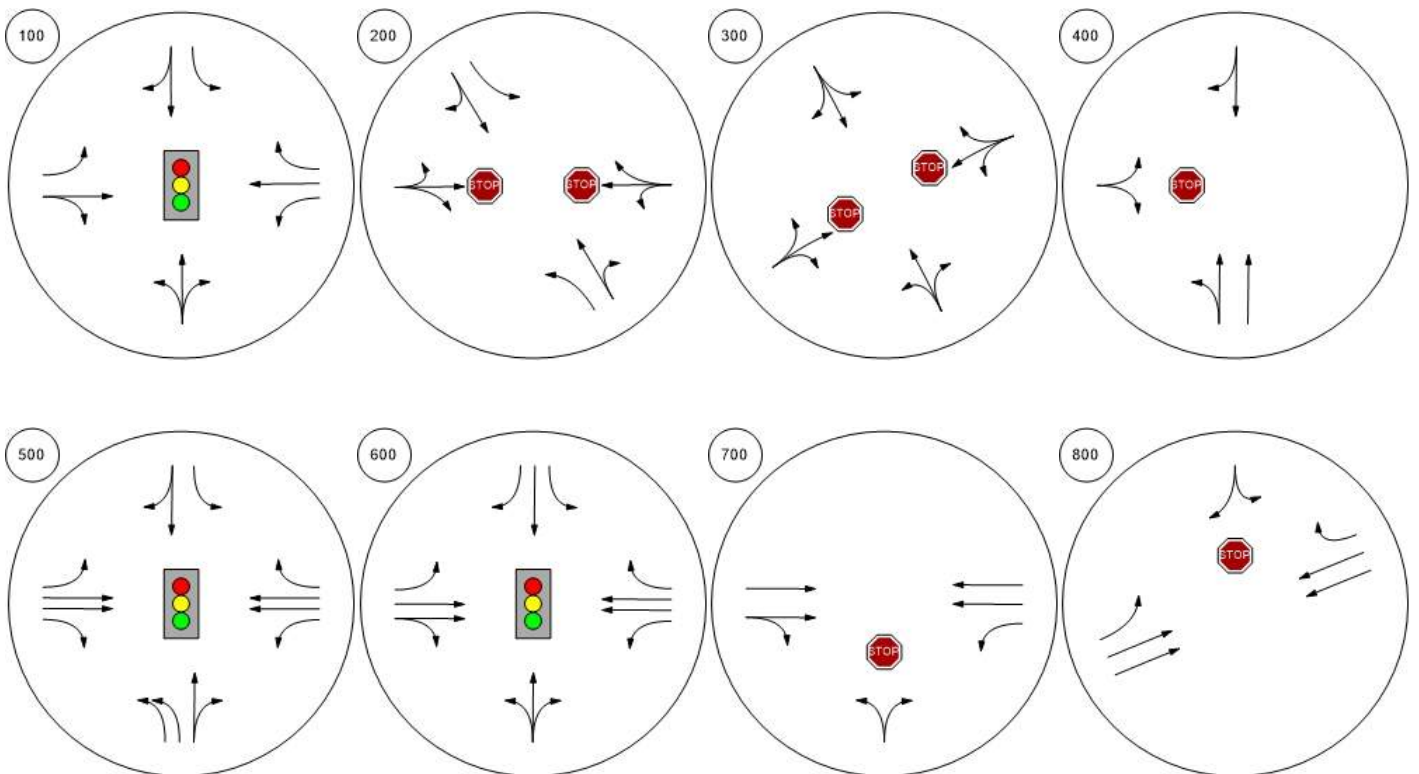
32

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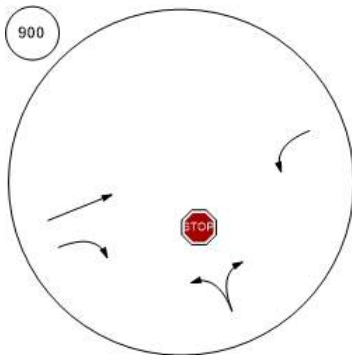
30 31 32 33 34 35 36  
AD AE AF AG AH AI AJ

Appendix C 2020 Existing Traffic Volumes  
and Analysis

Lane Configuration and Traffic Control



Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

## Season Adjustment Factor Calcs

Date: June 4, 2020

36-004

	2015	2016	2017	2018	2019
<b>Peak Month</b> (August)	107%	108%	105%	105%	108%
<b>Count Date</b> (April 3 <sup>rd</sup> )	99%*	101%*	100%*	100%*	101%*

XXX% Outliers \*Interpolated due to count date

Avg **Peak Month** (August) is:  $(108\%+107\%+105\%)/3 = 106.7\%$

Avg **Count Date** (April 3<sup>rd</sup>) is:  $(100\%+100\%+101\%)/3 = 100.3\%$

Seasonal adjustment for **Count Date** =  $106.7\%/100.3\% = 1.064$

36-006

	2015	2016	2017	2018	2019
<b>Peak Month</b> (August)	114%	117%	116%	117%	118%
<b>Count Date</b> (April 3 <sup>rd</sup> )	98%*	99%*	100%*	97%*	99%*

XXX% Outliers \*Interpolated due to count date

Avg **Peak Month** (August) is:  $(117\%+116\%+117\%)/3 = 116.7\%$

Avg **Count Date** (April 3<sup>rd</sup>) is:  $(98\%+99\%+99\%)/3 = 98.7\%$

Seasonal adjustment for **Count Date** =  $116.7\%/98.7\% = 1.182$

Average:

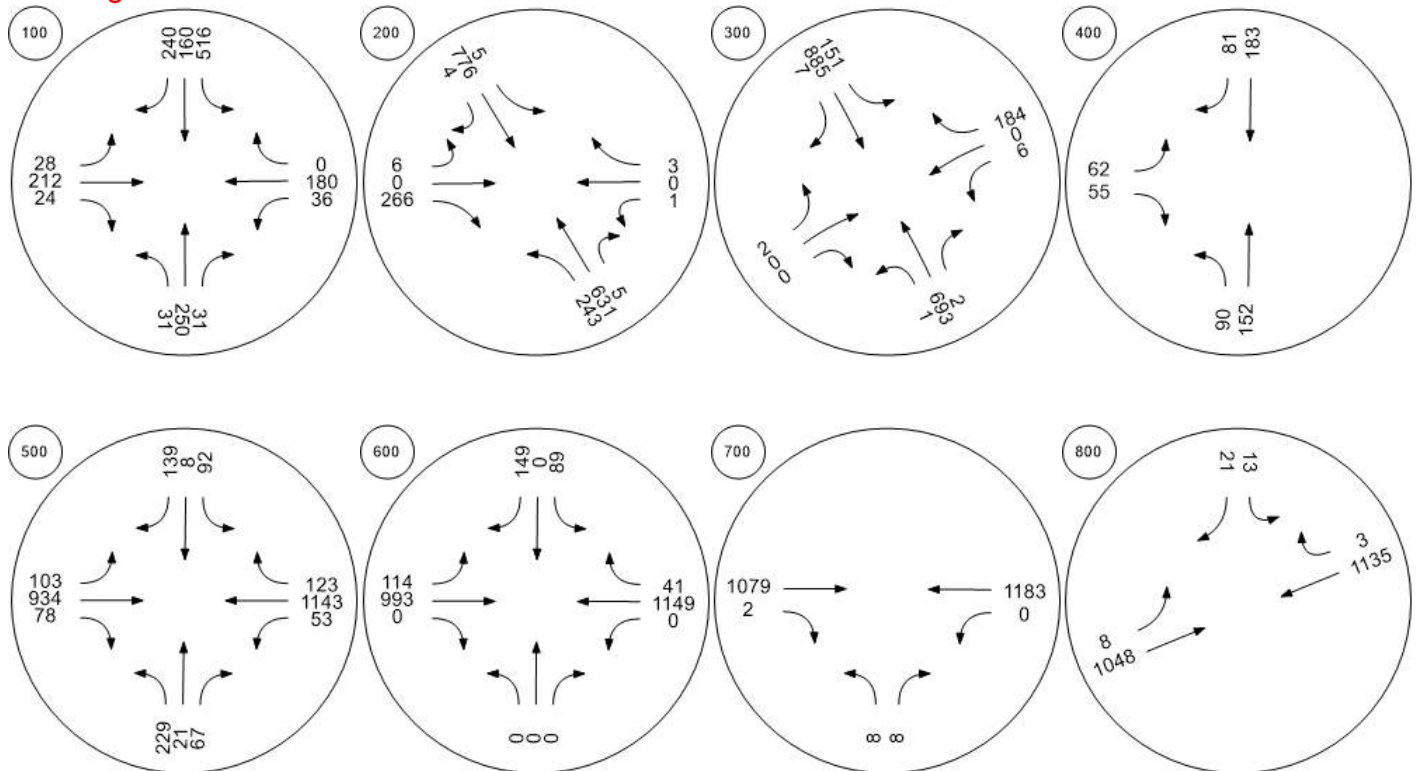
Seasonal adjustment for **Count Date** = 1.123



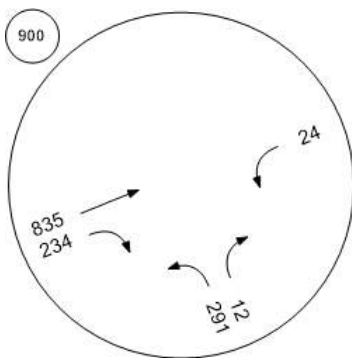
Traffic Volume - Base Volume



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Base Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

**Intersection Level Of Service Report**  
**Intersection 100: NE Johnson St/NE 3rd St**

Control Type:	Signalized	Delay (sec / veh):	36.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

**Intersection Setup**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	63	8	129	40	60	7	53	6	9	45	0
Total Analysis Volume [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	102	102	102	102	102	102	102
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	24	35	63	2	17	11	26
g / C, Green / Cycle	0.23	0.34	0.61	0.02	0.16	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.21	0.32	0.26	0.02	0.14	0.02	0.11
s, saturation flow rate [veh/h]	1514	1603	1522	1603	1653	1603	1683
c, Capacity [veh/h]	391	545	931	33	272	70	422
d1, Uniform Delay [s]	33.90	27.17	4.38	49.73	38.98	40.17	28.43
k, delay calibration	0.27	0.34	0.17	0.08	0.22	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.79	21.34	0.50	32.73	15.20	5.69	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.80	0.95	0.43	0.85	0.87	0.51	0.43
d, Delay for Lane Group [s/veh]	42.69	48.51	4.88	82.46	54.18	45.85	29.11
Lane Group LOS	D	D	A	F	D	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.74	13.82	1.90	1.01	6.50	0.91	3.34
50th-Percentile Queue Length [ft/ln]	193.57	345.60	47.47	25.19	162.60	22.67	83.49
95th-Percentile Queue Length [veh/ln]	12.31	19.92	3.42	1.81	10.69	1.63	6.01
95th-Percentile Queue Length [ft/ln]	307.65	498.04	85.45	45.34	267.17	40.81	150.28



**Movement, Approach, & Intersection Results**

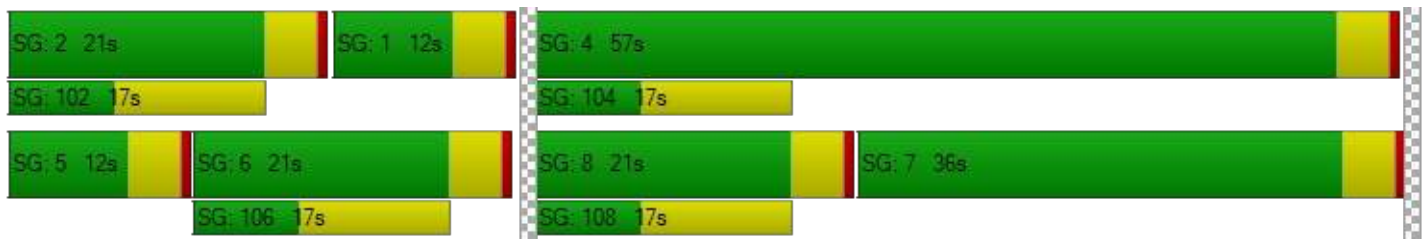
d_M, Delay for Movement [s/veh]	42.69	42.69	42.69	48.51	4.88	4.88	82.46	54.18	54.18	45.85	29.11	0.00
Movement LOS	D	D	D	D	A	A	F	D	D	D	C	
d_A, Approach Delay [s/veh]	42.69			29.45			57.18			31.90		
Approach LOS	D			C			E			C		
d_I, Intersection Delay [s/veh]	36.47											
Intersection LOS	D											
Intersection V/C	0.698											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.974	2.328	2.216	2.368
Crosswalk LOS	A	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.074	3.071	1.995	1.916
Bicycle LOS	B	C	A	A

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Two-way stop	Delay (sec / veh):	696.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.182

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	65	170	1	1	209	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	261	678	5	5	834	4	6	0	286	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.33	0.01	0.00	0.01	0.01	0.00	0.20	0.00	0.78	0.18	0.00	0.01
d_M, Delay for Movement [s/veh]	11.71	0.00	0.00	9.36	0.00	0.00	188.40	166.88	80.95	696.66	136.61	48.90
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	E
95th-Percentile Queue Length [veh/ln]	1.43	0.00	0.00	0.02	0.00	0.00	9.94	9.94	9.94	0.55	0.55	0.55
95th-Percentile Queue Length [ft/ln]	35.80	0.00	0.00	0.45	0.00	0.00	248.48	248.48	248.48	13.87	13.87	13.87
d_A, Approach Delay [s/veh]	3.24			0.06			83.15			210.84		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	13.55											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.164

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	188	1	41	240	2	1	0	0	2	0	50
Total Analysis Volume [veh/h]	1	753	2	164	962	8	2	0	0	7	0	200
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.19	0.01	0.00	0.16	0.00	0.00	0.25	0.00	0.49
d_M, Delay for Movement [s/veh]	10.02	0.00	0.00	10.20	0.00	0.00	10000.0	10000.0	10000.0	162.16	144.12	42.57
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.71	0.71	0.71	1.00	1.00	1.00	5.32	5.32	5.32
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	17.64	17.64	17.64	25.00	25.00	25.00	133.09	133.09	133.09
d_A, Approach Delay [s/veh]	0.01			1.48			10000.00			46.61		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	14.93											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 400: NE Cumulus Ave/ NE Norton Ln**

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.141

**Intersection Setup**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	152	183	81	62	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	40	48	21	16	14
Total Analysis Volume [veh/h]	95	160	193	85	65	58
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.14	0.07
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	13.47	9.87
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.24	0.12	0.00	0.00	0.49	0.49
95th-Percentile Queue Length [ft/ln]	6.10	3.05	0.00	0.00	12.23	12.23
d_A, Approach Delay [s/veh]	3.01		0.00		11.77	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.38					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	6	18	24	2	37	27	248	21	14	304	33
Total Analysis Volume [veh/h]	244	22	71	98	9	148	110	994	83	56	1216	131
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	112	112	112	112	112	112	112	112	112	112
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	11	22	9	20	64	55	55	64	53	53
g / C, Green / Cycle	0.10	0.20	0.08	0.18	0.57	0.49	0.49	0.57	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.06	0.11	0.19	0.31	0.06	0.09	0.38	0.09
s, saturation flow rate [veh/h]	3138	1376	1590	1466	586	3179	1396	629	3179	1408
c, Capacity [veh/h]	313	269	131	261	291	1544	678	334	1496	662
d1, Uniform Delay [s]	49.49	39.10	50.56	42.63	19.42	21.67	15.84	14.19	25.56	17.40
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.08	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.15	0.57	6.27	1.66	1.90	1.07	0.19	0.17	2.59	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.78	0.35	0.75	0.60	0.38	0.64	0.12	0.17	0.81	0.20
d, Delay for Lane Group [s/veh]	52.63	39.66	56.83	44.29	21.32	22.74	16.03	14.37	28.15	17.75
Lane Group LOS	D	D	E	D	C	C	B	B	C	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.48	2.26	2.92	4.13	1.31	9.27	1.14	0.59	13.31	1.94
50th-Percentile Queue Length [ft/ln]	86.90	56.54	73.03	103.24	32.86	231.76	28.47	14.67	332.83	48.42
95th-Percentile Queue Length [veh/ln]	6.26	4.07	5.26	7.43	2.37	14.26	2.05	1.06	19.30	3.49
95th-Percentile Queue Length [ft/ln]	156.42	101.78	131.45	185.82	59.14	356.60	51.25	26.40	482.43	87.16

**Movement, Approach, & Intersection Results**

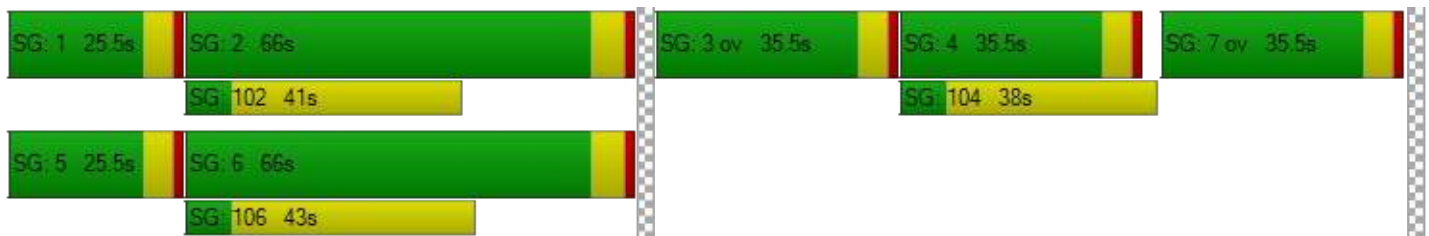
d_M, Delay for Movement [s/veh]	52.63	39.66	39.66	56.83	44.29	44.29	21.32	22.74	16.03	14.37	28.15	17.75
Movement LOS	D	D	D	E	D	D	C	C	B	B	C	B
d_A, Approach Delay [s/veh]	49.05			49.11			22.14			26.63		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	29.13											
Intersection LOS	C											
Intersection V/C	0.677											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.289	2.333	3.134	3.078
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.116	1.980	2.539	2.717
Bicycle LOS	B	A	B	B

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.540

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	0	39	30	259	0	0	299	11
Total Analysis Volume [veh/h]	0	0	0	93	0	155	119	1034	0	0	1197	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	68	68	68	68	68	68	68	68	68	68
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	10	10	10	23	46	41	41	46	33	33
g / C, Green / Cycle	0.15	0.15	0.15	0.34	0.68	0.60	0.60	0.68	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.00	0.07	0.00	0.11	0.18	0.31	0.31	0.00	0.38	0.03
s, saturation flow rate [veh/h]	1710	1265	1710	1408	675	1669	1669	584	3179	1454
c, Capacity [veh/h]	308	258	255	476	487	1003	1003	464	1567	716
d1, Uniform Delay [s]	0.00	26.65	0.00	16.75	8.22	7.85	7.85	0.00	14.03	9.02
k, delay calibration	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.08	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.63	0.00	0.29	0.37	0.59	0.59	0.00	1.13	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.36	0.00	0.33	0.24	0.52	0.52	0.00	0.76	0.06
d, Delay for Lane Group [s/veh]	0.00	27.29	0.00	17.04	8.58	8.43	8.43	0.00	15.17	9.07
Lane Group LOS	A	C	A	B	A	A	A	A	B	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	1.37	0.00	1.71	0.45	3.65	3.65	0.00	6.67	0.31
50th-Percentile Queue Length [ft/ln]	0.00	34.26	0.00	42.81	11.32	91.25	91.25	0.00	166.78	7.66
95th-Percentile Queue Length [veh/ln]	0.00	2.47	0.00	3.08	0.82	6.57	6.57	0.00	10.91	0.55
95th-Percentile Queue Length [ft/ln]	0.00	61.66	0.00	77.07	20.38	164.26	164.26	0.00	272.68	13.79

