KITTELSON & ASSOCIATES
851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

July 9, 2021 Project #: 26405

Tony Martin, PE
City of Salem Department of Public Works
555 Liberty Street SE, Room 325
Salem, OR 97301

RE: Meyer Farm Residential Traffic Impact Analysis – Salem, OR

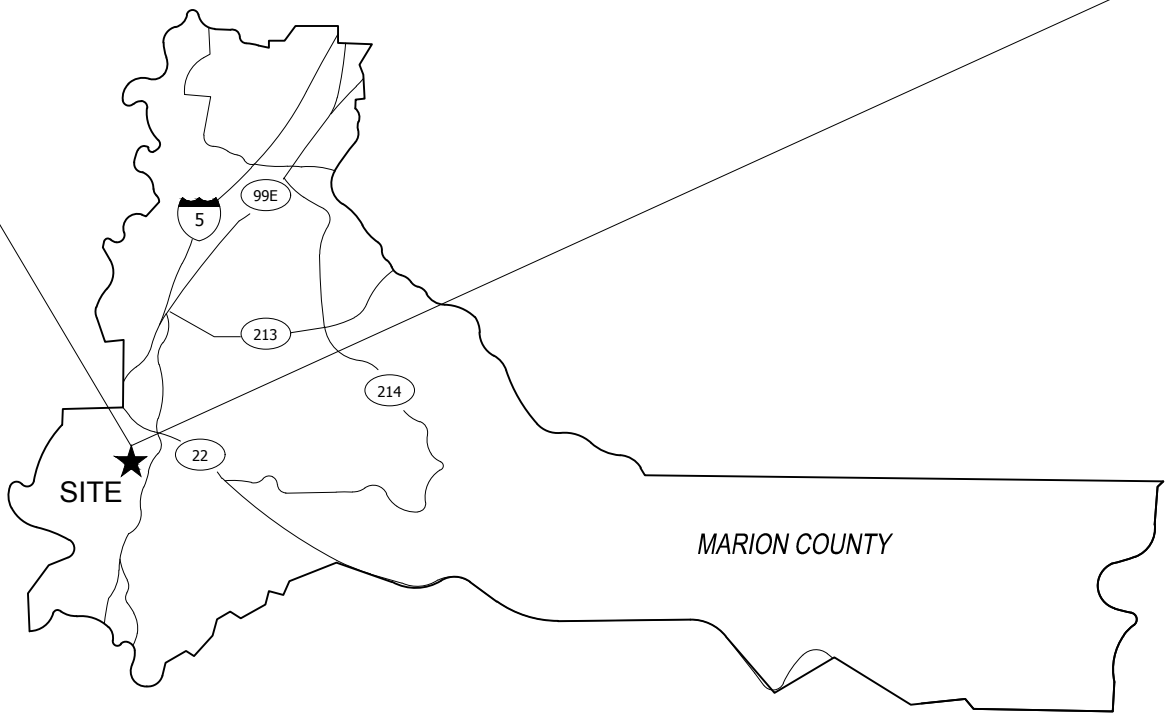
Dear Tony,

This letter documents the results of a traffic impact analysis (TIA) for a proposed 138 lot single-family residential development near Hilfiker Lane and Hillrose Street in Salem. The results of the analysis indicate the proposed development can be built and occupied while maintaining acceptable traffic operations at the study intersections. Design and construction of a northbound left turn lane on Battle Creek Road providing at least 50 feet of storage approaching Hillrose Street is recommended in conjunction with site development. Additional details of the methodology, findings, and recommendations are provided herein.