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	27.29	0.00	17.04	8.58	8.43	8.43	0.00	15.17	9.07
Movement LOS	A	A	A	C	A	B	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	0.00			20.88			8.45			14.96		
Approach LOS	A			C			A			B		
d_I, Intersection Delay [s/veh]	12.67											
Intersection LOS	B											
Intersection V/C	0.540											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.714	2.319	2.788	2.969
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	444	667	1333	1333
d_b, Bicycle Delay [s]	27.22	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.560	1.969	2.511	2.583
Bicycle LOS	A	A	B	B

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 700: NE Three Mile Ln/SE Armory Way**

Control Type:	Two-way stop	Delay (sec / veh):	52.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.098

**Intersection Setup**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1079	2	0	1183
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	278	1	0	305
Total Analysis Volume [veh/h]	8	8	1112	2	0	1220
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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




**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.10	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	52.30	15.82	0.00	0.00	10.67	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.38	0.38	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.46	9.46	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	34.06		0.00		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	74.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.216

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	21	8	1048	1135	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	5	2	270	293	1
Total Analysis Volume [veh/h]	13	22	8	1080	1170	3
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.22	0.05	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	74.45	23.02	11.91	0.00	0.00	0.00
Movement LOS	F	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.01	1.01	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	25.17	25.17	1.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	42.12		0.09		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.68					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	116.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.045

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↔		↕↔		↖	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	291	12	835	234	24	844
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	76	3	217	61	6	220
Total Analysis Volume [veh/h]	303	13	870	244	25	879
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

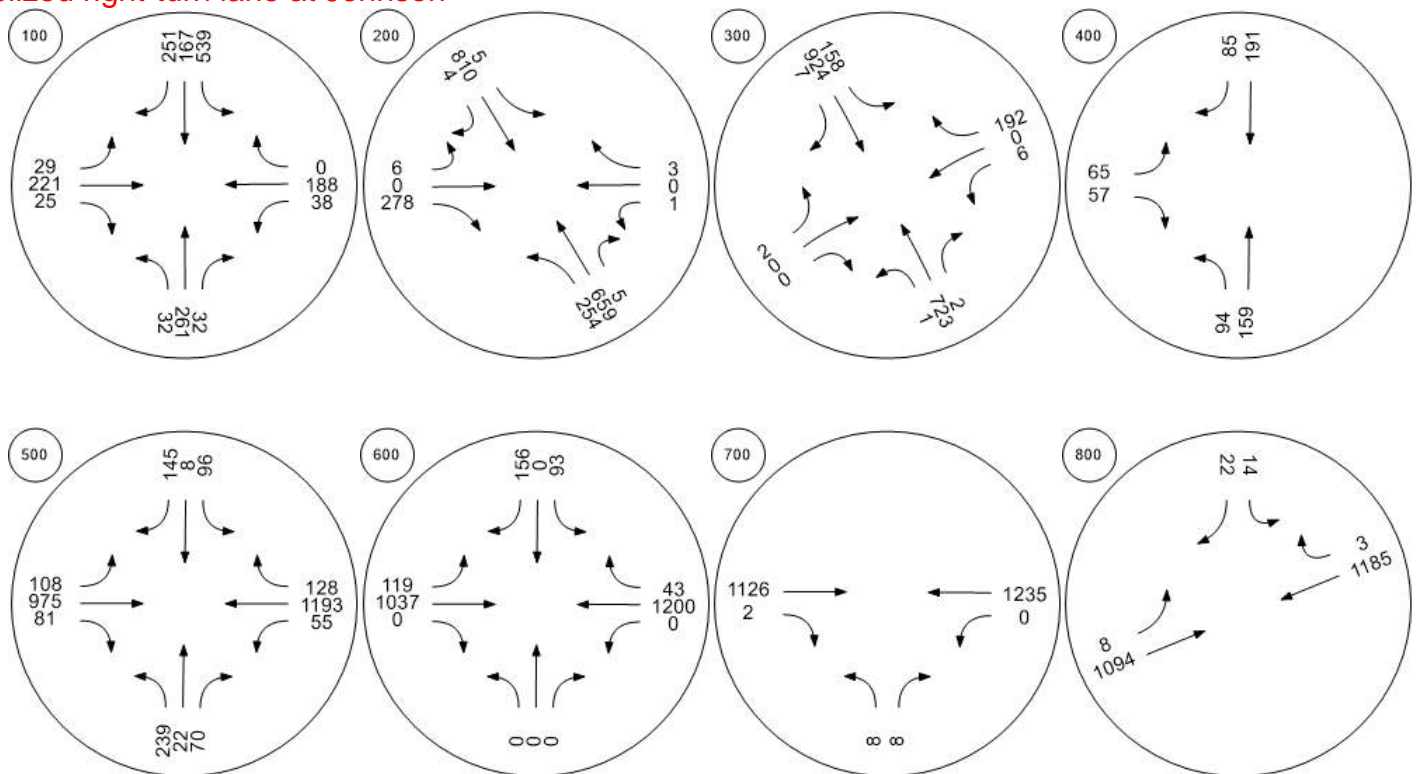
V/C, Movement V/C Ratio	1.05	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	115.99	114.18	0.00	0.00	9.75	0.00
Movement LOS	F	F	A	A	A	
95th-Percentile Queue Length [veh/ln]	12.51	12.51	0.00	0.00	0.10	0.00
95th-Percentile Queue Length [ft/ln]	312.79	312.79	0.00	0.00	2.47	0.00
d_A, Approach Delay [s/veh]	115.91		0.00		9.75	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	25.34					
Intersection LOS	F					

Appendix D 2022 Background Traffic  
Volumes and Analysis

Traffic Volume - Future Total Volume



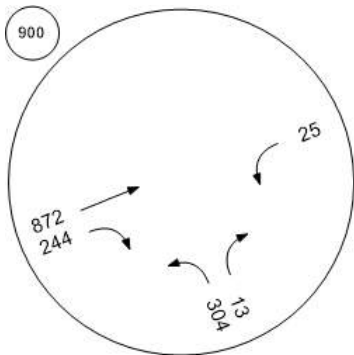
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank





**Intersection Level Of Service Report**  
**Intersection 100: NE Johnson St/NE 3rd St**

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

**Intersection Setup**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	261	32	539	167	251	29	221	25	38	188	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	65	8	135	42	63	7	55	6	10	47	0
Total Analysis Volume [veh/h]	32	261	32	539	167	251	29	221	25	38	188	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	113	113	113	113	113	113	113
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	39	70	2	19	12	28
g / C, Green / Cycle	0.24	0.35	0.62	0.02	0.17	0.11	0.25
(v / s)_i Volume / Saturation Flow Rate	0.22	0.34	0.27	0.02	0.15	0.02	0.11
s, saturation flow rate [veh/h]	1506	1603	1522	1603	1653	1603	1683
c, Capacity [veh/h]	391	558	943	35	278	64	424
d1, Uniform Delay [s]	37.39	29.54	4.45	54.54	42.66	44.40	31.29
k, delay calibration	0.33	0.43	0.20	0.08	0.30	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.03	27.70	0.61	29.02	21.05	8.56	0.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.83	0.97	0.44	0.83	0.88	0.60	0.44
d, Delay for Lane Group [s/veh]	50.41	57.24	5.06	83.56	63.71	52.95	32.02
Lane Group LOS	D	E	A	F	E	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.44	16.93	2.12	1.09	7.90	1.09	3.89
50th-Percentile Queue Length [ft/ln]	236.05	423.28	52.99	27.37	197.47	27.25	97.27
95th-Percentile Queue Length [veh/ln]	14.48	23.68	3.82	1.97	12.51	1.96	7.00
95th-Percentile Queue Length [ft/ln]	362.04	591.98	95.38	49.27	312.70	49.06	175.08

**Movement, Approach, & Intersection Results**

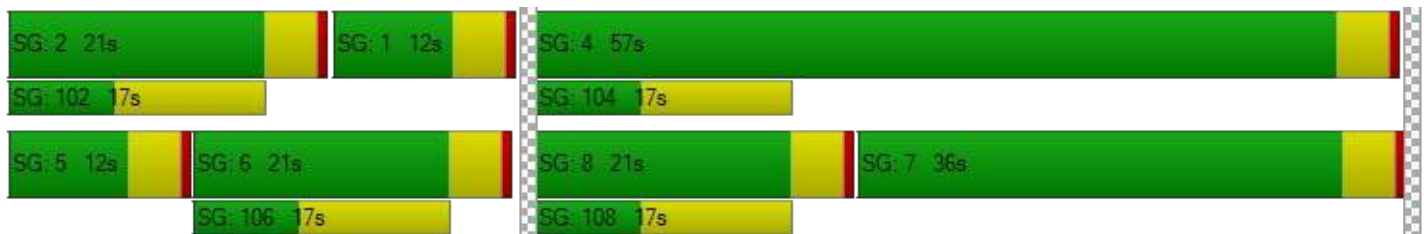
d_M, Delay for Movement [s/veh]	50.41	50.41	50.41	57.24	5.06	5.06	83.56	63.71	63.71	52.95	32.02	0.00
Movement LOS	D	D	D	E	A	A	F	E	E	D	C	
d_A, Approach Delay [s/veh]	50.41			34.45			65.81			35.54		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	42.33											
Intersection LOS	D											
Intersection V/C	0.727											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
l_p,int, Pedestrian LOS Score for Intersection	1.985			2.345			2.228			2.379		
Crosswalk LOS	A			B			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	378			1178			378			378		
d_b, Bicycle Delay [s]	29.61			7.61			29.61			29.61		
l_b,int, Bicycle LOS Score for Intersection	2.096			3.139			2.013			1.933		
Bicycle LOS	B			C			B			A		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Two-way stop	Delay (sec / veh):	1,320.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.334

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	659	5	5	810	4	6	0	278	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	177	1	1	218	1	2	0	75	0	0	1
Total Analysis Volume [veh/h]	273	709	5	5	871	4	6	0	299	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.35	0.01	0.00	0.01	0.01	0.00	0.23	0.00	0.85	0.33	0.00	0.01
d_M, Delay for Movement [s/veh]	12.20	0.00	0.00	9.48	0.00	0.00	246.08	219.59	116.02	1320.74	233.05	127.57
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	1.60	0.00	0.00	0.02	0.00	0.00	12.31	12.31	12.31	0.83	0.83	0.83
95th-Percentile Queue Length [ft/ln]	40.05	0.00	0.00	0.47	0.00	0.00	307.67	307.67	307.67	20.82	20.82	20.82
d_A, Approach Delay [s/veh]	3.37			0.05			118.58			425.86		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	18.96											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.225

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	723	2	158	924	7	2	0	0	6	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	196	1	43	251	2	1	0	0	2	0	52
Total Analysis Volume [veh/h]	1	786	2	172	1004	8	2	0	0	7	0	209
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.21	0.01	0.00	0.23	0.00	0.00	0.31	0.00	0.53
d_M, Delay for Movement [s/veh]	10.20	0.00	0.00	10.46	0.00	0.00	10000.0	10000.0	10000.0	210.76	190.20	59.86
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00	6.83	6.83	6.83
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	19.38	19.38	19.38	25.00	25.00	25.00	170.64	170.64	170.64
d_A, Approach Delay [s/veh]	0.01			1.52			10000.00			64.75		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	16.34											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 400: NE Cumulus Ave/ NE Norton Ln**

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

**Intersection Setup**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇂		⇈	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	159	191	85	65	57
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	42	50	22	17	15
Total Analysis Volume [veh/h]	99	167	201	89	68	60
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.15	0.07
d_M, Delay for Movement [s/veh]	8.14	0.00	0.00	0.00	13.86	10.00
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.26	0.13	0.00	0.00	0.54	0.54
95th-Percentile Queue Length [ft/ln]	6.45	3.23	0.00	0.00	13.43	13.43
d_A, Approach Delay [s/veh]	3.03		0.00		12.05	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.43					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	96	8	145	108	975	81	55	1193	128
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	26	2	39	29	259	22	15	317	34
Total Analysis Volume [veh/h]	254	23	74	102	9	154	115	1037	86	59	1269	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	117	117	117	117	117	117	117	117	117	117
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	12	23	10	21	67	58	58	67	56	56
g / C, Green / Cycle	0.10	0.20	0.08	0.18	0.57	0.49	0.49	0.57	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.06	0.11	0.20	0.33	0.06	0.10	0.40	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	567	3179	1396	608	3179	1408
c, Capacity [veh/h]	320	272	133	263	276	1558	684	318	1506	667
d1, Uniform Delay [s]	51.56	40.67	52.72	44.50	21.76	22.67	16.27	15.20	27.10	18.02
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.08	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.32	0.58	6.62	1.76	2.36	1.16	0.19	0.21	3.13	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.79	0.36	0.76	0.62	0.42	0.67	0.13	0.19	0.84	0.20
d, Delay for Lane Group [s/veh]	54.89	41.26	59.34	46.26	24.12	23.83	16.47	15.40	30.23	18.38
Lane Group LOS	D	D	E	D	C	C	B	B	C	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.80	2.47	3.19	4.51	1.46	10.30	1.23	0.65	15.02	2.11
50th-Percentile Queue Length [ft/ln]	94.92	61.83	79.71	112.67	36.56	257.58	30.84	16.31	375.45	52.82
95th-Percentile Queue Length [veh/ln]	6.83	4.45	5.74	7.99	2.63	15.57	2.22	1.17	21.37	3.80
95th-Percentile Queue Length [ft/ln]	170.86	111.30	143.47	199.71	65.80	389.18	55.51	29.36	534.34	95.07

**Movement, Approach, & Intersection Results**

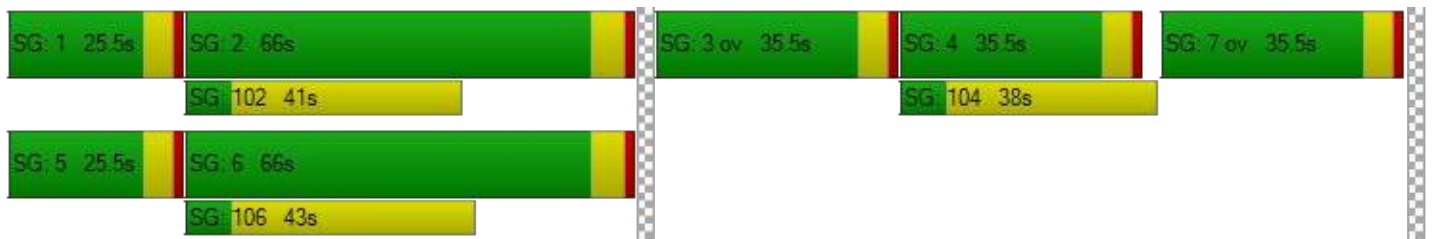
d_M, Delay for Movement [s/veh]	54.89	41.26	41.26	59.34	46.26	46.26	24.12	23.83	16.47	15.40	30.23	18.38
Movement LOS	D	D	D	E	D	D	C	C	B	B	C	B
d_A, Approach Delay [s/veh]	51.12			51.29			23.34			28.53		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	30.80											
Intersection LOS	C											
Intersection V/C	0.701											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.296	2.342	3.163	3.105
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.139	1.997	2.581	2.767
Bicycle LOS	B	A	B	C

**Sequence**

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





**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	0	156	119	1037	0	0	1200	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	24	0	41	31	270	0	0	313	11
Total Analysis Volume [veh/h]	0	0	0	97	0	163	124	1080	0	0	1250	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	73	73	73	73	73	73	73	73	73	73
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	11	11	11	24	51	45	45	51	37	37
g / C, Green / Cycle	0.15	0.15	0.15	0.33	0.70	0.62	0.62	0.70	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.00	0.08	0.00	0.12	0.19	0.32	0.32	0.00	0.39	0.03
s, saturation flow rate [veh/h]	1710	1265	1710	1408	657	1669	1669	557	3179	1454
c, Capacity [veh/h]	298	248	248	471	476	1037	1037	447	1614	738
d1, Uniform Delay [s]	0.00	28.88	0.00	18.24	9.07	7.72	7.72	0.00	14.54	9.11
k, delay calibration	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.08	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.75	0.00	0.32	0.41	0.58	0.58	0.00	1.17	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.39	0.00	0.35	0.26	0.52	0.52	0.00	0.77	0.06
d, Delay for Lane Group [s/veh]	0.00	29.63	0.00	18.56	9.47	8.29	8.29	0.00	15.71	9.16
Lane Group LOS	A	C	A	B	A	A	A	A	B	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.00	1.56	0.00	1.99	0.49	3.98	3.98	0.00	7.54	0.34
50th-Percentile Queue Length [ft/ln]	0.00	39.12	0.00	49.73	12.28	99.40	99.40	0.00	188.47	8.45
95th-Percentile Queue Length [veh/ln]	0.00	2.82	0.00	3.58	0.88	7.16	7.16	0.00	12.04	0.61
95th-Percentile Queue Length [ft/ln]	0.00	70.41	0.00	89.51	22.11	178.92	178.92	0.00	301.04	15.21

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	29.63	0.00	18.56	9.47	8.29	8.29	0.00	15.71	9.16
Movement LOS	A	A	A	C	A	B	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	0.00			22.69			8.42			15.48		
Approach LOS	A			C			A			B		
d_I, Intersection Delay [s/veh]	13.08											
Intersection LOS	B											
Intersection V/C	0.561											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.714	2.330	2.810	2.992
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	444	667	1333	1333
d_b, Bicycle Delay [s]	27.22	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	1.560	1.989	2.553	2.628
Bicycle LOS	A	A	B	B

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 700: NE Three Mile Ln/SE Armory Way**

Control Type:	Two-way stop	Delay (sec / veh):	58.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.110

**Intersection Setup**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1126	2	0	1235
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	290	1	0	318
Total Analysis Volume [veh/h]	8	8	1161	2	0	1273
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.11	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	58.52	16.92	0.00	0.00	10.92	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.42	0.42	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.59	10.59	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	37.72		0.00		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	86.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	22	8	1094	1185	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	2	282	305	1
Total Analysis Volume [veh/h]	14	23	8	1128	1222	3
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.26	0.06	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	86.83	27.61	12.26	0.00	0.00	0.00
Movement LOS	F	D	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.25	1.25	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	31.23	31.23	1.21	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	50.02		0.09		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.81					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	158.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.158

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	304	13	872	244	25	922
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	3	227	64	7	240
Total Analysis Volume [veh/h]	317	14	908	254	26	960
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

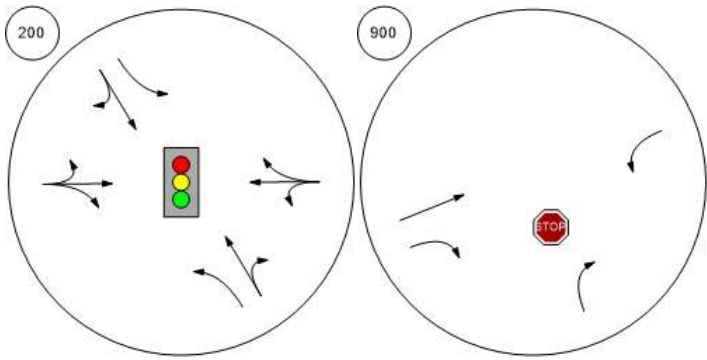
Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	1.16	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	158.89	156.90	0.00	0.00	9.92	0.00
Movement LOS	F	F	A	A	A	
95th-Percentile Queue Length [veh/ln]	15.13	15.13	0.00	0.00	0.11	0.00
95th-Percentile Queue Length [ft/ln]	378.34	378.34	0.00	0.00	2.66	0.00
d_A, Approach Delay [s/veh]	158.81		0.00		9.92	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	34.77					
Intersection LOS	F					