INTRODUCTION

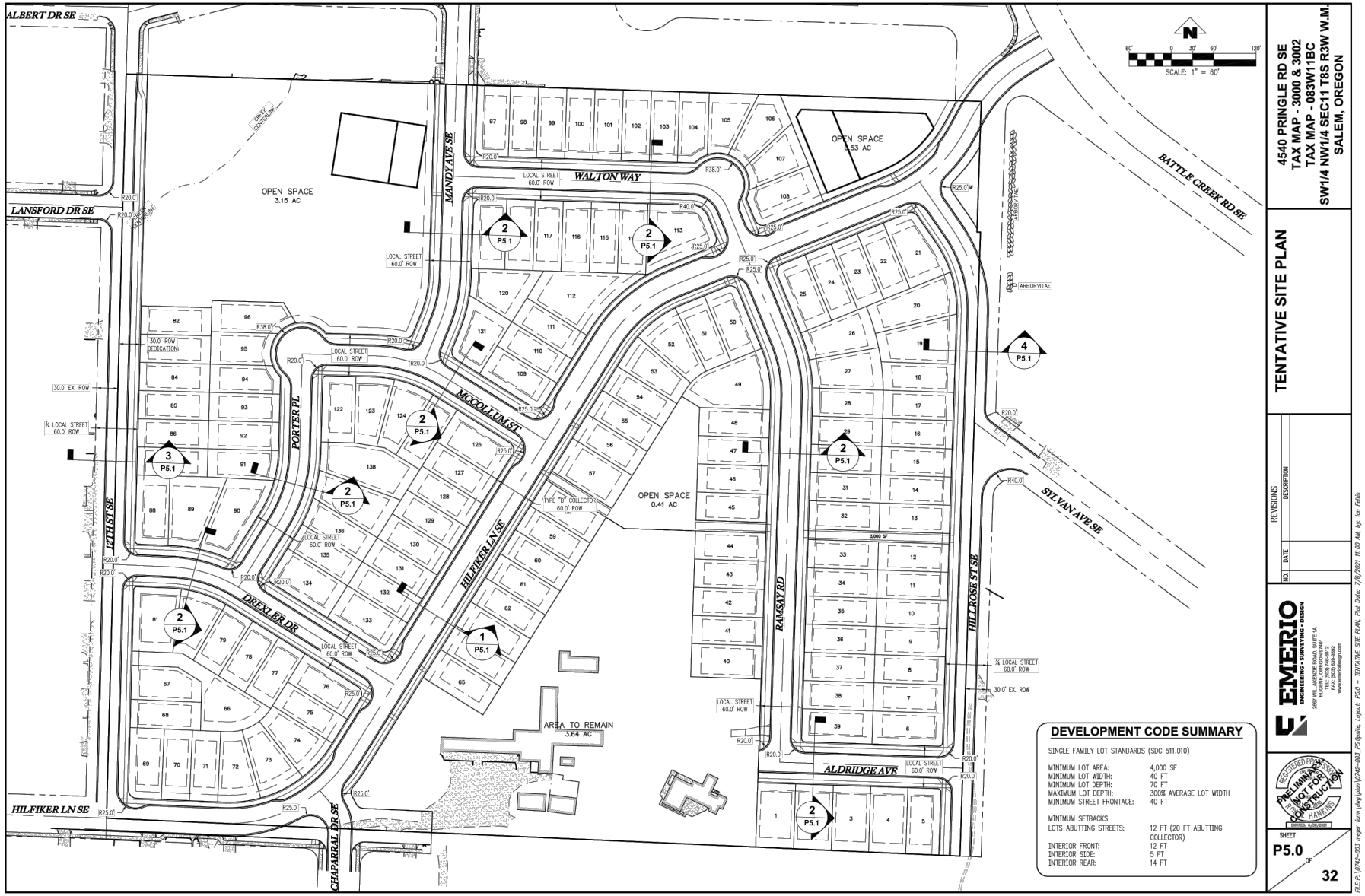
The applicant proposes to develop 138 single-family homes on a vacant property located between 12th Street and Hillrose Street, south of Albert Drive. The site is bordered by single-family homes on all sides with Hilfiker Park to the south. Primary access to the development is proposed via a new roadway linking Hillrose Street and Hilfiker Lane to be constructed with site development, supplemented by new local street connections on-site and existing off-site roadways on all four sides of the property. The site is expected to be fully built-out and occupied by 2023. Figure 1 displays the site vicinity, and Figure 2 displays the proposed site plan.

While the site plan shown in Figure 2 includes the proposed 138 tax lots, the transportation impact analysis herein represents the impact of potential construction of up to 155 single-family homes. This analysis was prepared as a reasonable maximum buildout scenario to provide the applicant with flexibility throughout the site plan development process. The final site plan proposed includes fewer homes (138) than that analyzed herein, which is thus expected to result in a lesser impact on the transportation system than reported herein. The findings and recommendations remain applicable for the proposed 138-lot site plan as proposed.



Site Vicinity Map
Salem, OR

Figure
1



SITE PLAN PROVIDED BY EMERIO ON 4/15/2021

Proposed Site Plan
Salem, OR

Figure
2

STUDY SCOPE & ANALYSIS METHODOLOGY

This section provides an overview of the TIA study scope, study methodology, applicable operating standards, and the report structure.

Study Scope

This study identifies the transportation-related impacts associated with the proposed development and was prepared at the request of City of Salem.

This report documents evaluation of the following transportation items:

- Existing conditions analysis, using *Highway Capacity Manual 6th Edition* (HCM 6th, Reference 1) methodology[1];
- Build-out year (2023) background (does not include site traffic) conditions analysis;
- Trip generation estimates for the proposed land use;
- Trip distribution and assignment based on a Select Zone Analysis (SZA) of the associated TAZ[2] that includes the development parcel and major local travel generators and destinations;
- Build-out year (2023) total traffic conditions analysis, including trips associated with the proposed development;
- Site access sight distance assessment; and
- Turn lane analyses, where applicable.

Conclusions and recommendations are provided at the end of the report.

Study Intersections

Per discussions and scoping confirmation with City traffic engineering staff, the following two intersections were included in the analysis:

1. Hilfiker Lane/Commercial Street
2. Battle Creek Road/Hillrose Street

[1] Includes control delay, level of service (LOS), and 95th-percentile queuing analysis.

[2] Transportation Analysis Zone

Traffic Analysis Time Periods

Study intersection operations were analyzed using peak 15-minute flow rates experienced during the following peak periods:

- Weekday morning peak hour (intersection peak hour between 7:00 and 9:00 AM); and,
- Weekday afternoon peak hour (intersection peak hour between 4:00 and 6:00 PM).

ANALYSIS METHODOLOGY AND APPLICABLE STANDARDS

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the HCM 6th. Peak 15-minute flow rates were evaluated. The operations and queuing analyses presented in this report were completed using Synchro 10 software.

City of Salem Intersection Operating Standards

Per City of Salem operating standards as identified in the Transportation System Plan (TSP, Reference 2) policy 2.5 Capacity Efficient Design and Level of Service (LOS) Standards states that:

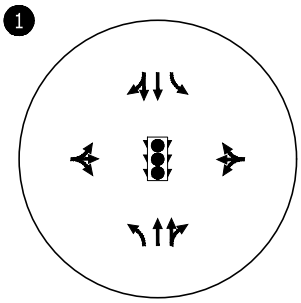
"The City shall allow its existing streets and intersections to function at LOS E (where traffic volumes generally are approaching or at 100 percent of the street's effective capacity) during the morning and evening peak travel hours. However, traffic impacts created by new development, as identified in a traffic impact analysis, must be mitigated to maintain peak hour LOS D or better."

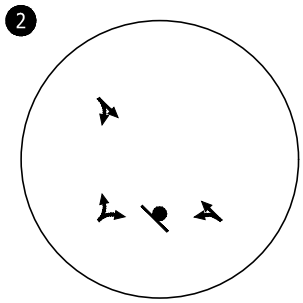
EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. Kittelson has collected information regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

Transportation Facilities

Existing lane configurations and traffic control devices at the study intersections are shown in Figure 3. Table 1 summarizes the existing transportation facilities and roadways in the study area.





- STOP SIGN
- TRAFFIC SIGNAL

Existing Lane Configurations & Traffic Control Devices
Salem, OR

Figure 3

Table 1. Existing Transportation Facilities

Roadway	Classification	Cross Section	Speed Limit (miles per hour, mph)	Sidewalks	Bicycle Lanes	Median	On-street parking
Commercial Street	Major Arterial	5-lane	40	Yes	Yes	TWLTL[1]	No
Hilfiker Lane	Collector	2-lane	35[2]	Partial[3]	Yes	No	No
Pringle Road/ Battle Creek Road	Minor Arterial	2-lane	40	Partial[4]	Yes	No	No
Hillrose Street	Collector	2-lane	Not Posted, 25 assumed	No	No	No	No