Appendix E 2022 Mitigated Background  
Traffic Analysis

Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	40.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.854

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	659	5	5	810	4	6	0	278	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	177	1	1	218	1	2	0	75	0	0	1
Total Analysis Volume [veh/h]	273	709	5	5	871	4	6	0	299	1	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	40	40	19	19
g / C, Green / Cycle	0.67	0.67	0.49	0.49	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.34	0.42	0.01	0.52	0.21	0.00
s, saturation flow rate [veh/h]	808	1681	567	1682	1457	1203
c, Capacity [veh/h]	387	1119	208	821	389	339
d1, Uniform Delay [s]	21.00	7.95	25.73	20.98	30.22	23.96
k, delay calibration	0.50	0.13	0.11	0.50	0.14	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.33	0.73	0.05	50.60	4.38	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.71	0.64	0.02	1.07	0.78	0.01
d, Delay for Lane Group [s/veh]	31.33	8.68	25.78	71.58	34.60	23.97
Lane Group LOS	C	A	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.58	5.77	0.08	25.15	6.06	0.06
50th-Percentile Queue Length [ft/ln]	64.53	144.34	1.93	628.80	151.39	1.48
95th-Percentile Queue Length [veh/ln]	4.65	9.71	0.14	35.04	10.09	0.11
95th-Percentile Queue Length [ft/ln]	116.15	242.85	3.48	876.04	252.28	2.67

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	31.33	8.68	8.68	25.78	71.58	71.58	34.60	34.60	34.60	23.97	23.97	23.97
Movement LOS	C	A	A	C	F	E	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.94			71.32			34.60			23.97		
Approach LOS	B			E			C			C		
d_I, Intersection Delay [s/veh]	40.51											
Intersection LOS	D											
Intersection V/C	0.854											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.556			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.188			3.012			2.063			1.566		
Bicycle LOS	C			C			B			A		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	0	0	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	307	13	872	244	25	922
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	3	227	64	7	240
Total Analysis Volume [veh/h]	320	14	908	254	26	960
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

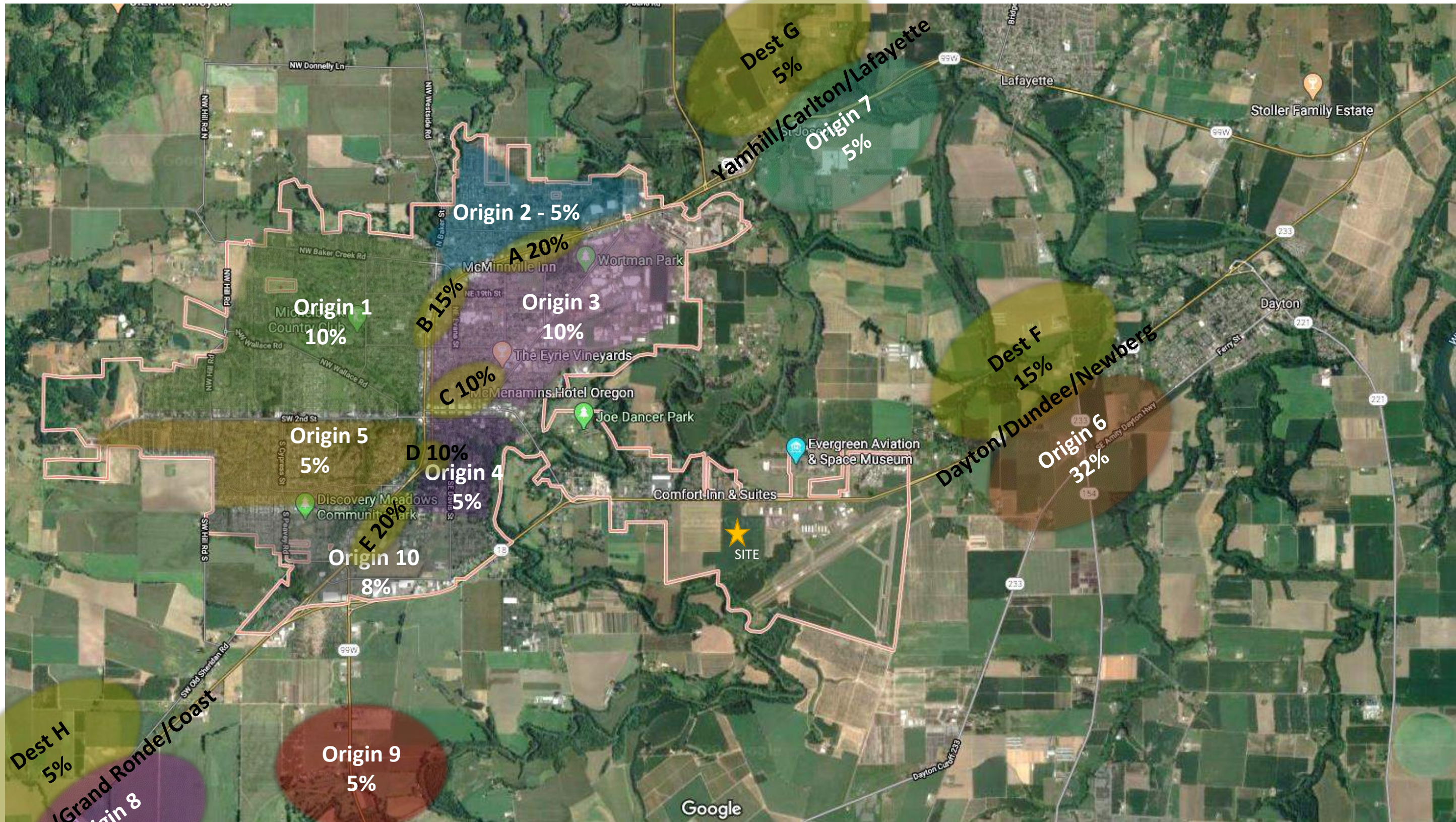
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	0.00	16.67	0.00	0.00	9.92	0.00
Movement LOS		C	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.14	0.00	0.00	0.11	0.00
95th-Percentile Queue Length [ft/ln]	0.00	3.39	0.00	0.00	2.66	0.00
d_A, Approach Delay [s/veh]	16.67		0.00		9.92	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Appendix F 2022 Total Traffic Volumes and  
Analysis





Sheridan/Grand Ronde/Coast  
Origin 8  
15%

Amity  
Origin 9  
5%

Amity

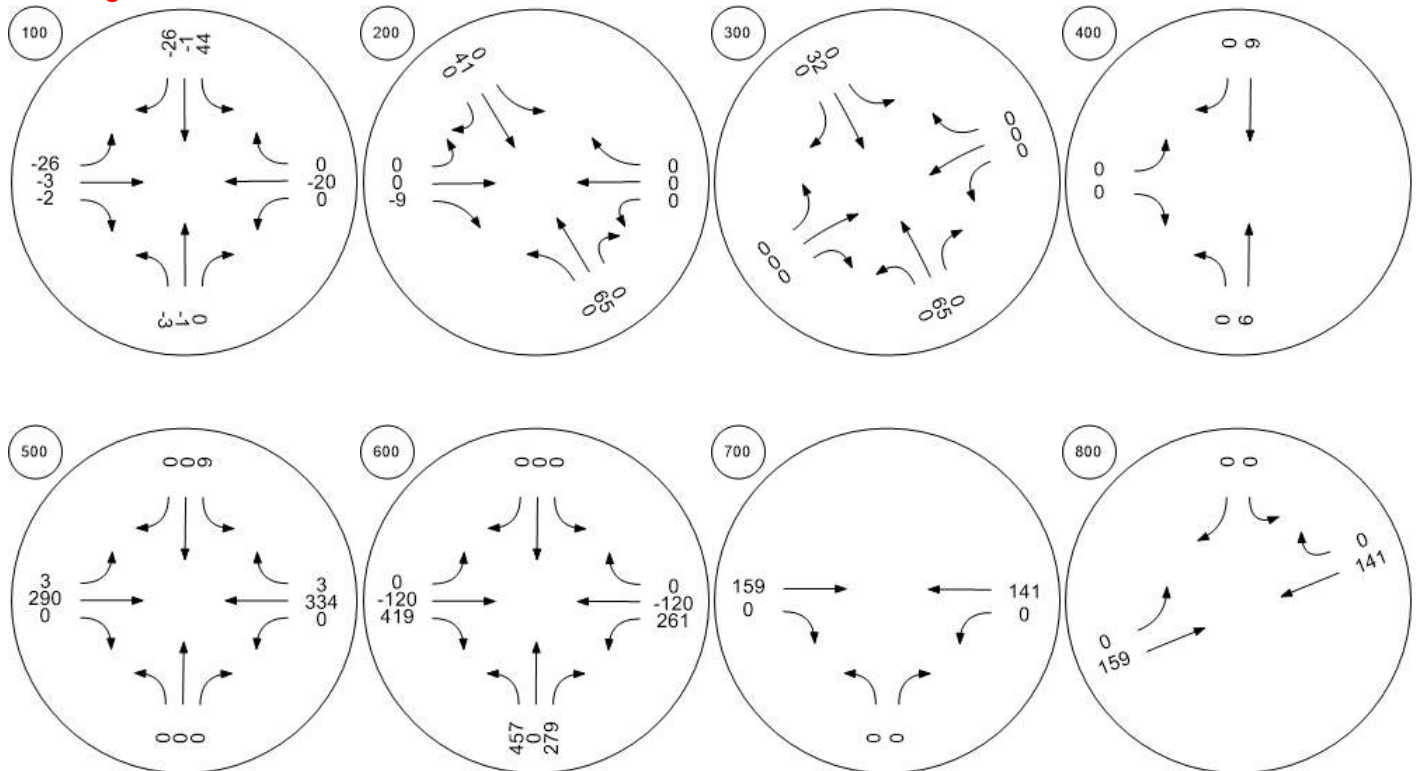
Google



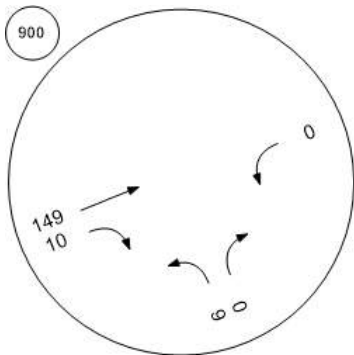
Traffic Volume - Net New Site Trips



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips



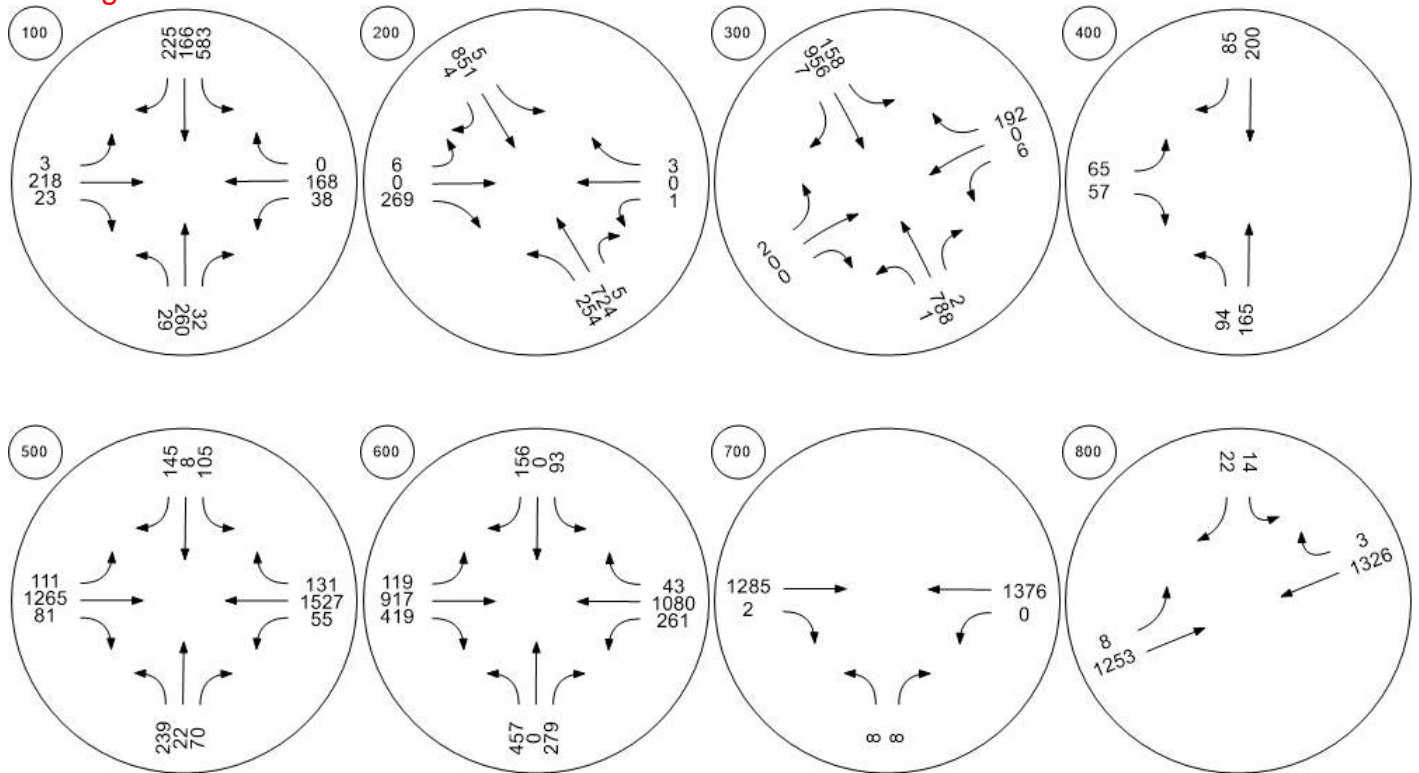
The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Traffic Volume - Future Total Volume



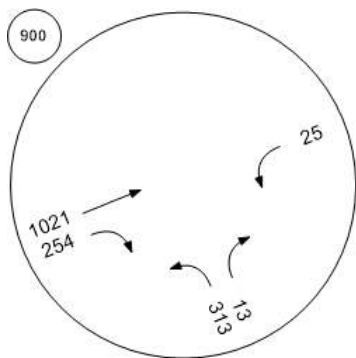
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



**Intersection Level Of Service Report**  
**Intersection 100: NE Johnson St/NE 3rd St**

Control Type:	Signalized	Delay (sec / veh):	45.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

**Intersection Setup**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-2	-1	0	45	0	-18	-4	17	0	0	-34	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	260	32	583	166	225	3	218	23	38	168	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	65	8	146	42	56	1	55	6	10	42	0
Total Analysis Volume [veh/h]	29	260	32	583	166	225	3	218	23	38	168	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	111	111	111	111	111	111	111
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	40	69	0	18	12	30
g / C, Green / Cycle	0.23	0.36	0.62	0.00	0.17	0.11	0.27
(v / s)_i Volume / Saturation Flow Rate	0.20	0.36	0.26	0.00	0.15	0.02	0.10
s, saturation flow rate [veh/h]	1577	1603	1528	1603	1655	1603	1683
c, Capacity [veh/h]	392	575	949	4	274	65	452
d1, Uniform Delay [s]	37.43	29.07	4.26	55.48	42.39	43.81	28.83
k, delay calibration	0.30	0.47	0.17	0.08	0.28	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.86	40.06	0.46	87.42	19.86	8.24	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.82	1.01	0.41	0.68	0.88	0.59	0.37
d, Delay for Lane Group [s/veh]	48.29	69.13	4.72	142.90	62.25	52.05	29.34
Lane Group LOS	D	F	A	F	E	D	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.97	19.93	1.89	0.19	7.57	1.07	3.26
50th-Percentile Queue Length [ft/ln]	224.32	498.31	47.21	4.77	189.36	26.83	81.41
95th-Percentile Queue Length [veh/ln]	13.89	27.52	3.40	0.34	12.09	1.93	5.86
95th-Percentile Queue Length [ft/ln]	347.13	687.92	84.98	8.59	302.20	48.30	146.54



**Movement, Approach, & Intersection Results**

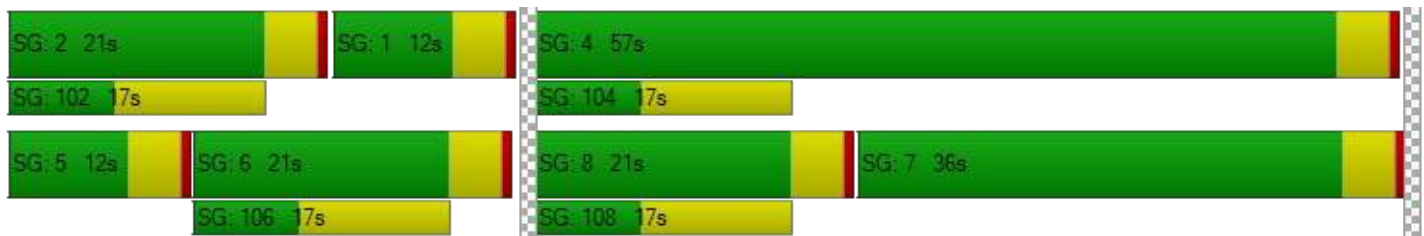
d_M, Delay for Movement [s/veh]	48.29	48.29	48.29	69.13	4.72	4.72	142.90	62.25	62.25	52.05	29.34	0.00
Movement LOS	D	D	D	F	A	A	F	E	E	D	C	
d_A, Approach Delay [s/veh]	48.29			43.27			63.24			33.53		
Approach LOS	D			D			E			C		
d_I, Intersection Delay [s/veh]	45.84											
Intersection LOS	D											
Intersection V/C	0.740											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	1.982	2.342	2.197	2.384
Crosswalk LOS	A	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.089	3.167	1.962	1.900
Bicycle LOS	B	C	A	A

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Two-way stop	Delay (sec / veh):	1,917.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	724	5	5	851	4	6	0	269	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	195	1	1	229	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	273	778	5	5	915	4	6	0	289	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.37	0.01	0.00	0.01	0.01	0.00	0.29	0.00	0.87	0.47	0.00	0.01
d_M, Delay for Movement [s/veh]	12.64	0.00	0.00	9.76	0.00	0.00	305.81	271.20	144.85	1917.03	352.41	224.33
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	1.70	0.00	0.00	0.02	0.00	0.00	13.35	13.35	13.35	0.98	0.98	0.98
95th-Percentile Queue Length [ft/ln]	42.38	0.00	0.00	0.50	0.00	0.00	333.85	333.85	333.85	24.59	24.59	24.59
d_A, Approach Delay [s/veh]	3.27			0.05			148.12			647.50		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	21.85											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.325

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	2	0	0	6	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	788	2	158	956	7	2	0	0	6	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	1	43	260	2	1	0	0	2	0	52
Total Analysis Volume [veh/h]	1	857	2	172	1039	8	2	0	0	7	0	209
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			Yes	Yes
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.22	0.01	0.00	0.33	0.00	0.00	0.40	0.00	0.58
d_M, Delay for Movement [s/veh]	10.36	0.00	0.00	10.90	0.00	0.00	10000.0	10000.0	10000.0	291.29	267.42	96.30
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.84	0.84	0.84	1.00	1.00	1.00	8.76	8.76	8.76
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	20.91	20.91	20.91	25.00	25.00	25.00	219.07	219.07	219.07
d_A, Approach Delay [s/veh]	0.01			1.54			10000.00			102.62		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	19.18											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 400: NE Cumulus Ave/ NE Norton Ln**