TWLTL: Two-way Left-turn Lane
[1]From Map 3-1 Street Plan in City of Salem TSP (Reference 2)
[2]25 MPH east of Commercial Street
[3] Sidewalk present on the south side of the roadway as well as along the north side west of the Walgreens access
[4] Sidewalk present on the west side of the roadway north of Hillrose Street

Intersection Crash History

The study intersection crash histories were obtained and summarized. The Oregon Department of Transportation (ODOT) provided crash records for the study intersections for the five years period from January 1, 2015 through December 31, 2019. Table 2 summarizes the ODOT crash data. *Appendix A provides the detailed ODOT crash report data.*

Table 2: Reported Crash History (January 1, 2015 – December 31, 2019)

Study Intersection	Crash Type								Severity			Total
	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/ Bike	Backing	Other	PDO[1]	Injury	Fatal	
Hilfiker Lane/ Commercial Street	4	17	10	-	-	1	1	-	12	21	-	33
Battle Creek Road/ Hillrose Street	-	-	-	-	-	-	-	-	-	-	-	0

[1]PDO = Property damage only

Critical crash rates were also calculated for the study intersections following the analysis methodology presented in ODOT's *SPR 667 Assessment of Statewide Intersection Safety Performance*. SPR 667 provides average crash rates at a variety of intersection configurations in Oregon based on the number of approaches and traffic control type. The mean crash rate represents the approximate number of crashes that would be "expected" to occur at a study intersection. The intersection critical crash rate assessment for the study intersections is summarized in Table 3.

Table 3: Intersection Critical Crash Rate Assessment

Study Intersection Location	Critical Crash Rate by Intersection Type	Critical Crash Rate by Volume	Observed Crash Rate	Observed Crash Rate > Mean Crash Rate by Intersection	Observed Crash Rate > 90th Percentile Rate
Hilfiker Lane/Commercial Street	0.62	0.53	0.48	No	No
Battle Creek Road/Hillrose Street	0.32	0.33	0.00	No	No

[1]Crash Rate reported as crashes per million entering vehicles (crashes/MEV).

As shown in Table 3, the observed crash rate at the study intersections do not exceed the critical crash rate based on intersection type and volume. No safety-based mitigations were identified at the study intersections based on review of the crash data alone.

Pedestrian and Bicycle Facilities

Sidewalks are currently provided along the south side of Hilfiker Lane. As part of site development, sidewalks will be constructed along the frontage of on-site roadways and will provide persons walking with the opportunity to connect with the sidewalks along Mandy Avenue and Lansford Drive.

Bicycle lanes are striped on Pringle Road/Battle Creek Road as well as Commercial Street. Currently, no bicycle lanes are provided along Hilfiker Lane or Hillrose Street, though these roadways and the proposed connection of Hilfiker Lane and Hillrose Street could be considered for a shared roadway.

Transit Facilities

Cherriots provides transit service in the general site vicinity (Reference 3). The nearest *Cherriots* bus stop is located approximately 1,000 feet west of the site frontage at the intersection of Commercial Street and Hilfiker Lane and is served by Route 21. This route operates between the Downtown Transit Center and South Salem. Service operates between 6:00 AM and 11:00 PM, with approximately 15-minute headways.

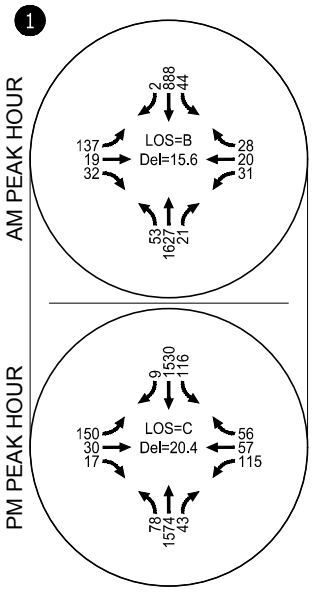
Traffic Volumes and Peak Hour Operations