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.156

**Intersection Setup**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	6	9	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	165	200	85	65	57
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	43	53	22	17	15
Total Analysis Volume [veh/h]	99	174	211	89	68	60
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.16	0.07
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	14.06	10.07
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.26	0.13	0.00	0.00	0.55	0.55
95th-Percentile Queue Length [ft/ln]	6.52	3.26	0.00	0.00	13.76	13.76
d_A, Approach Delay [s/veh]	2.96		0.00		12.19	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.38					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.819

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	105	8	145	111	1265	81	55	1527	131
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	28	2	39	30	336	22	15	406	35
Total Analysis Volume [veh/h]	254	23	74	112	9	154	118	1346	86	59	1624	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	60	0	20	60	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	124	124	124	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	13	24	11	23	72	62	62	72	60	60
g / C, Green / Cycle	0.10	0.19	0.09	0.18	0.58	0.50	0.50	0.58	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.07	0.11	0.25	0.42	0.06	0.12	0.51	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	467	3179	1396	493	3179	1408
c, Capacity [veh/h]	319	268	143	268	219	1588	697	233	1529	677
d1, Uniform Delay [s]	54.75	43.49	55.58	46.83	27.31	27.11	16.65	22.12	32.37	18.64
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.19	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.39	0.61	6.84	1.65	4.78	3.09	0.19	1.02	35.96	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.80	0.36	0.78	0.61	0.54	0.85	0.12	0.25	1.06	0.21
d, Delay for Lane Group [s/veh]	58.14	44.10	62.41	48.48	32.09	30.19	16.84	23.14	68.33	18.99
Lane Group LOS	E	D	E	D	C	C	B	C	F	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.05	2.65	3.72	4.78	1.69	16.69	1.29	0.74	28.76	2.28
50th-Percentile Queue Length [ft/ln]	101.14	66.26	92.93	119.42	42.22	417.34	32.33	18.46	719.07	56.95
95th-Percentile Queue Length [veh/ln]	7.28	4.77	6.69	8.36	3.04	23.39	2.33	1.33	39.34	4.10
95th-Percentile Queue Length [ft/ln]	182.05	119.27	167.27	209.02	76.00	584.86	58.19	33.23	983.61	102.51

**Movement, Approach, & Intersection Results**

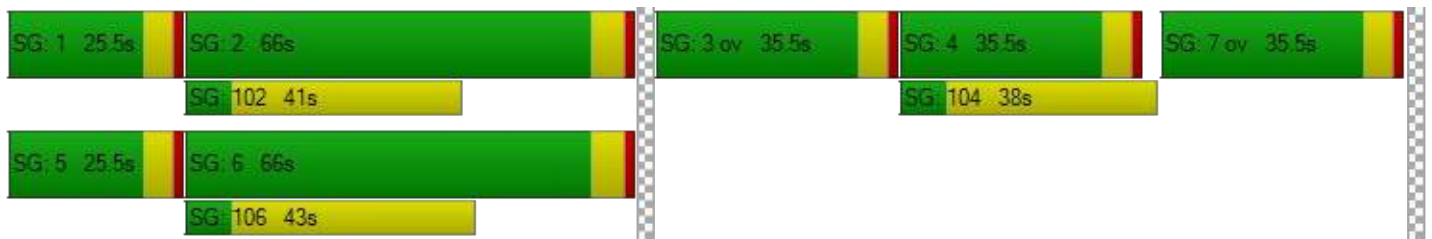
d_M, Delay for Movement [s/veh]	58.14	44.10	44.10	62.41	48.48	48.48	32.09	30.19	16.84	23.14	68.33	18.99
Movement LOS	E	D	D	E	D	D	C	C	B	C	F	B
d_A, Approach Delay [s/veh]	54.26			54.16			29.59			63.11		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	48.72											
Intersection LOS	D											
Intersection V/C	0.819											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.297	2.349	3.325	3.270
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1333	1333
d_b, Bicycle Delay [s]	3.33	2.69	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.139	2.013	2.838	3.063
Bicycle LOS	B	B	C	C

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	156.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.206

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			← →			← →			← →		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	93	0	156	119	917	419	261	1080	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	24	0	41	31	239	109	68	281	11
Total Analysis Volume [veh/h]	476	0	291	97	0	163	124	955	436	272	1125	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

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**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	5	5	2	0	1	6	0
Auxiliary Signal Groups						4,5						
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	5	5	10	0	5	10	0
Maximum Green [s]	0	20	0	0	30	20	20	60	0	20	60	0
Amber [s]	0.0	4.5	0.0	0.0	4.5	4.5	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	2.5	2.5	4.0	0.0	2.5	4.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	0.0	0.0	3.5	3.5	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall		No			No	No	No	Yes		No	Yes	
Maximum Recall		No			No	No	No	No		No	No	
Pedestrian Recall		No			No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	96	96	96	96	96	96	96	96	96	96
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	3.50	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	20	20	20	36	64	48	48	64	48	48
g / C, Green / Cycle	0.21	0.21	0.21	0.37	0.67	0.51	0.51	0.67	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.63	0.10	0.00	0.12	0.18	0.43	0.45	0.43	0.35	0.03
s, saturation flow rate [veh/h]	1218	971	1710	1408	673	1669	1497	629	3179	1454
c, Capacity [veh/h]	316	75	358	524	442	844	757	389	1613	737
d1, Uniform Delay [s]	40.57	34.18	0.00	21.31	10.46	20.60	21.13	21.68	17.97	11.98
k, delay calibration	0.50	0.08	0.08	0.08	0.15	0.26	0.27	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	653.23	145.29	0.00	0.25	0.49	5.90	8.40	9.97	0.79	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	2.43	1.29	0.00	0.31	0.28	0.86	0.88	0.70	0.70	0.06
d, Delay for Lane Group [s/veh]	693.80	179.47	0.00	21.56	10.94	26.50	29.53	31.65	18.76	12.03
Lane Group LOS	F	F	A	C	B	C	C	C	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	64.73	4.59	0.00	2.57	0.85	14.42	14.15	2.99	9.05	0.48
50th-Percentile Queue Length [ft/ln]	1618.25	114.83	0.00	64.37	21.26	360.43	353.86	74.86	226.36	12.09
95th-Percentile Queue Length [veh/ln]	102.53	8.27	0.00	4.63	1.53	20.64	20.32	5.39	13.99	0.87
95th-Percentile Queue Length [ft/ln]	2563.36	206.69	0.00	115.87	38.28	516.11	508.12	134.75	349.73	21.76

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	693.80	693.80	693.80	179.47	0.00	21.56	10.94	27.24	29.53	31.65	18.76	12.03
Movement LOS	F	F	F	F	A	C	B	C	C	C	B	B
d_A, Approach Delay [s/veh]	693.80			80.47			26.56			20.98		
Approach LOS	F			F			C			C		
d_I, Intersection Delay [s/veh]	156.52											
Intersection LOS	F											
Intersection V/C	1.206											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.637	2.328	3.616	3.043
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	444	667	1333	1333
d_b, Bicycle Delay [s]	27.22	20.00	5.00	5.00
I_b,int, Bicycle LOS Score for Intersection	2.825	1.989	2.809	2.749
Bicycle LOS	C	A	C	B

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 700: NE Three Mile Ln/SE Armory Way**

Control Type:	Two-way stop	Delay (sec / veh):	84.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

**Intersection Setup**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	32	0	0	97
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	8	1285	2	0	1376
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	331	1	0	355
Total Analysis Volume [veh/h]	8	8	1325	2	0	1419
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.16	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	84.73	22.29	0.00	0.00	11.83	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.61	0.61	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.23	15.23	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	53.51		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.31					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	136.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.387

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	22	8	1253	1326	3
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	2	323	342	1
Total Analysis Volume [veh/h]	14	23	8	1292	1367	3
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.39	0.06	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	136.28	46.35	13.33	0.00	0.00	0.00
Movement LOS	F	E	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.85	1.85	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	46.17	46.17	1.39	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	80.38		0.08		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	1.14					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	303.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.484

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↔		↕↔		↖	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	313	13	1021	254	25	1013
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	3	266	66	7	264
Total Analysis Volume [veh/h]	326	14	1064	265	26	1055
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

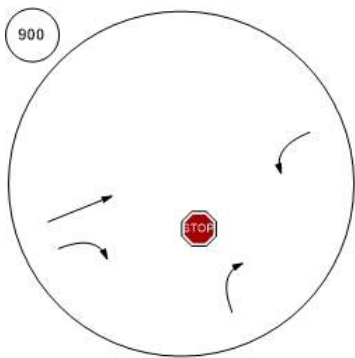
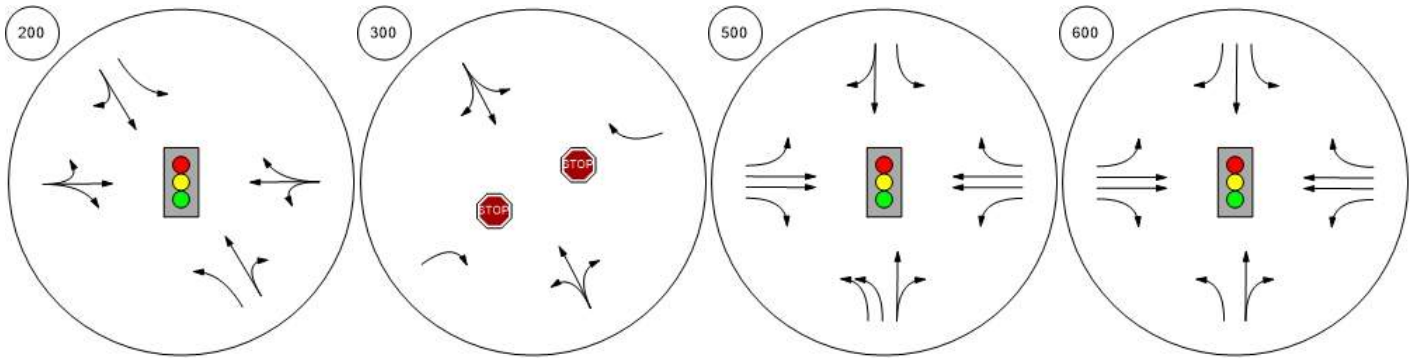
Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	1.48	0.05	0.01	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	303.20	300.59	0.00	0.00	10.66	0.00
Movement LOS	F	F	A	A	B	
95th-Percentile Queue Length [veh/ln]	20.94	20.94	0.00	0.00	0.12	0.00
95th-Percentile Queue Length [ft/ln]	523.60	523.60	0.00	0.00	3.06	0.00
d_A, Approach Delay [s/veh]	303.09		0.00		10.66	
Approach LOS	F		A		B	
d_I, Intersection Delay [s/veh]	60.96					
Intersection LOS	F					

Appendix G 2022 Mitigated Total Traffic  
Analysis

Lane Configuration and Traffic Control



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank

**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	46.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.874

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		



**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	254	724	5	5	851	4	6	0	269	1	0	3
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	195	1	1	229	1	2	0	72	0	0	1
Total Analysis Volume [veh/h]	273	778	5	5	915	4	6	0	289	1	0	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	40	40	19	19
g / C, Green / Cycle	0.67	0.67	0.49	0.49	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.35	0.47	0.01	0.55	0.20	0.00
s, saturation flow rate [veh/h]	789	1681	532	1682	1457	1227
c, Capacity [veh/h]	388	1129	182	829	380	338
d1, Uniform Delay [s]	20.87	8.19	27.87	20.56	30.16	24.12
k, delay calibration	0.50	0.16	0.11	0.50	0.12	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.20	1.18	0.06	65.31	3.75	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.70	0.69	0.03	1.11	0.78	0.01
d, Delay for Lane Group [s/veh]	31.08	9.37	27.93	85.87	33.91	24.14
Lane Group LOS	C	A	C	F	C	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.50	6.62	0.08	28.56	5.74	0.06
50th-Percentile Queue Length [ft/ln]	62.60	165.56	2.02	713.94	143.42	1.48
95th-Percentile Queue Length [veh/ln]	4.51	10.84	0.15	40.30	9.66	0.11
95th-Percentile Queue Length [ft/ln]	112.68	271.06	3.64	1007.48	241.62	2.67

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	31.08	9.37	9.37	27.93	85.87	85.87	33.91	33.91	33.91	24.14	24.14	24.14
Movement LOS	C	A	A	C	F	F	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.98			85.56			33.91			24.14		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	46.06											
Intersection LOS	D											
Intersection V/C	0.874											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.599			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.302			3.084			2.046			1.566		
Bicycle LOS	C			C			B			A		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	28.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	788	2	158	956	7	0	0	0	0	0	192
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	1	43	260	2	0	0	0	0	0	52
Total Analysis Volume [veh/h]	1	857	2	172	1039	8	0	0	0	0	0	209
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.58
d_M, Delay for Movement [s/veh]	10.36	0.00	0.00	10.90	0.00	0.00	0.00	0.00	17.81	0.00	0.00	28.23
Movement LOS	B	A	A	B	A	A			C			D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.84	0.84	0.84	0.00	0.00	0.00	0.00	0.00	3.54
95th-Percentile Queue Length [ft/ln]	0.11	0.11	0.11	20.91	20.91	20.91	0.00	0.00	0.00	0.00	0.00	88.41
d_A, Approach Delay [s/veh]	0.01			1.54			17.81			28.23		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	3.40											
Intersection LOS	D											

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	39.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	22	70	105	8	145	111	1265	81	55	1527	131
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	6	19	28	2	39	30	336	22	15	406	35
Total Analysis Volume [veh/h]	254	23	74	112	9	154	118	1346	86	59	1624	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	150	150	150	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	15	28	13	26	93	83	83	93	80	80
g / C, Green / Cycle	0.10	0.18	0.09	0.17	0.62	0.55	0.55	0.62	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.07	0.11	0.27	0.42	0.06	0.13	0.51	0.10
s, saturation flow rate [veh/h]	3138	1376	1590	1466	434	3179	1396	465	3179	1408
c, Capacity [veh/h]	305	253	136	253	199	1749	768	237	1691	749
d1, Uniform Delay [s]	66.59	53.80	67.53	57.88	34.50	26.36	16.20	21.25	33.64	18.26
k, delay calibration	0.08	0.08	0.08	0.08	0.26	0.26	0.26	0.34	0.26	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43	0.71	8.81	2.05	6.44	1.73	0.15	1.70	8.82	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.83	0.38	0.82	0.65	0.59	0.77	0.11	0.25	0.96	0.19
d, Delay for Lane Group [s/veh]	71.01	54.51	76.34	59.93	40.95	28.09	16.35	22.95	42.46	18.53
Lane Group LOS	E	D	E	E	D	C	B	C	D	B
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.99	3.30	4.58	5.94	1.94	18.15	1.42	0.87	28.51	2.51
50th-Percentile Queue Length [ft/ln]	124.72	82.46	114.44	148.55	48.39	453.82	35.61	21.79	712.87	62.87
95th-Percentile Queue Length [veh/ln]	8.65	5.94	8.09	9.94	3.48	25.14	2.56	1.57	37.27	4.53
95th-Percentile Queue Length [ft/ln]	216.30	148.43	202.16	248.49	87.11	628.51	64.10	39.23	931.81	113.16

**Movement, Approach, & Intersection Results**

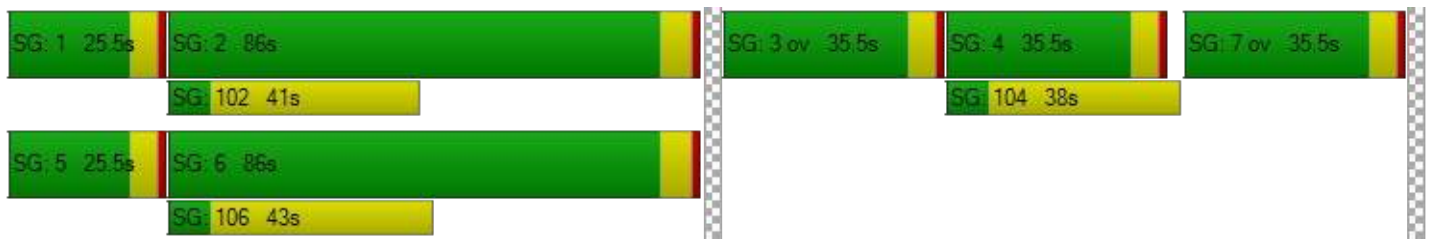
d_M, Delay for Movement [s/veh]	71.01	54.51	54.51	76.34	59.93	59.93	40.95	28.09	16.35	22.95	42.46	18.53
Movement LOS	E	D	D	E	E	E	D	C	B	C	D	B
d_A, Approach Delay [s/veh]	66.45			66.61			28.42			40.00		
Approach LOS	E			E			C			D		
d_I, Intersection Delay [s/veh]	39.67											
Intersection LOS	D											
Intersection V/C	0.804											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.301			2.357			3.325			3.270		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1456			1511			1778			1778		
d_b, Bicycle Delay [s]	3.33			2.69			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.139			2.013			2.838			3.063		
Bicycle LOS	B			B			C			C		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			↵↵			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	93	0	156	119	917	419	261	1080	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	24	0	41	31	239	109	68	281	11
Total Analysis Volume [veh/h]	476	0	291	97	0	163	124	955	436	272	1125	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	117	117	117	117	117	117	117	117	117	117	117
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	40	29	40	6	23	66	48	84	66	49	62
g / C, Green / Cycle	0.34	0.24	0.34	0.05	0.19	0.56	0.41	0.72	0.56	0.42	0.53
(v / s)_i Volume / Saturation Flow Rate	0.30	0.20	0.09	0.00	0.12	0.18	0.30	0.30	0.34	0.35	0.03
s, saturation flow rate [veh/h]	1564	1454	1113	1710	1408	689	3179	1454	801	3179	1454
c, Capacity [veh/h]	617	354	279	83	272	338	1306	1042	406	1333	771
d1, Uniform Delay [s]	36.41	42.03	29.82	0.00	43.23	20.38	29.15	6.71	20.52	30.65	13.35
k, delay calibration	0.50	0.25	0.08	0.08	0.08	0.15	0.15	0.15	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.03	10.41	0.55	0.00	1.57	0.95	1.15	0.38	8.49	2.18	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.77	0.82	0.35	0.00	0.60	0.37	0.73	0.42	0.67	0.84	0.06
d, Delay for Lane Group [s/veh]	45.44	52.44	30.37	0.00	44.80	21.33	30.30	7.09	29.01	32.83	13.40
Lane Group LOS	D	D	C	A	D	C	C	A	C	C	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.13	8.95	1.98	0.00	4.44	1.62	11.36	4.06	4.66	14.38	0.59
50th-Percentile Queue Length [ft/ln]	353.27	223.66	49.38	0.00	110.93	40.39	284.03	101.49	116.43	359.53	14.67
95th-Percentile Queue Length [veh/ln]	20.30	13.85	3.56	0.00	7.89	2.91	16.89	7.31	8.20	20.60	1.06
95th-Percentile Queue Length [ft/ln]	507.39	346.29	88.88	0.00	197.29	72.70	422.23	182.68	204.90	515.01	26.40

**Movement, Approach, & Intersection Results**

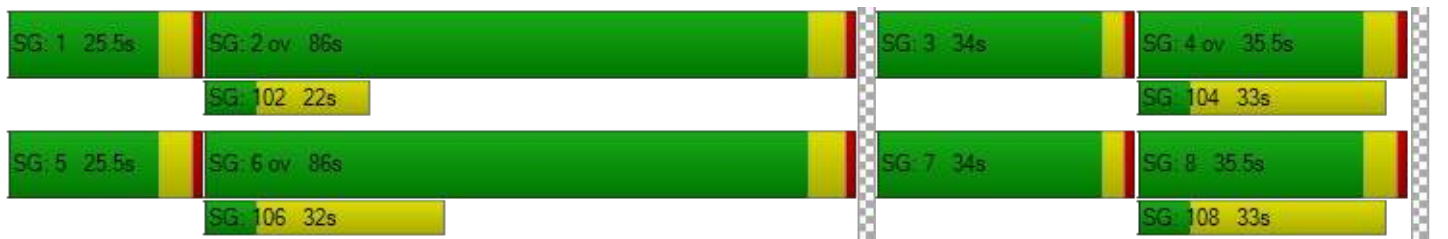
d_M, Delay for Movement [s/veh]	45.44	52.44	52.44	30.37	0.00	44.80	21.33	30.30	7.09	29.01	32.83	13.40
Movement LOS	D	D	D	C	A	D	C	C	A	C	C	B
d_A, Approach Delay [s/veh]	48.10			39.42			22.88			31.50		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	31.94											
Intersection LOS	C											
Intersection V/C	0.794											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.584			2.312			3.029			2.941		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.825			1.989			2.809			2.749		
Bicycle LOS	C			A			C			B		

**Sequence**

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





**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.0440	1.0440	1.0440	1.0440	1.0440	1.0440
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	313	13	1021	254	25	1013
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	82	3	266	66	7	264
Total Analysis Volume [veh/h]	326	14	1064	265	26	1055
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

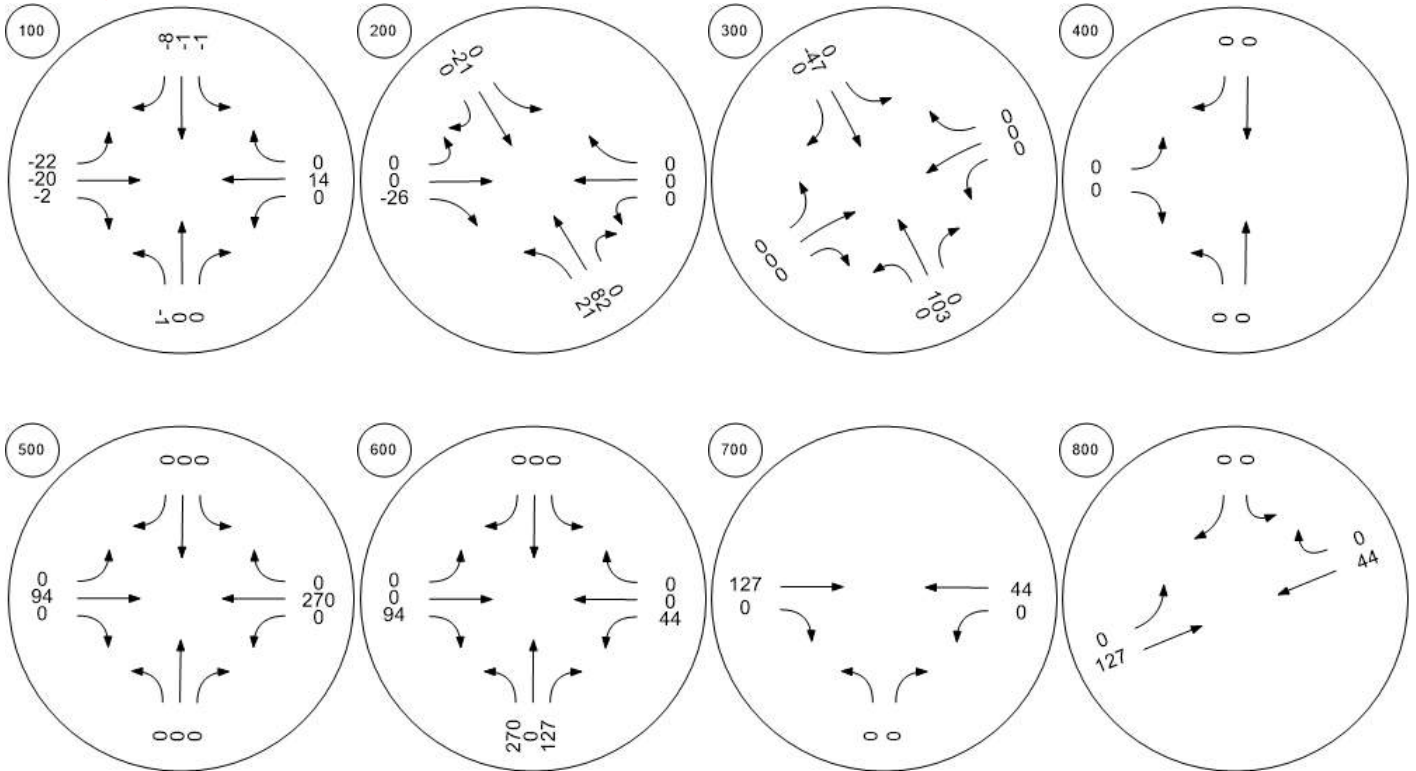
V/C, Movement V/C Ratio	0.00	0.05	0.01	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	0.00	19.56	0.00	0.00	10.66	0.00
Movement LOS		C	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.17	0.00	0.00	0.12	0.00
95th-Percentile Queue Length [ft/ln]	0.00	4.22	0.00	0.00	3.06	0.00
d_A, Approach Delay [s/veh]	19.56		0.00		10.66	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	0.40					
Intersection LOS	C					

Appendix H 2037 Background Traffic  
Volumes and Analysis

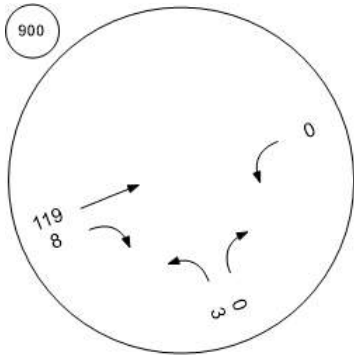
Traffic Volume - Net New Site Trips



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips



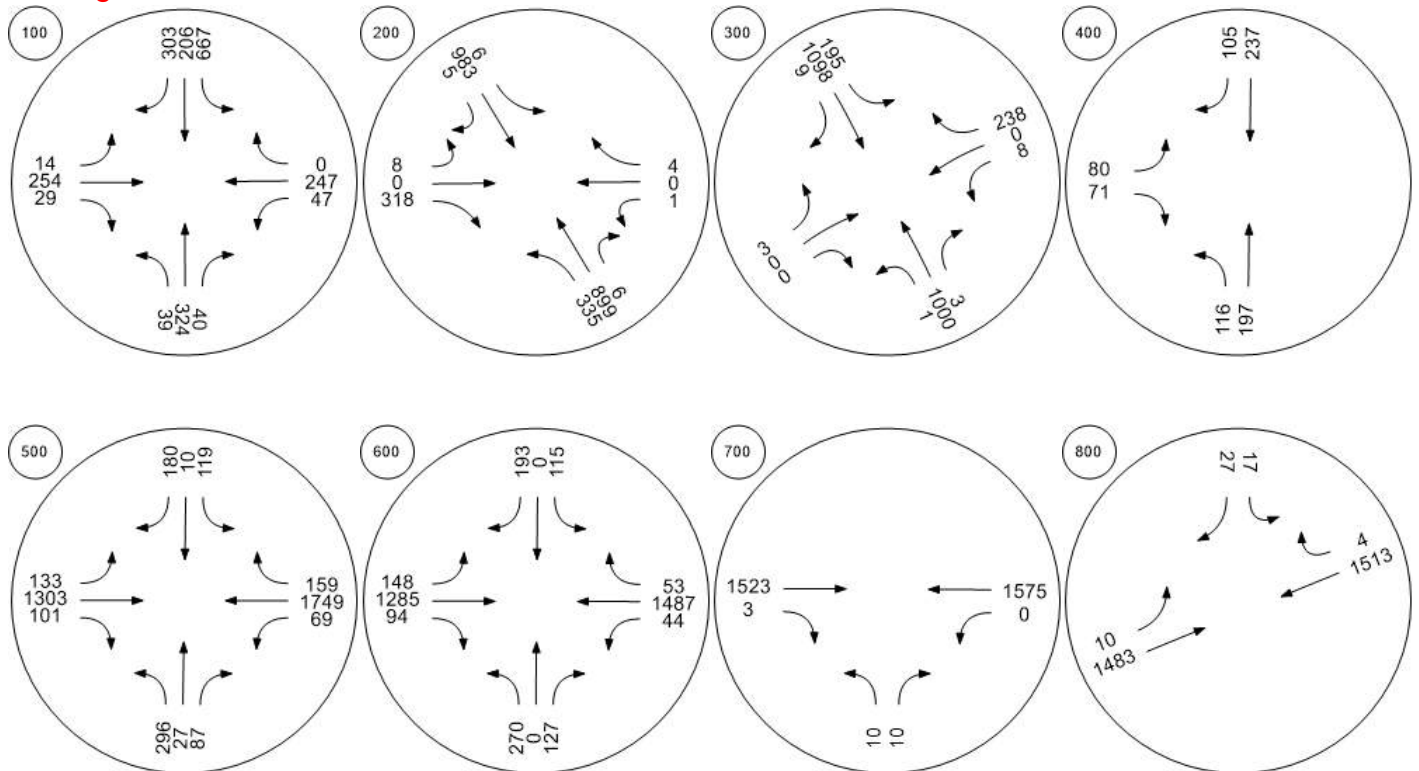
The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Traffic Volume - Future Total Volume



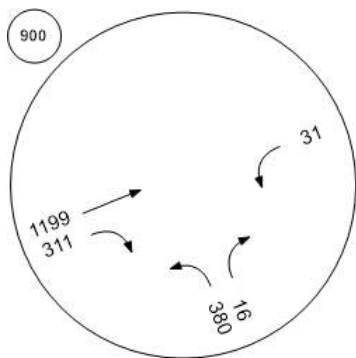
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



**Intersection Level Of Service Report**  
**Intersection 100: NE Johnson St/NE 3rd St**

Control Type:	Signalized	Delay (sec / veh):	105.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

**Intersection Setup**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			←↑			←↑			←↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		



**Volumes**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	324	40	667	206	303	14	254	29	47	247	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	81	10	167	52	76	4	64	7	12	62	0
Total Analysis Volume [veh/h]	39	324	40	667	206	303	14	254	29	47	247	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	123	123	123	123	123	123	123
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	40	74	1	23	14	35
g / C, Green / Cycle	0.24	0.33	0.60	0.01	0.19	0.11	0.29
(v / s)_i Volume / Saturation Flow Rate	0.35	0.42	0.33	0.01	0.17	0.03	0.15
s, saturation flow rate [veh/h]	1162	1603	1523	1603	1653	1603	1683
c, Capacity [veh/h]	317	523	920	16	310	59	485
d1, Uniform Delay [s]	43.13	34.58	6.13	60.39	44.95	47.80	31.06
k, delay calibration	0.50	0.50	0.31	0.08	0.46	0.11	0.16
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	145.32	137.88	1.52	65.79	31.16	21.34	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	1.27	1.27	0.55	0.90	0.91	0.80	0.51
d, Delay for Lane Group [s/veh]	188.45	172.47	7.64	126.17	76.11	69.15	32.25
Lane Group LOS	F	F	A	F	E	E	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	22.29	34.30	3.57	0.72	10.63	1.62	5.41
50th-Percentile Queue Length [ft/ln]	557.24	857.45	89.19	18.00	265.80	40.45	135.24
95th-Percentile Queue Length [veh/ln]	34.02	50.67	6.42	1.30	15.98	2.91	9.22
95th-Percentile Queue Length [ft/ln]	850.38	1266.76	160.55	32.39	399.49	72.82	230.60

**Movement, Approach, & Intersection Results**

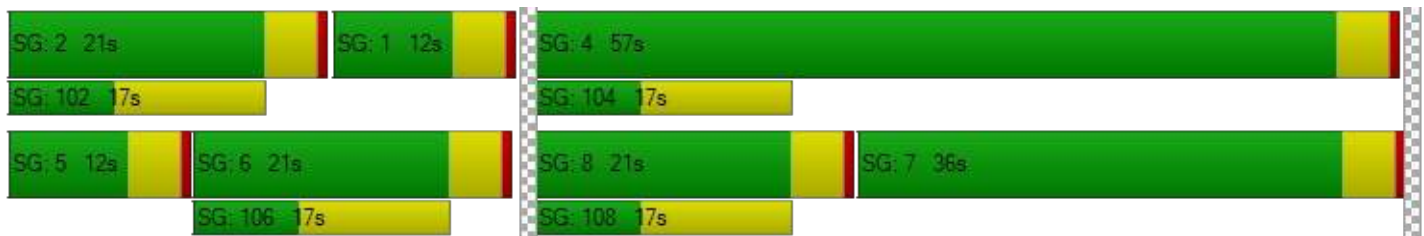
d_M, Delay for Movement [s/veh]	188.45	188.45	188.45	172.47	7.64	7.64	126.17	76.11	76.11	69.15	32.25	0.00
Movement LOS	F	F	F	F	A	A	F	E	E	E	C	
d_A, Approach Delay [s/veh]	188.45			101.13			78.47			38.15		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	105.71											
Intersection LOS	F											
Intersection V/C	0.966											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.048	2.432	2.283	2.436
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.225	3.500	2.050	2.045
Bicycle LOS	B	C	B	B

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	116.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.041

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	899	6	6	983	5	8	0	318	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	242	2	2	264	1	2	0	85	0	0	1
Total Analysis Volume [veh/h]	360	967	6	6	1057	5	9	0	342	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	61	61	40	40	25	25
g / C, Green / Cycle	0.65	0.65	0.42	0.42	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.43	0.58	0.01	0.63	0.24	0.00
s, saturation flow rate [veh/h]	835	1681	445	1682	1455	1175
c, Capacity [veh/h]	453	1097	76	713	421	355
d1, Uniform Delay [s]	25.92	13.52	47.17	27.17	33.77	25.73
k, delay calibration	0.50	0.36	0.11	0.50	0.27	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.49	8.10	0.43	227.65	10.24	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.80	0.89	0.08	1.49	0.83	0.01
d, Delay for Lane Group [s/veh]	39.41	21.62	47.60	254.81	44.01	25.74
Lane Group LOS	D	C	D	F	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.47	16.27	0.15	59.87	8.79	0.08
50th-Percentile Queue Length [ft/ln]	111.74	406.69	3.69	1496.73	219.70	2.10
95th-Percentile Queue Length [veh/ln]	7.94	22.88	0.27	91.59	13.65	0.15
95th-Percentile Queue Length [ft/ln]	198.42	572.05	6.64	2289.82	341.24	3.77



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	39.41	21.62	21.62	47.60	254.81	254.81	44.01	44.01	44.01	25.74	25.74	25.74
Movement LOS	D	C	C	D	F	F	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	26.43			253.65			44.01			25.74		
Approach LOS	C			F			D			C		
d_I, Intersection Delay [s/veh]	116.69											
Intersection LOS	F											
Intersection V/C	1.041											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.731	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1422	889	667	667
d_b, Bicycle Delay [s]	3.76	13.89	20.00	20.00
I_b,int, Bicycle LOS Score for Intersection	3.759	3.322	2.139	1.568
Bicycle LOS	D	C	B	A

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	92.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.984

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1000	3	195	1098	9	0	0	0	0	0	238
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	272	1	53	298	2	0	0	0	0	0	65
Total Analysis Volume [veh/h]	1	1087	3	212	1193	10	0	0	0	0	0	259
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.33	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.98
d_M, Delay for Movement [s/veh]	11.14	0.00	0.00	13.38	0.00	0.00	0.00	0.00	20.77	0.00	0.00	92.89
Movement LOS	B	A	A	B	A	A			C			F
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	1.45	1.45	1.45	0.00	0.00	0.00	0.00	0.00	9.59
95th-Percentile Queue Length [ft/ln]	0.13	0.13	0.13	36.16	36.16	36.16	0.00	0.00	0.00	0.00	0.00	239.76
d_A, Approach Delay [s/veh]	0.01			2.01			20.77			92.89		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	9.73											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 400: NE Cumulus Ave/ NE Norton Ln**

Control Type:	Two-way stop	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.233

**Intersection Setup**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	197	237	105	80	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	52	62	28	21	19
Total Analysis Volume [veh/h]	122	207	249	111	84	75
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.23	0.09
d_M, Delay for Movement [s/veh]	8.42	0.00	0.00	0.00	16.58	11.05
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.35	0.17	0.00	0.00	0.90	0.90
95th-Percentile Queue Length [ft/ln]	8.68	4.34	0.00	0.00	22.47	22.47
d_A, Approach Delay [s/veh]	3.12		0.00		13.97	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.83					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	85.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.930

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	27	87	119	10	180	133	1303	101	69	1749	159
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	7	23	32	3	48	35	347	27	18	465	42
Total Analysis Volume [veh/h]	315	29	93	127	11	191	141	1386	107	73	1861	169
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	165	165	165	165	165	165	165	165	165	165
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	19	35	16	32	97	87	87	97	80	80
g / C, Green / Cycle	0.12	0.21	0.09	0.19	0.59	0.52	0.52	0.59	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.10	0.09	0.08	0.14	0.32	0.44	0.08	0.16	0.59	0.12
s, saturation flow rate [veh/h]	3138	1376	1590	1465	439	3179	1396	457	3179	1408
c, Capacity [veh/h]	365	294	151	281	214	1665	731	202	1539	682
d1, Uniform Delay [s]	71.73	56.10	73.58	62.58	48.38	33.22	20.29	29.48	42.62	24.98
k, delay calibration	0.08	0.08	0.08	0.23	0.32	0.26	0.26	0.50	0.29	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.66	0.70	9.11	7.15	9.71	2.65	0.22	4.99	97.94	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.86	0.42	0.84	0.72	0.66	0.83	0.15	0.36	1.21	0.25
d, Delay for Lane Group [s/veh]	76.38	56.79	82.68	69.73	58.09	35.87	20.51	34.46	140.56	25.43
Lane Group LOS	E	E	F	E	E	D	C	C	F	C
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.82	4.50	5.71	8.56	2.94	23.01	2.16	1.45	50.83	3.93
50th-Percentile Queue Length [ft/ln]	170.59	112.45	142.76	214.05	73.38	575.20	53.89	36.15	1270.63	98.30
95th-Percentile Queue Length [veh/ln]	11.11	7.98	9.63	13.36	5.28	30.87	3.88	2.60	71.76	7.08
95th-Percentile Queue Length [ft/ln]	277.69	199.41	240.74	334.02	132.09	771.86	97.01	65.07	1794.09	176.95

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	76.38	56.79	56.79	82.68	69.73	69.73	58.09	35.87	20.51	34.46	140.56	25.43
Movement LOS	E	E	E	F	E	E	E	D	C	C	F	C
d_A, Approach Delay [s/veh]	70.91			74.73			36.78			127.62		
Approach LOS	E			E			D			F		
d_I, Intersection Delay [s/veh]	85.29											
Intersection LOS	F											
Intersection V/C	0.930											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.339	2.393	3.428	3.356
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1778	1778
d_b, Bicycle Delay [s]	3.33	2.69	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.281	2.102	2.908	3.295
Bicycle LOS	B	B	C	C

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	39.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.828