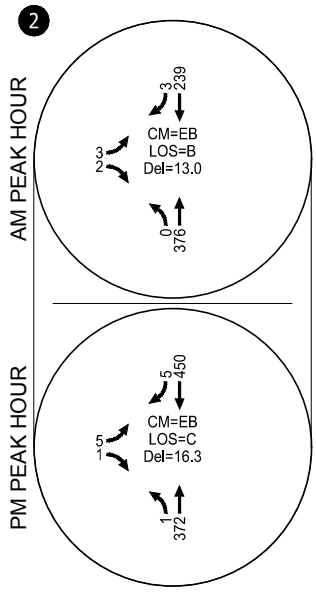
Turning movement counts were conducted at the study intersections in May of 2021. Traffic counts were conducted during the weekday morning peak hour (7:00 – 9:00 AM) and evening peak hour (4:00 – 6:00 PM). The individual intersection peak hours for the weekday AM and PM peak hours were identified as 7:55 – 8:55 AM and 4:00 – 5:00 PM for Commercial Street and Hilfiker Lane, and 7:45 – 8:45 AM and 4:40 – 5:40 PM for Battle Creek Road and Hillrose Street. *Appendix "B" contains the turning movement counts*.

Recognizing the traffic impact of COVID-19, historical counts were provided by City staff at Battle Creek Road/Reed Road from May of 2018 and compared to traffic counts conducted at that intersection in May of 2021. The resulting adjustment factors were applied to the through movements along Battle

Creek Road/Pringle Street and Commercial Street to replicate pre-COVID-19 traffic conditions. The adjustment factors were 1.41 and 1.24 respectively for the AM and PM peak hours. These factors were verified by City of Salem traffic engineering staff. *Appendix "C" also contains the methodology used to create the adjustment factors and the historical count can be found in Appendix "B".*

The existing turning movement volumes for the weekday AM and PM peak hours are displayed in Figure 4. The figure also displays the associated traffic operations. For the analysis it should be noted that left turns at Battle Creek Road/Hillrose Street are not permitted on the northbound approach, however our analysis includes one observed left-turning vehicle (note that the existing connection to Battle Creek Road will be realigned with the proposed site development and northbound left-turns will then be allowed). As shown, both study intersections currently operate acceptably per City standards, with the overall intersection LOS operating at LOS "E" or better. *Appendix "D" contains the existing traffic conditions worksheets.*





CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/INTERSECTION MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/INTERSECTION MOVEMENT CONTROL DELAY (UNSIGNALIZED)

Existing Traffic Operations
Weekday AM & PM Peak Hour
Salem, OR

Figure
4

TRAFFIC IMPACT ANALYSIS

The traffic impact analysis identifies how the study area's transportation system is anticipated to operate after full completion and occupancy of the proposed development. The impact of traffic generated by the proposed development during the typical weekday AM and PM peak hours was examined as follows:

- Planned developments and transportation improvements in the site vicinity were identified;
- Year 2023 background (pre-development) weekday AM and PM peak hour traffic conditions were assessed;
- Site-generated trips were estimated and distributed for site development;
- Year 2023 total (including trips associated with the proposed site) weekday AM and PM peak hour traffic conditions were assessed; and
- Provision of adequate sight distance was assessed at the proposed public street connection to Battle Creek Road and on-site traffic circulation was evaluated.

Background Traffic Conditions

The background traffic analysis identifies how the study area's transportation system will operate in the year the proposed development is to be built and includes regional traffic growth but does not include the trips associated with the development.

At the direction of City staff, a 1.5-percent annual growth rate was applied to the existing conditions volumes for all movements at the study intersections. No in-process developments were assumed with this project.

The City's Capital Improvement Plan (Reference 4) includes a planned improvement at the intersection of Commercial Street/Hilfiker Lane. The improvement adds left turn lanes to the eastbound and westbound approaches and is expected to be constructed by 2023; as such, this improvement is included in the background conditions analysis. In discussion with city staff the left turn phasing has not yet been established. The left turn movements operate as permitted phasing under existing conditions and have been analyzed assuming protected/permitted left turn phasing under future conditions[3].

[3] The left-turn signal phasing could also operate as protected-only, which would degrade intersection operations to LOS "C" during the AM peak hour and LOS "D" in the PM peak hour. This LOS is within the City of Salem LOS "E" operating thresholds.