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	0	127	115	0	193	148	1285	94	44	1487	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	0	33	30	0	50	39	335	24	11	387	14
Total Analysis Volume [veh/h]	281	0	132	120	0	201	154	1339	98	46	1549	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	154	154	154	154	154	154	154	154	154	154	154
L, Total Lost Time per Cycle [s]	4.00	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	29	27	42	10	31	100	91	125	100	79	97
g / C, Green / Cycle	0.18	0.17	0.27	0.06	0.20	0.65	0.59	0.81	0.65	0.51	0.63
(v / s)_i Volume / Saturation Flow Rate	0.17	0.09	0.09	0.00	0.14	0.29	0.42	0.07	0.10	0.49	0.04
s, saturation flow rate [veh/h]	1629	1454	1272	1710	1408	533	3179	1454	471	3179	1454
c, Capacity [veh/h]	302	253	323	109	284	278	1866	1179	261	1630	910
d1, Uniform Delay [s]	61.91	57.88	44.52	0.00	57.36	37.99	22.72	2.95	17.75	35.73	11.21
k, delay calibration	0.37	0.08	0.08	0.08	0.21	0.18	0.15	0.15	0.20	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.29	1.24	0.53	0.00	6.24	2.77	0.75	0.04	0.58	5.27	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.93	0.52	0.37	0.00	0.71	0.55	0.72	0.08	0.18	0.95	0.06
d, Delay for Lane Group [s/veh]	92.20	59.12	45.04	0.00	63.60	40.76	23.47	2.99	18.33	41.01	11.25
Lane Group LOS	F	E	D	A	E	D	C	A	B	D	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	13.41	4.80	3.71	0.00	7.83	2.28	17.30	0.56	0.61	28.34	0.76
50th-Percentile Queue Length [ft/ln]	335.18	120.05	92.63	0.00	195.79	56.89	432.48	14.01	15.33	708.50	19.00
95th-Percentile Queue Length [veh/ln]	19.41	8.40	6.67	0.00	12.42	4.10	24.12	1.01	1.10	37.07	1.37
95th-Percentile Queue Length [ft/ln]	485.31	209.89	166.73	0.00	310.52	102.40	603.01	25.22	27.59	926.77	34.19

**Movement, Approach, & Intersection Results**

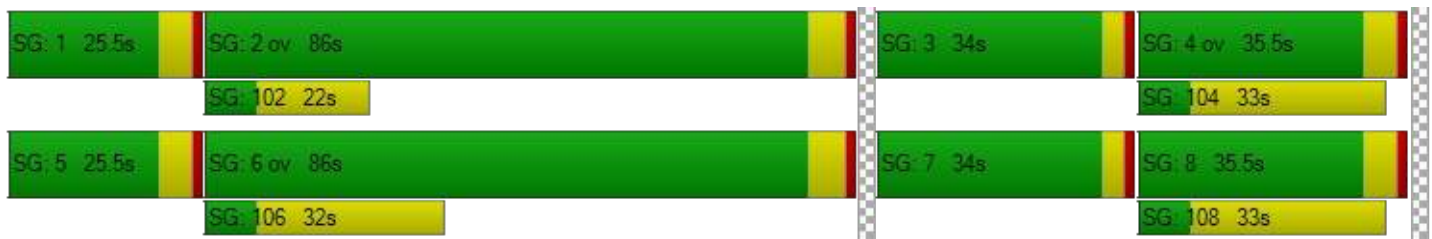
d_M, Delay for Movement [s/veh]	92.20	59.12	59.12	45.04	0.00	63.60	40.76	23.47	2.99	18.33	41.01	11.25
Movement LOS	F	E	E	D	A	E	D	C	A	B	D	B
d_A, Approach Delay [s/veh]	81.63			56.66			23.88			39.38		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	38.96											
Intersection LOS	D											
Intersection V/C	0.828											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.160			2.375			3.041			3.011		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.241			2.089			2.872			2.921		
Bicycle LOS	B			B			C			C		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 700: NE Three Mile Ln/SE Armory Way**

Control Type:	Two-way stop	Delay (sec / veh):	162.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.341

**Intersection Setup**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	1523	3	0	1575
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	393	1	0	406
Total Analysis Volume [veh/h]	10	10	1570	3	0	1624
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.34	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	162.81	50.60	0.00	0.00	13.48	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.34	1.34	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	33.56	33.56	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	106.70		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	343.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.860

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1483	1513	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	382	390	1
Total Analysis Volume [veh/h]	18	28	10	1529	1560	4
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.86	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	343.17	182.55	15.09	0.00	0.00	0.00
Movement LOS	F	F	C	A	A	A
95th-Percentile Queue Length [veh/ln]	4.00	4.00	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	99.90	99.90	2.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	245.40		0.10		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.63					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	380	16	1199	311	31	1133
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	4	312	81	8	295
Total Analysis Volume [veh/h]	396	17	1249	324	32	1180
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

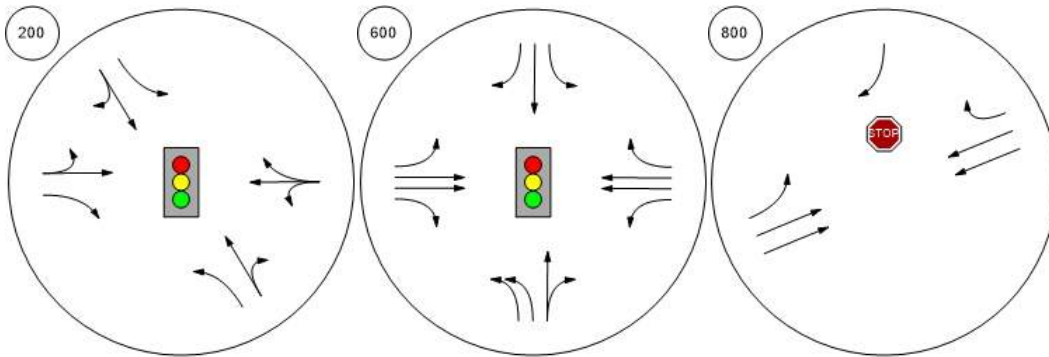
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.08	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	24.35	0.00	0.00	11.77	0.00
Movement LOS		C	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.27	0.00	0.00	0.18	0.00
95th-Percentile Queue Length [ft/ln]	0.00	6.78	0.00	0.00	4.50	0.00
d_A, Approach Delay [s/veh]	24.35		0.00		11.77	
Approach LOS	C		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	C					

Appendix I 2037 Mitigated Background  
Traffic Analysis

### Lane Configuration and Traffic Control



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	90.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.977

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		



**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	899	6	6	983	5	8	0	318	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	242	2	2	264	1	2	0	85	0	0	1
Total Analysis Volume [veh/h]	360	967	6	6	1057	5	9	0	342	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	0		0			0			0			
v_di, Inbound Pedestrian Volume crossing major street	0		0			0			0			
v_co, Outbound Pedestrian Volume crossing minor street	0		0			0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0		0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0		0			0			0			
Bicycle Volume [bicycles/h]	0		0			0			0			

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Overla	Permis	Permis	Permis
Signal Group	1	6	0	0	2	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	5	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	20	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No	No		No	
Maximum Recall	No	No			No			No	No		No	
Pedestrian Recall	No	No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	88	88	88	88	88	88	88
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	62	62	40	40	18	40	18
g / C, Green / Cycle	0.70	0.70	0.46	0.46	0.20	0.45	0.20
(v / s)_i Volume / Saturation Flow Rate	0.43	0.58	0.01	0.63	0.01	0.24	0.00
s, saturation flow rate [veh/h]	837	1681	445	1682	1324	1442	1450
c, Capacity [veh/h]	490	1184	90	767	353	652	346
d1, Uniform Delay [s]	23.00	9.11	42.91	23.83	27.88	17.23	27.82
k, delay calibration	0.50	0.32	0.11	0.50	0.11	0.46	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.43	4.25	0.31	180.87	0.03	2.74	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.73	0.82	0.07	1.38	0.03	0.52	0.01
d, Delay for Lane Group [s/veh]	32.43	13.36	43.22	204.70	27.91	19.97	27.84
Lane Group LOS	C	B	D	F	C	B	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.17	10.79	0.13	52.79	0.15	5.18	0.08
50th-Percentile Queue Length [ft/ln]	79.29	269.82	3.35	1319.85	3.80	129.54	2.11
95th-Percentile Queue Length [veh/ln]	5.71	16.18	0.24	79.48	0.27	8.91	0.15
95th-Percentile Queue Length [ft/ln]	142.72	404.51	6.04	1986.92	6.84	222.87	3.79

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	32.43	13.36	13.36	43.22	204.70	204.70	27.91	27.91	19.97	27.84	27.84	27.84
Movement LOS	C	B	B	D	F	F	C	C	B	C	C	C
d_A, Approach Delay [s/veh]	18.51			203.79			20.17			27.84		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	90.51											
Intersection LOS	F											
Intersection V/C	0.977											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.731			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.759			3.322			2.139			1.568		
Bicycle LOS	D			C			B			A		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.765

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	0	127	115	0	193	148	1285	94	44	1487	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	0	33	30	0	50	39	335	24	11	387	14
Total Analysis Volume [veh/h]	281	0	132	120	0	201	154	1339	98	46	1549	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Overla	ProtPer	Permis	Overla	ProtPer	Permis	Overla
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	144	144	144	144	144	144	144	144	144	144	144
L, Total Lost Time per Cycle [s]	4.00	5.50	4.00	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	2.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	16	15	13	12	36	101	91	112	101	77	96
g / C, Green / Cycle	0.11	0.10	0.09	0.09	0.25	0.70	0.63	0.78	0.70	0.53	0.67
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.08	0.00	0.14	0.27	0.42	0.07	0.10	0.49	0.04
s, saturation flow rate [veh/h]	3163	1454	1590	1710	1408	563	3179	1454	470	3179	1454
c, Capacity [veh/h]	344	152	144	147	353	335	2003	1134	300	1695	967
d1, Uniform Delay [s]	62.88	63.62	64.52	0.00	47.23	28.96	17.03	3.72	12.73	30.64	8.39
k, delay calibration	0.11	0.08	0.11	0.08	0.18	0.15	0.15	0.15	0.17	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.80	10.76	11.73	0.00	2.36	1.40	0.56	0.05	0.36	3.21	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.82	0.87	0.83	0.00	0.57	0.46	0.67	0.09	0.15	0.91	0.06
d, Delay for Lane Group [s/veh]	67.68	74.38	76.25	0.00	49.59	30.36	17.59	3.77	13.09	33.85	8.43
Lane Group LOS	E	E	E	A	D	C	B	A	B	C	A
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.29	5.24	4.82	0.00	6.59	1.71	13.94	0.63	0.47	24.61	0.61
50th-Percentile Queue Length [ft/ln]	132.15	130.98	120.49	0.00	164.71	42.66	348.42	15.87	11.65	615.31	15.25
95th-Percentile Queue Length [veh/ln]	9.06	8.99	8.42	0.00	10.80	3.07	20.06	1.14	0.84	32.75	1.10
95th-Percentile Queue Length [ft/ln]	226.41	224.83	210.50	0.00	269.95	76.78	501.48	28.56	20.98	818.71	27.44



**Movement, Approach, & Intersection Results**

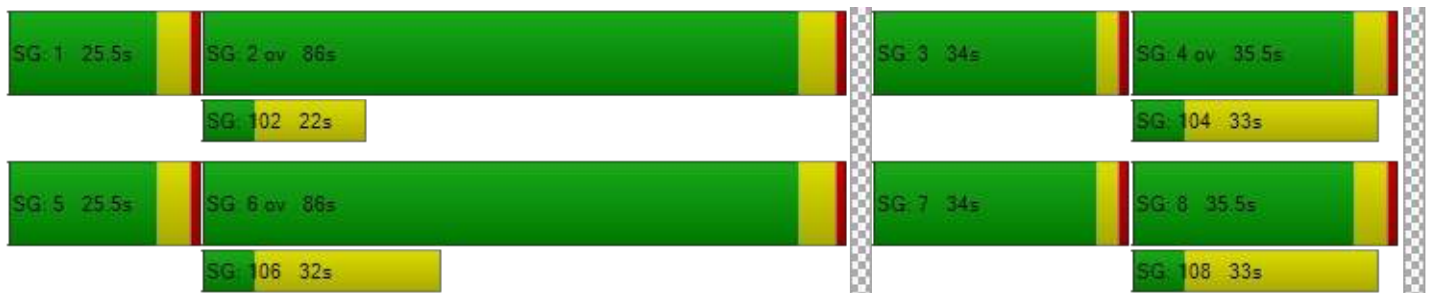
d_M, Delay for Movement [s/veh]	67.68	74.38	74.38	76.25	0.00	49.59	30.36	17.59	3.77	13.09	33.85	8.43
Movement LOS	E	E	E	E	A	D	C	B	A	B	C	A
d_A, Approach Delay [s/veh]	69.82			59.55			17.97			32.42		
Approach LOS	E			E			B			C		
d_I, Intersection Delay [s/veh]	32.72											
Intersection LOS	C											
Intersection V/C	0.765											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			11.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	34.67			34.67			34.67			34.67		
I_p,int, Pedestrian LOS Score for Intersection	2.309			2.380			3.041			2.979		
Crosswalk LOS	B			B			C			C		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	667			667			1778			1778		
d_b, Bicycle Delay [s]	20.00			20.00			0.56			0.56		
I_b,int, Bicycle LOS Score for Intersection	2.241			2.089			2.872			2.921		
Bicycle LOS	B			B			C			C		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↗		↖		↗	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1483	1513	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	382	390	1
Total Analysis Volume [veh/h]	18	28	10	1529	1560	4
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	0.00	17.36	15.09	0.00	0.00	0.00
Movement LOS		C	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.29	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.15	2.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.36		0.10		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	C					

Appendix J Oregon Highway Plan Policy  
Intent Statements



# Oregon

John A. Kitzhaber, MD, Governor

## Department of Transportation

Office of the Director  
1158 Chemeketa St. NE  
Salem, OR 97301-2528

**DATE:** May 25, 2011

**TO:** Joint Subcommittee on the TPR and OHP  
Mike McArthur, AOC Executive Director  
Mike McCauley, LOC Executive Director  
ODOT Region Managers

**FROM:** Matthew L. Garrett   
Director

**SUBJECT:** Oregon Highway Plan - Policy Intent Statements

### Introduction

The Oregon Transportation Commission (OTC) and the Land Conservation and Development Commission (LCDC) established a Joint Subcommittee in response to concerns on the Transportation Planning Rule (TPR) and Oregon Highway Plan (OHP) mobility standards. This joint subcommittee held three meetings to gather information on TPR and OHP issues, and to develop recommendations for further work. Transportation Commissioners Mary Olson and David Lohman represent the OTC.

The joint subcommittee heard considerable stakeholder concern that the combination of TPR Section 0060 and OHP mobility standards is leading to unintended consequences. In particular, there are concerns that economic development objectives should be balanced better with transportation performance, but in practice the TPR and OHP may be giving precedence to transportation. Also there are concerns that Section 0060 of the TPR and OHP mobility standards are making it more difficult to increase development intensities, hindering implementation of other statewide planning goals.

The joint subcommittee agreed that, changes to the TPR and OHP are warranted in light of the concerns and it developed recommendations to address several issues in initial phases of this work. The subcommittee also recommended that the tasks be conducted through coordinated processes to ensure that Department of Land Conservation and Development (DLCD) and Oregon Department of Transportation (ODOT) tasks jointly address the issues. The joint subcommittee's final recommendations were presented to the OTC and LCDC in April 2011. Both commissions concurred with the recommendations and directed the two agencies to move forward with the necessary tasks.

Additional information on the joint subcommittee process, including the final recommendations report is available at: [http://www.oregon.gov/LCD/Rulemaking\\_TPR\\_2011.shtml](http://www.oregon.gov/LCD/Rulemaking_TPR_2011.shtml).



The joint subcommittee recommended that ODOT tasks consider potential exemptions for proposals with small increases in traffic, average trip generation and average case land use assumptions; and to improve current alternate mobility standard processes; and expand mobility standard options. While many of these issues will require in-depth work over the next several months, the work below represents actions we can do right away to make progress on several key tasks. As a result, the department has developed three policy intent statements that seek to clarify its commitment to find flexibility and to provide relief under existing conditions. These are a starting point in our efforts; and it is my expectation that ODOT staff will use this information as it works with communities and development interests from this day forward.

### **OHP Policy Intent Statements**

#### **Alternate Mobility Standards**

The development of alternate mobility standards provides one primary area for flexibility in existing OHP policy. While the department will explore ways to streamline the alternate mobility standard development process to make it a more effective tool, it is important that ODOT's intent to work with local governments on these matters is clear to all those involved.

#### *Policy Intent Statement 1:*

*ODOT affirms its commitment to work collaboratively with local governments to develop alternate mobility standards for state highway facilities through TSP update processes and through the development of ODOT facility plans. Establishment of alternate mobility standards will be based upon mutual agreement about likely funding, transportation system constraints, growth expectations, community values, and commitment to reduce demand on state highways through the use of transportation demand management measures, system and service improvements for alternative modes of travel, and development of more complete and connected local transportation system networks.*

#### **“Avoid Further Degradation” (OHP Action 1F.6)**

The joint subcommittee heard testimony and criticism that the increase of a single trip is enough to trigger a significant effect determination in some cases, and perhaps more important, the associated analysis and mitigation requirements for a plan amendment. This is most applicable for facilities that are already operating over standard, for which the proposal must be able to at least “avoid further degradation” of the impacted facility. In many cases the mitigation associated with a facility already in a “failing” condition can be very significant and may not be feasible for the development to implement, especially for a small increase in trips. In order to help reduce this concern, the following policy intent statement provides thresholds to define a small increase in traffic. These are for situations for which the operational risk to the transportation facility is small, and the resulting plan amendment is unlikely to cause further degradation of the facility. These thresholds are consistent with proposed changes in ODOT's Access Management Program related to requirements for Traffic Impact Analyses.

Policy Intent Statement 2:

*In applying the "Avoid Further Degradation" standard established in OHP Action 1F.6 for state highway facilities already operating above the existing standard when evaluating amendments to transportation system plans, acknowledged comprehensive plans, and land use regulations subject to OAR 660-12-0060, a small increase in traffic does not cause "further degradation" of the facility.*

*The threshold for a small increase in traffic between the existing plan and the proposed amendment is defined in terms of the increase in average daily trip volumes as follows:*

- *Any proposed amendment that does not increase the average daily trips by more than 400.*
- *Any proposed amendment that increases the average daily trips by more than 400 but less than 1001 for state facilities where:*
  - *The annual average daily traffic is less than 5,000 for a two-lane highway*
  - *The annual average daily traffic is less than 15,000 for a three-lane highway*
  - *The annual average daily traffic is less than 10,000 for a four-lane highway*
  - *The annual average daily traffic is less than 25,000 for a five-lane highway*
- *If the increase in traffic between the existing plan and the proposed amendment is more than 1000 average daily trips, then it is not considered a small increase in traffic and the amendment causes further degradation of the facility and would follow existing processes for resolution.*

**Precision of Volume-to-Capacity Ratios in Analyzing Mitigation**

While volume-to-capacity (v/c) ratios provide a high level of precision in traffic analysis, it is difficult to forecast actual traffic conditions and the effects of mitigation, especially over a long period (e.g. 20 years). While the department will not compromise the integrity of the OHP mobility standards in determining a significant affect under the TPR, there are situations for which reasonable levels of mitigation have already been determined and the resulting v/c measure may be within the typical range of uncertainty of fully meeting standards. In these cases, it may be prudent to allow for the plan amendment to proceed with the identified reasonable level of mitigation.

The range provided in Policy Intent Statement 3 allows flexibility within 0.03 in terms of v/c ratios when considering reasonable levels of mitigation. While the impact/scale of a 0.03 v/c ratio change can vary significantly depending on a number of facility characteristics, it typically represents an increase of approximately 750 daily trips on a three-lane highway, and approximately 1,500 daily trips on a five-lane highway that is functioning near current mobility standard levels. In terms of land use types, this increase in the v/c ratio is roughly similar to the traffic impact characteristics of a gas station or fast food restaurant.

Policy Intent Statement 3:

*In applying OHP mobility standards to analyze mitigation, ODOT recognizes that there are many variables and levels of uncertainty in calculating volume-to-capacity ratios, particularly over the planning horizon. In applying the standards after negotiating reasonable levels of mitigation for actions required under OAR 660-012-0060, ODOT considers calculated values for volume-to-capacity ratios that are within 0.03 of the adopted standard in the OHP to be considered in compliance with the standard. It is not the intent of the agency to consider variation within modest levels of uncertainty in violation of OHP mobility standards for reasonable mitigation. The specific OHP mobility standard still applies for determining significant affect under OAR 660-012-0060.*

Next Steps

Effective immediately, ODOT will begin carrying out the policy intent statements described above. ODOT will also begin the more significant work to address the full recommendations of the joint subcommittee and applicable legislative direction through a more thorough review of policies, procedures and guidance related to the TPR and OHP mobility standards.

Cc: Jerry Lidz, DLCD Acting Director  
Rob Hallyburton, DLCD Planning Services  
Matt Crall, DLCD TGM Program  
Jeri Bohard, ODOT Director's Office  
ODOT Region Planning Managers  
Erik Havig, ODOT Planning Section  
Michael Rock, ODOT Planning Section  
TPR Rulemaking Advisory Committee

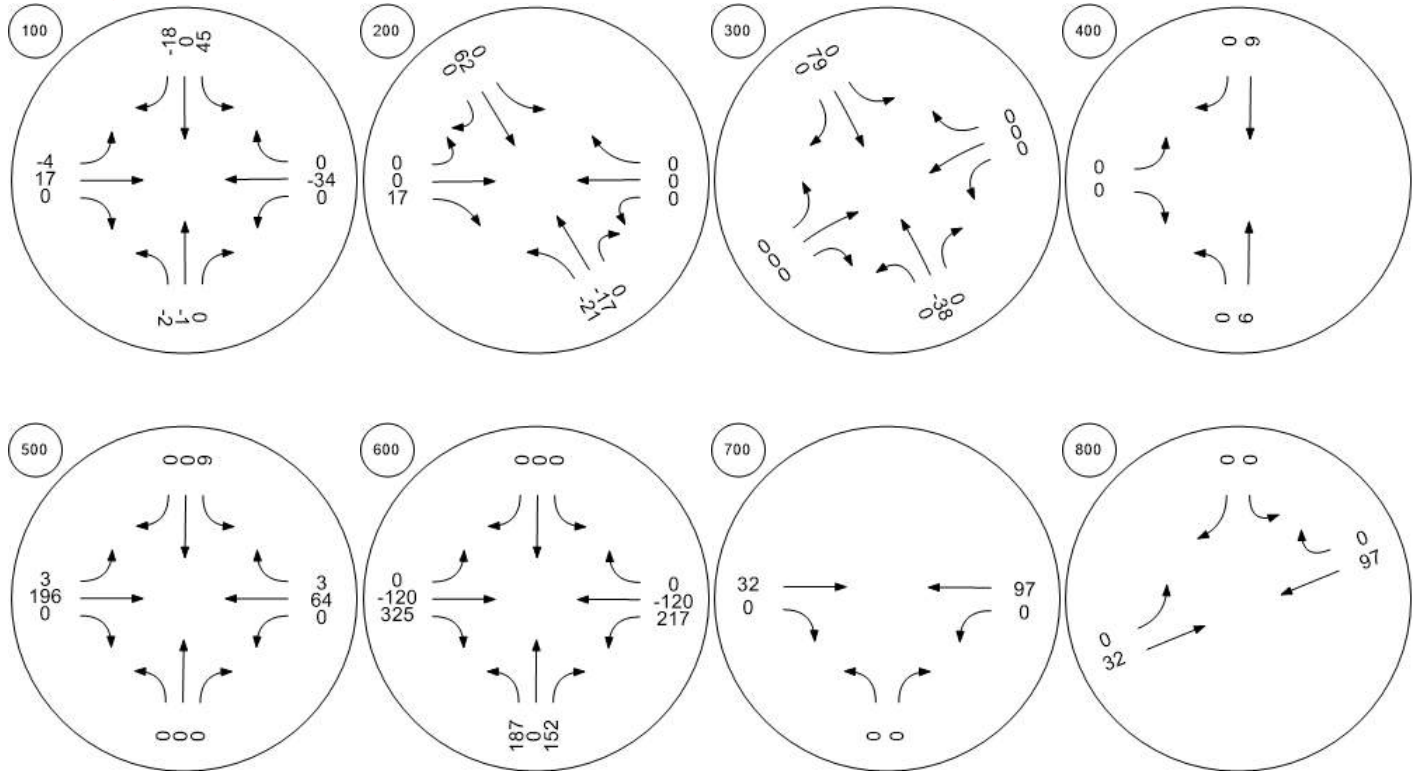


Appendix K 2037 Total Traffic Volumes and  
Analysis

Traffic Volume - Net New Site Trips - Proposed Rezone



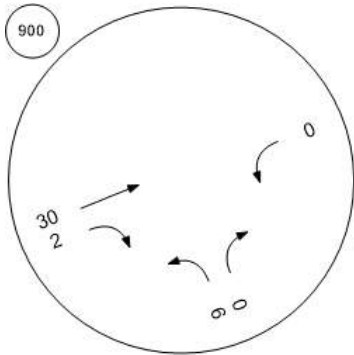
Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson



Traffic Volume - Net New Site Trips - Proposed Rezone



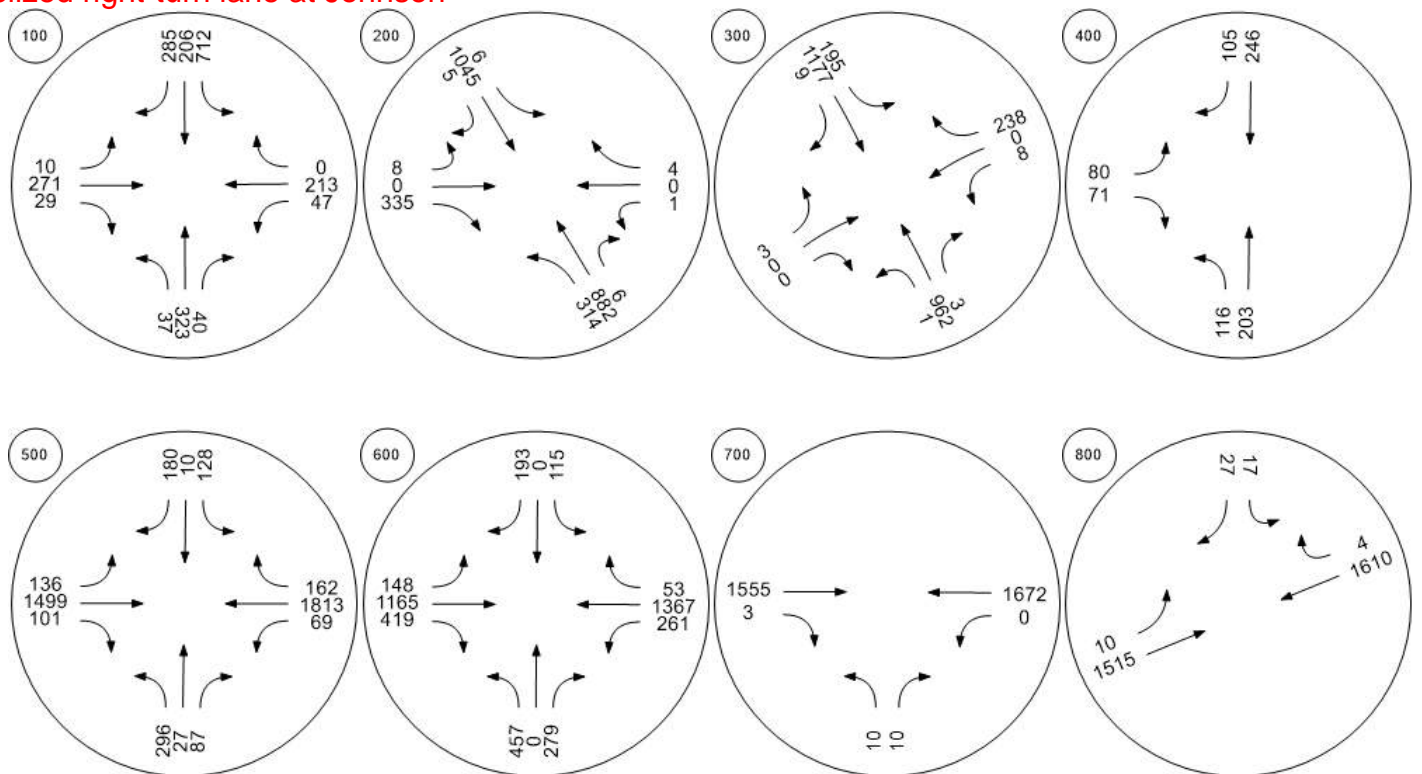
The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



Traffic Volume - Future Total Volume



Westbound right-turn volumes were omitted from analysis due to the presence of the channelized right-turn lane at Johnson

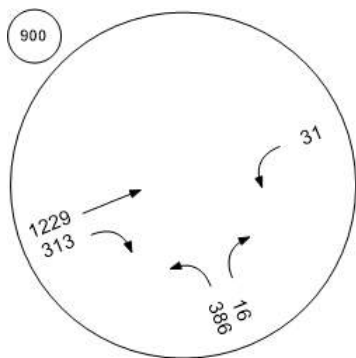




Traffic Volume - Future Total Volume



The westbound through lane/volumes were omitted from the Vistro analysis as the lane is channelized and does not conflict with other movements at Cruickshank



**Intersection Level Of Service Report**  
**Intersection 100: NE Johnson St/NE 3rd St**

Control Type:	Signalized	Delay (sec / veh):	122.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.995

**Intersection Setup**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	225.00	100.00	100.00	120.00	100.00	120.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Johnson St			NE Johnson St			NE 3rd St			NE 3rd St		
Base Volume Input [veh/h]	31	250	31	516	160	240	28	212	24	36	180	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-2	-1	0	45	0	-18	-4	17	0	0	-34	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	-1	-1	-8	-22	-20	-2	0	14	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	323	40	712	206	285	10	271	29	47	213	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	81	10	178	52	71	3	68	7	12	53	0
Total Analysis Volume [veh/h]	37	323	40	712	206	285	10	271	29	47	213	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Version 2020 (SP 0-5)

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permiss	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Overlap	Permiss	ProtPer	Overlap	Unsigna
Signal Group	8	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		8			4			2			6	
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	8	8	0	7	7	0	3	5	0	3	5	0
Maximum Green [s]	30	30	0	40	55	0	20	30	0	20	30	0
Amber [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0	3.5	3.5	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0
Split [s]	21	21	0	36	57	0	12	21	0	12	21	0
Vehicle Extension [s]	4.0	4.0	0.0	3.5	4.3	0.0	2.5	3.0	0.0	2.5	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No		No	No		No	No		No	No	
Maximum Recall		No		No	No		No	No		No	No	
Pedestrian Recall		No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	C	L	C	L	C	L	C
C, Cycle Length [s]	124	124	124	124	124	124	124
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	40	74	1	24	14	37
g / C, Green / Cycle	0.24	0.32	0.60	0.01	0.20	0.11	0.30
(v / s)_i Volume / Saturation Flow Rate	0.34	0.44	0.32	0.01	0.18	0.03	0.13
s, saturation flow rate [veh/h]	1187	1603	1527	1603	1655	1603	1683
c, Capacity [veh/h]	319	517	911	12	326	58	504
d1, Uniform Delay [s]	43.82	35.35	6.59	61.33	44.77	48.50	29.50
k, delay calibration	0.50	0.50	0.30	0.08	0.50	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	138.01	181.75	1.39	69.33	33.11	22.54	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	1.26	1.38	0.54	0.85	0.92	0.81	0.42
d, Delay for Lane Group [s/veh]	181.82	217.10	7.98	130.66	77.88	71.04	30.06
Lane Group LOS	F	F	A	F	E	E	C
Critical Lane Group	Yes	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	21.92	40.43	3.64	0.54	11.53	1.65	4.43
50th-Percentile Queue Length [ft/ln]	548.02	1010.71	90.95	13.51	288.20	41.31	110.77
95th-Percentile Queue Length [veh/ln]	33.31	60.82	6.55	0.97	17.10	2.97	7.88
95th-Percentile Queue Length [ft/ln]	832.64	1520.48	163.71	24.33	427.40	74.36	197.07

**Movement, Approach, & Intersection Results**

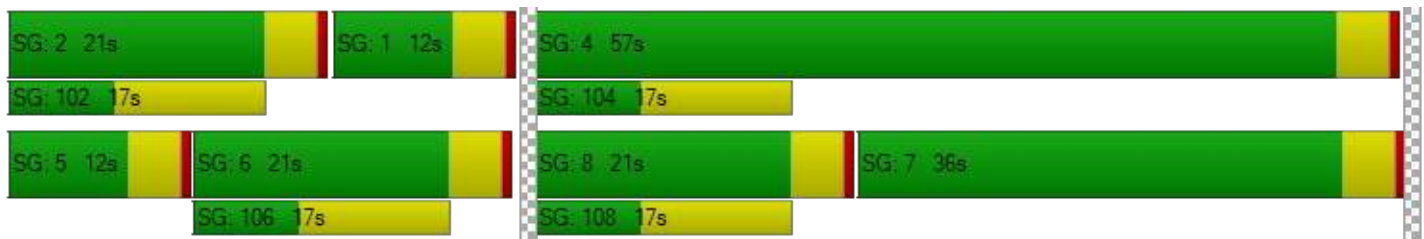
d_M, Delay for Movement [s/veh]	181.82	181.82	181.82	217.10	7.98	7.98	130.66	77.88	77.88	71.04	30.06	0.00
Movement LOS	F	F	F	F	A	A	F	E	E	E	C	
d_A, Approach Delay [s/veh]	181.82			131.74			79.58			37.47		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	122.24											
Intersection LOS	F											
Intersection V/C	0.995											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.047	2.439	2.267	2.443
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	1178	378	378
d_b, Bicycle Delay [s]	29.61	7.61	29.61	29.61
I_b,int, Bicycle LOS Score for Intersection	2.220	3.545	2.071	1.989
Bicycle LOS	B	D	B	A

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	137.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.088

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	882	6	6	1045	5	8	0	335	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	237	2	2	281	1	2	0	90	0	0	1
Total Analysis Volume [veh/h]	338	948	6	6	1124	5	9	0	360	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
C, Cycle Length [s]	94	94	94	94	94	94
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	40	40	26	26
g / C, Green / Cycle	0.64	0.64	0.43	0.43	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.42	0.57	0.01	0.67	0.25	0.00
s, saturation flow rate [veh/h]	800	1681	453	1682	1455	1146
c, Capacity [veh/h]	432	1077	76	714	439	360
d1, Uniform Delay [s]	25.73	14.07	47.12	27.12	33.21	24.89
k, delay calibration	0.50	0.35	0.11	0.50	0.30	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.14	7.90	0.43	268.52	11.33	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.78	0.89	0.08	1.58	0.84	0.01
d, Delay for Lane Group [s/veh]	38.87	21.97	47.56	295.64	44.54	24.90
Lane Group LOS	D	C	D	F	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.27	16.20	0.15	68.01	9.33	0.08
50th-Percentile Queue Length [ft/ln]	106.66	405.08	3.68	1700.22	233.25	2.06
95th-Percentile Queue Length [veh/ln]	7.65	22.80	0.27	105.36	14.34	0.15
95th-Percentile Queue Length [ft/ln]	191.35	570.12	6.63	2634.01	358.49	3.70

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	38.87	21.97	21.97	47.56	295.64	295.64	44.54	44.54	44.54	24.90	24.90	24.90
Movement LOS	D	C	C	D	F	F	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	26.39			294.33			44.54			24.90		
Approach LOS	C			F			D			C		
d_I, Intersection Delay [s/veh]	137.35											
Intersection LOS	F											
Intersection V/C	1.088											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.749	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1422	889	667	667
d_b, Bicycle Delay [s]	3.76	13.89	20.00	20.00
I_b,int, Bicycle LOS Score for Intersection	3.691	3.432	2.168	1.568
Bicycle LOS	D	C	B	A

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 300: NE Three Mile Ln/SE Nehemiah Ln**

Control Type:	Two-way stop	Delay (sec / veh):	77.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.931

**Intersection Setup**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			└			└		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

**Volumes**

Name	NE Three Mile Ln			NE Three Mile Ln			SE Nehemiah Ln			SE Nehemiah Ln		
Base Volume Input [veh/h]	1	693	2	151	885	7	0	0	0	0	0	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	-38	0	0	79	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	103	0	0	-47	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	962	3	195	1177	9	0	0	0	0	0	238
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	261	1	53	320	2	0	0	0	0	0	65
Total Analysis Volume [veh/h]	1	1046	3	212	1279	10	0	0	0	0	0	259
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	2	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.32	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.93
d_M, Delay for Movement [s/veh]	11.62	0.00	0.00	12.95	0.00	0.00	0.00	0.00	22.70	0.00	0.00	77.70
Movement LOS	B	A	A	B	A	A			C			F
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	1.38	1.38	1.38	0.00	0.00	0.00	0.00	0.00	8.73
95th-Percentile Queue Length [ft/ln]	0.14	0.14	0.14	34.39	34.39	34.39	0.00	0.00	0.00	0.00	0.00	218.26
d_A, Approach Delay [s/veh]	0.01			1.83			22.70			77.70		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	8.14											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 400: NE Cumulus Ave/ NE Norton Ln**

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.238

**Intersection Setup**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	NE Norton Ln		NE Norton Ln		NE Cumulus Ave	
Base Volume Input [veh/h]	90	152	183	81	62	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	3.00	3.00	1.00	0.00	10.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	6	9	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	203	246	105	80	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	53	65	28	21	19
Total Analysis Volume [veh/h]	122	214	259	111	84	75
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.24	0.09
d_M, Delay for Movement [s/veh]	8.46	0.00	0.00	0.00	16.87	11.17
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.35	0.18	0.00	0.00	0.92	0.92
95th-Percentile Queue Length [ft/ln]	8.76	4.38	0.00	0.00	23.07	23.07
d_A, Approach Delay [s/veh]	3.07		0.00		14.18	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.80					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 500: NE Norton Ln/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	99.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.958

**Intersection Setup**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	⇐⇐⇐			⇐⇐			⇐⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	NE Norton Ln			NE Norton Ln			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	229	21	67	92	8	139	103	934	78	53	1143	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	11.00	2.00	3.00	0.00	2.00	2.00	3.00	5.00	4.00	3.00	4.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	199	0	0	65	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	3	0	-3	-1	-3	0	0	-1	1
Pass-by Trips [veh/h]	0	0	0	6	0	3	4	0	0	0	0	2
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	94	0	0	270	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	27	87	128	10	180	136	1499	101	69	1813	162
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	79	7	23	34	3	48	36	399	27	18	482	43
Total Analysis Volume [veh/h]	315	29	93	136	11	191	145	1595	107	73	1929	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protecte	Overlap	Permiss	Protecte	Overlap	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	4	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups		3,4			4,7							
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	20	80	0	20	80	0
Amber [s]	4.5	4.5	0.0	4.5	4.5	0.0	4.5	5.0	0.0	4.5	5.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	2.5	2.5	0.0	2.5	2.5	0.0	2.5	5.2	0.0	2.5	5.2	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	31	0	0	34	0	0	36	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	3.5	0.0	3.5	3.5	0.0	3.5	4.0	0.0	3.5	4.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Cycle Length [s]	167	167	167	167	167	167	167	167	167	167
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	0.00	3.50	0.00	0.00	4.00	4.00	0.00	4.00	4.00
g_i, Effective Green Time [s]	19	35	17	33	98	87	87	98	80	80
g / C, Green / Cycle	0.12	0.21	0.10	0.20	0.59	0.52	0.52	0.59	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.10	0.09	0.09	0.14	0.33	0.50	0.08	0.18	0.61	0.12
s, saturation flow rate [veh/h]	3138	1376	1590	1465	434	3179	1396	400	3179	1408
c, Capacity [veh/h]	364	292	159	288	217	1656	727	157	1521	674
d1, Uniform Delay [s]	72.60	56.89	74.00	62.58	49.55	38.51	20.78	38.18	43.57	25.88
k, delay calibration	0.08	0.08	0.08	0.24	0.34	0.26	0.26	0.50	0.31	0.26
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.73	0.71	9.27	6.65	10.43	9.32	0.22	9.52	123.91	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.87	0.42	0.85	0.70	0.67	0.96	0.15	0.46	1.27	0.26
d, Delay for Lane Group [s/veh]	77.32	57.59	83.27	69.23	59.99	47.83	21.00	47.70	167.48	26.35
Lane Group LOS	E	E	F	E	E	D	C	D	F	C
Critical Lane Group	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.91	4.56	6.19	8.59	3.12	31.94	2.20	1.61	56.19	4.12
50th-Percentile Queue Length [ft/ln]	172.78	114.02	154.68	214.65	77.98	798.53	55.03	40.29	1404.81	102.95
95th-Percentile Queue Length [veh/ln]	11.22	8.06	10.27	13.39	5.61	41.21	3.96	2.90	80.84	7.41
95th-Percentile Queue Length [ft/ln]	280.56	201.58	256.66	334.79	140.37	1030.25	99.05	72.52	2021.07	185.31

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	77.32	57.59	57.59	83.27	69.23	69.23	59.99	47.83	21.00	47.70	167.48	26.35
Movement LOS	E	E	E	F	E	E	E	D	C	D	F	C
d_A, Approach Delay [s/veh]	71.81			74.88			47.23			152.29		
Approach LOS	E			E			D			F		
d_I, Intersection Delay [s/veh]	99.04											
Intersection LOS	F											
Intersection V/C	0.958											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.339	2.399	3.496	3.427
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1456	1511	1778	1778
d_b, Bicycle Delay [s]	3.33	2.69	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.281	2.117	3.083	3.353
Bicycle LOS	B	B	C	C

**Sequence**

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





**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	45.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	115	0	193	148	1165	419	261	1367	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	30	0	50	39	303	109	68	356	14
Total Analysis Volume [veh/h]	476	0	291	120	0	201	154	1214	436	272	1424	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap	ProtPer	Permiss	Overlap
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	155	155	155	155	155	155	155	155	155	155	155
L, Total Lost Time per Cycle [s]	5.50	5.50	5.50	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.50	0.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	45	30	45	11	34	99	79	115	99	76	93
g / C, Green / Cycle	0.29	0.19	0.29	0.07	0.22	0.63	0.51	0.74	0.63	0.49	0.60
(v / s)_i Volume / Saturation Flow Rate	0.31	0.20	0.10	0.00	0.14	0.26	0.38	0.30	0.43	0.45	0.04
s, saturation flow rate [veh/h]	1531	1454	1153	1710	1408	585	3179	1453	639	3179	1454
c, Capacity [veh/h]	513	280	215	124	308	301	1611	1073	344	1553	872
d1, Uniform Delay [s]	55.59	62.78	45.44	0.00	55.37	31.02	30.60	7.61	29.29	36.83	12.93
k, delay calibration	0.50	0.44	0.08	0.08	0.22	0.15	0.15	0.19	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.28	60.71	1.67	0.00	4.63	1.91	1.04	0.44	16.70	3.58	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.93	1.04	0.56	0.00	0.65	0.51	0.75	0.41	0.79	0.92	0.06
d, Delay for Lane Group [s/veh]	80.87	123.49	47.11	0.00	60.00	32.93	31.64	8.05	45.99	40.42	12.97
Lane Group LOS	F	F	D	A	E	C	C	A	D	D	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	22.24	15.83	3.70	0.00	7.63	2.36	18.30	5.36	5.81	25.53	0.83
50th-Percentile Queue Length [ft/ln]	556.06	395.70	92.42	0.00	190.79	59.11	457.49	134.02	145.19	638.22	20.82
95th-Percentile Queue Length [veh/ln]	29.98	22.81	6.65	0.00	12.16	4.26	25.32	9.16	9.76	33.82	1.50
95th-Percentile Queue Length [ft/ln]	749.43	570.21	166.36	0.00	304.05	106.40	632.88	228.95	244.00	845.38	37.48

**Movement, Approach, & Intersection Results**

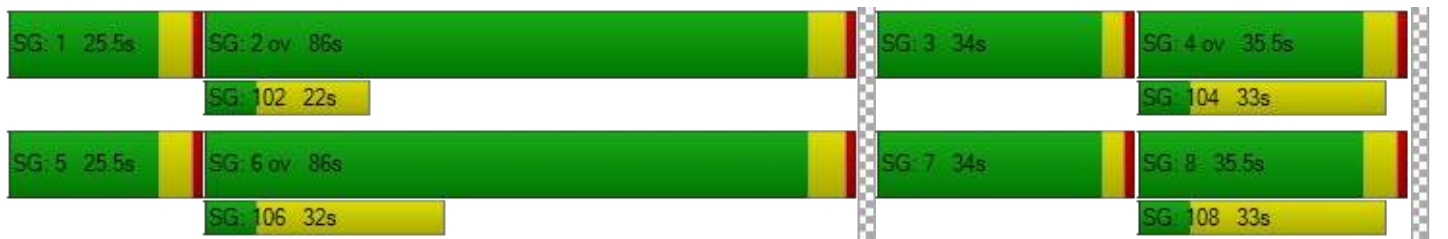
d_M, Delay for Movement [s/veh]	80.87	123.49	123.49	47.11	0.00	60.00	32.93	31.64	8.05	45.99	40.42	12.97
Movement LOS	F	F	F	D	A	E	C	C	A	D	D	B
d_A, Approach Delay [s/veh]	97.04			55.18			26.05			40.42		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	45.21											
Intersection LOS	D											
Intersection V/C	0.846											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.620	2.370	3.258	3.036
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1778	1778
d_b, Bicycle Delay [s]	20.00	20.00	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.825	2.089	3.048	3.004
Bicycle LOS	C	B	C	C

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 700: NE Three Mile Ln/SE Armory Way**

Control Type:	Two-way stop	Delay (sec / veh):	191.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.389

**Intersection Setup**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Armory Way		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	8	8	1079	2	0	1183
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.00	0.00	0.00	2.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	32	0	0	97
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	127	0	0	44
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	10	1555	3	0	1672
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	401	1	0	431
Total Analysis Volume [veh/h]	10	10	1603	3	0	1724
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.39	0.03	0.02	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	191.28	62.15	0.00	0.00	13.73	0.00
Movement LOS	F	F	A	A	B	A
95th-Percentile Queue Length [veh/ln]	1.51	1.51	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	37.71	37.71	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	126.72		0.00		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	0.76					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	466.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.052

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1515	1610	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	390	415	1
Total Analysis Volume [veh/h]	18	28	10	1562	1660	4
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	1.05	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	466.49	268.18	16.12	0.00	0.00	0.00
Movement LOS	F	F	C	A	A	A
95th-Percentile Queue Length [veh/ln]	4.54	4.54	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	113.47	113.47	2.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	345.78		0.10		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	4.90					
Intersection LOS	F					

**Intersection Level Of Service Report**  
**Intersection 900: NE Three Mile Ln/SE Cruickshank Rd**

Control Type:	Two-way stop	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.087

**Intersection Setup**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↻		↻		↶	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Cruickshank Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	291	12	835	234	24	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	10.00	3.00	4.00	0.00	3.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	6	0	30	2	0	91
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	3	0	119	8	0	41
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	386	16	1229	313	31	1224
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	101	4	320	82	8	319
Total Analysis Volume [veh/h]	402	17	1280	326	32	1275
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

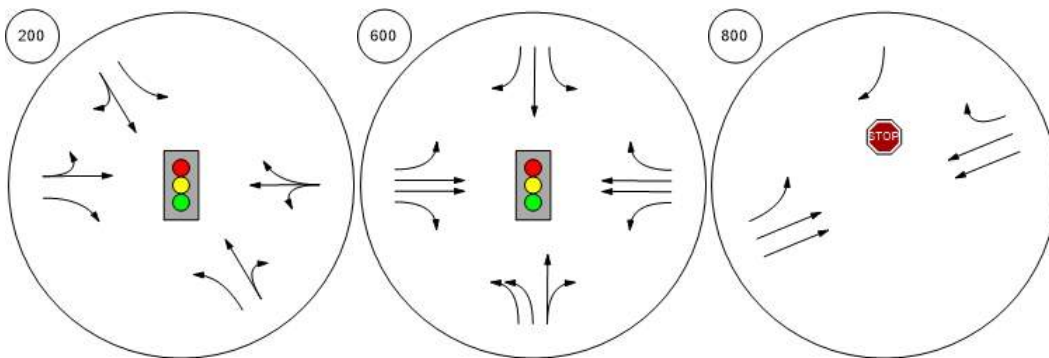
Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.09	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	25.27	0.00	0.00	11.96	0.00
Movement LOS		D	A	A	B	
95th-Percentile Queue Length [veh/ln]	0.00	0.28	0.00	0.00	0.19	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.09	0.00	0.00	4.63	0.00
d_A, Approach Delay [s/veh]	25.27		0.00		11.96	
Approach LOS	D		A		B	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	D					

Appendix L 2037 Mitigated Total Traffic  
Analysis

Lane Configuration and Traffic Control



**Intersection Level Of Service Report**  
**Intersection 200: NE Three Mile Ln/SE 1st St**

Control Type:	Signalized	Delay (sec / veh):	114.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.021

**Intersection Setup**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	←↑→			←↑→			←↑→			↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

**Volumes**

Name	NE Three Mile Ln			NE 3rd St			SE 1st St			SE 1st St		
Base Volume Input [veh/h]	243	631	5	5	776	4	6	0	266	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	20.00	2.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	-21	-17	0	0	62	0	0	0	17	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	21	82	0	0	-21	0	0	0	-26	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	882	6	6	1045	5	8	0	335	1	0	4
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	237	2	2	281	1	2	0	90	0	0	1
Total Analysis Volume [veh/h]	338	948	6	6	1124	5	9	0	360	1	0	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing in	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	1	0	4	0
Auxiliary Signal Groups									1,8			
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	5	0	5	0
Maximum Green [s]	20	64	0	0	40	0	0	30	20	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No	No		No	
Maximum Recall	No	No			No			No	No		No	
Pedestrian Recall	No	No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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



**Lane Group Calculations**

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	89	89	89	89	89	89	89
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	62	62	40	40	19	41	19
g / C, Green / Cycle	0.70	0.70	0.45	0.45	0.21	0.46	0.21
(v / s)_i Volume / Saturation Flow Rate	0.41	0.57	0.01	0.67	0.01	0.25	0.00
s, saturation flow rate [veh/h]	827	1681	453	1682	1322	1442	1448
c, Capacity [veh/h]	493	1174	89	752	361	669	356
d1, Uniform Delay [s]	22.39	9.41	43.57	24.75	27.92	17.15	27.86
k, delay calibration	0.50	0.32	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.54	4.05	0.31	232.90	0.03	3.09	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.69	0.81	0.07	1.50	0.02	0.54	0.01
d, Delay for Lane Group [s/veh]	29.92	13.46	43.88	257.65	27.95	20.25	27.88
Lane Group LOS	C	B	D	F	C	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.90	10.94	0.14	63.05	0.15	5.59	0.09
50th-Percentile Queue Length [ft/ln]	72.54	273.62	3.42	1576.14	3.85	139.70	2.13
95th-Percentile Queue Length [veh/ln]	5.22	16.37	0.25	96.77	0.28	9.46	0.15
95th-Percentile Queue Length [ft/ln]	130.58	409.25	6.16	2419.20	6.92	236.62	3.84

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	29.92	13.46	13.46	43.88	257.65	257.65	27.95	27.95	20.25	27.88	27.88	27.88
Movement LOS	C	B	B	D	F	F	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	17.77			256.52			20.44			27.88		
Approach LOS	B			F			C			C		
d_I, Intersection Delay [s/veh]	114.88											
Intersection LOS	F											
Intersection V/C	1.021											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	0.0			9.0			0.0			0.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			36.45			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			2.749			0.000			0.000		
Crosswalk LOS	F			B			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1422			889			667			667		
d_b, Bicycle Delay [s]	3.76			13.89			20.00			20.00		
I_b,int, Bicycle LOS Score for Intersection	3.691			3.432			2.168			1.568		
Bicycle LOS	D			C			B			A		

**Sequence**

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



**Intersection Level Of Service Report**  
**Intersection 600: Cumulus Ave/NE Three Mile Ln**

Control Type:	Signalized	Delay (sec / veh):	49.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

**Intersection Setup**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	125.00	100.00	125.00	125.00	100.00	100.00	125.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Cumulus Ave			Cumulus Ave			NE Three Mile Ln			NE Three Mile Ln		
Base Volume Input [veh/h]	0	0	0	89	0	149	114	993	0	0	1149	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	3.00	0.00	4.00	6.00	3.00	0.00	0.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	67	0	32	0	0	0	0	0	205	97	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	120	0	120	0	0	0	0	-120	120	120	-120	0
Existing Site Adjustment Volume [veh/h]	270	0	127	0	0	0	0	0	94	44	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	457	0	279	115	0	193	148	1165	419	261	1367	53
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	0	73	30	0	50	39	303	109	68	356	14
Total Analysis Volume [veh/h]	476	0	291	120	0	201	154	1214	436	272	1424	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Overla	ProtPer	Permis	Overla	ProtPer	Permis	Overla
Signal Group	3	8	0	7	4	5	5	2	3	1	6	7
Auxiliary Signal Groups						4,5			2,3			6,7
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	5	5	10	5	5	10	5
Maximum Green [s]	30	30	0	30	30	20	20	80	30	20	80	30
Amber [s]	3.0	4.5	0.0	3.0	4.5	4.5	4.5	5.0	3.0	4.5	5.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	2.5	0.0	3.0	2.5	2.5	2.5	4.0	3.0	2.5	4.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	26	0	0	15	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	3.5	0.0	2.0	3.5	3.5	3.5	4.0	2.0	3.5	4.0	2.0
Minimum Recall	No	No		No	No	No	No	Yes	No	No	Yes	No
Maximum Recall	No	No		No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No		No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

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

**Lane Group Calculations**

Lane Group	L	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	163	163	163	163	163	163	163	163	163	163	163
L, Total Lost Time per Cycle [s]	4.00	5.50	4.00	5.50	5.50	6.00	6.00	4.00	6.00	6.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.50	2.00	3.50	0.00	0.00	4.00	0.00	0.00	4.00	0.00
g_i, Effective Green Time [s]	28	30	14	17	42	103	83	116	103	78	98
g / C, Green / Cycle	0.17	0.18	0.09	0.10	0.26	0.63	0.50	0.71	0.63	0.48	0.60
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.08	0.00	0.14	0.25	0.38	0.30	0.42	0.45	0.04
s, saturation flow rate [veh/h]	3163	1454	1590	1710	1408	606	3179	1454	642	3179	1453
c, Capacity [veh/h]	534	267	141	177	365	307	1603	1032	341	1516	875
d1, Uniform Delay [s]	66.47	66.71	73.40	0.00	52.26	35.47	32.47	9.83	31.93	40.51	13.43
k, delay calibration	0.11	0.48	0.11	0.08	0.25	0.15	0.15	0.21	0.50	0.15	0.15
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	80.38	13.14	0.00	2.91	1.80	1.07	0.54	17.49	4.82	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.89	1.09	0.85	0.00	0.55	0.50	0.76	0.42	0.80	0.94	0.06
d, Delay for Lane Group [s/veh]	71.88	147.09	86.54	0.00	55.17	37.27	33.54	10.37	49.43	45.34	13.48
Lane Group LOS	E	F	F	A	E	D	C	B	D	D	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.17	17.13	5.51	0.00	7.50	2.51	19.48	6.55	6.16	27.93	0.88
50th-Percentile Queue Length [ft/ln]	254.14	428.16	137.75	0.00	187.52	62.74	486.89	163.67	153.91	698.18	21.94
95th-Percentile Queue Length [veh/ln]	15.39	25.01	9.36	0.00	11.99	4.52	26.71	10.74	10.23	36.59	1.58
95th-Percentile Queue Length [ft/ln]	384.86	625.25	233.99	0.00	299.80	112.94	667.82	268.57	255.65	914.85	39.49

**Movement, Approach, & Intersection Results**

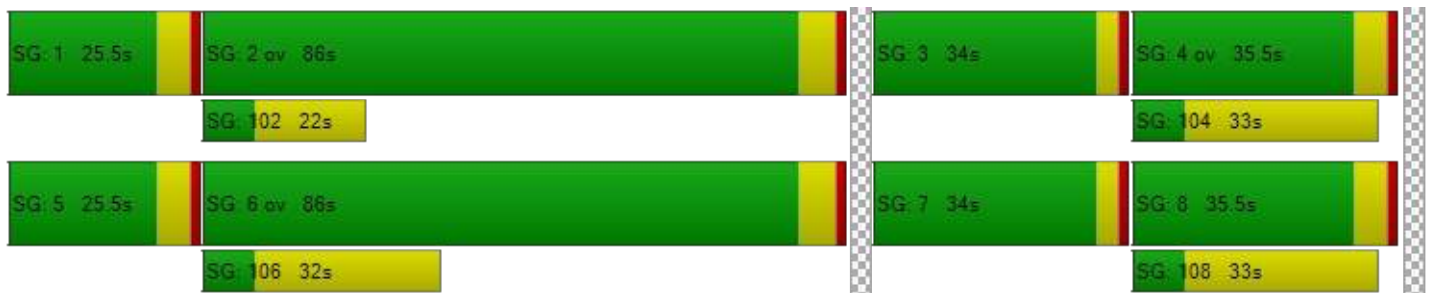
d_M, Delay for Movement [s/veh]	71.88	147.09	147.09	86.54	0.00	55.17	37.27	33.54	10.37	49.43	45.34	13.48
Movement LOS	E	F	F	F	A	E	D	C	B	D	D	B
d_A, Approach Delay [s/veh]	100.42			66.90			28.26			44.97		
Approach LOS	F			E			C			D		
d_I, Intersection Delay [s/veh]	49.15											
Intersection LOS	D											
Intersection V/C	0.794											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
I_p,int, Pedestrian LOS Score for Intersection	2.690	2.367	3.087	3.001
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1778	1778
d_b, Bicycle Delay [s]	20.00	20.00	0.56	0.56
I_b,int, Bicycle LOS Score for Intersection	2.825	2.089	3.048	3.004
Bicycle LOS	C	B	C	C

**Sequence**




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



**Intersection Level Of Service Report**  
**Intersection 800: NE Three Mile Ln/SE Loop Rd**

Control Type:	Two-way stop	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

**Intersection Setup**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	150.00	100.00	100.00	175.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

**Volumes**

Name	SE Loop Rd		NE Three Mile Ln		NE Three Mile Ln	
Base Volume Input [veh/h]	13	21	8	1048	1135	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	27.00	11.00	14.00	2.00	3.00	0.00
Growth Factor	1.2940	1.2940	1.2940	1.2940	1.2940	1.2940
In-Process Volume [veh/h]	0	0	0	32	97	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	127	44	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	27	10	1515	1610	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	3	390	415	1
Total Analysis Volume [veh/h]	18	28	10	1562	1660	4
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

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

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.09	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	0.00	18.47	16.12	0.00	0.00	0.00
Movement LOS		C	C	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.31	0.09	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.78	2.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.47		0.10		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	C					