Figure 5 provides a summary of the forecast year 2023 background traffic volumes for the weekday AM and PM peak hours. These volumes include a 1.5-percent annual growth rate, but no traffic from the proposed development. The figure also displays the corresponding traffic operations; as shown, both study intersections are expected to continue operating acceptably under year 2023 background traffic conditions, with the overall intersection LOS operating at LOS "E" or better. *Appendix "E" contains the year 2023 background traffic conditions worksheets.*

Proposed Development

Upon completion, the proposed development will include up to 138 single family homes, accessed primarily by the proposed connection between Hilfiker Lane and Hillrose Street. As described previously, the analysis includes potential for up to 155 homes – as such, the 138-lot proposal is expected to have a lesser impact on the transportation system than the analysis presented.

Estimated Trip Generation

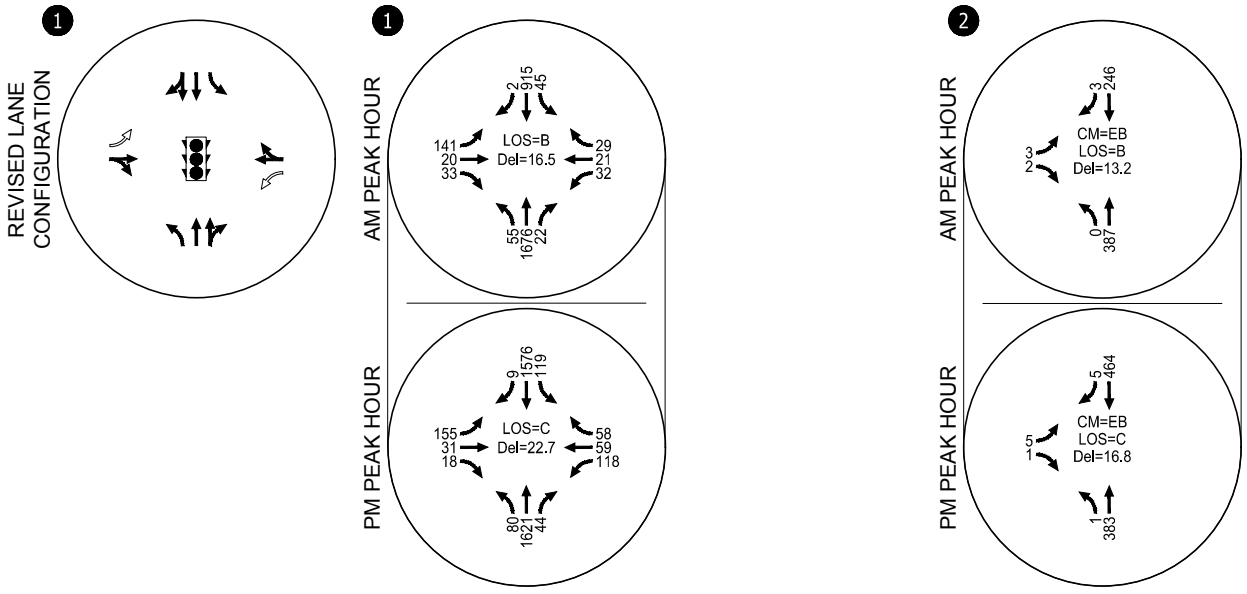
Table 4 displays the estimated trip generation for the proposed development, per rates developed in *Trip Generation Manual, 10th Edition*, published by the Institute of Transportation Engineers (Reference 5). The Single-Family Detached Housing average trip rate was used and is based upon the number of homes shown in the site plan.

Table 4. Estimated Trip Generation

Land Use	ITE Code	Size (Homes)	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single-Family Detached Housing	210	155	1,463	115	29	86	154	97	57

Trip Distribution/Assignment

The trip distribution pattern for the proposed development is based on existing travel patterns, a select zone analysis for the site zone (Zone 357, Hilfiker/Pringle Road), and knowledge of major local travel generators and destinations within the study area. The trip distribution pattern and weekday AM and PM peak hour site-generated trips associated with the proposed development were confirmed with City of Salem traffic engineering staff and are summarized in Figure 6. *Appendix "F" contains the select zone analysis which the trip distribution was based upon.*



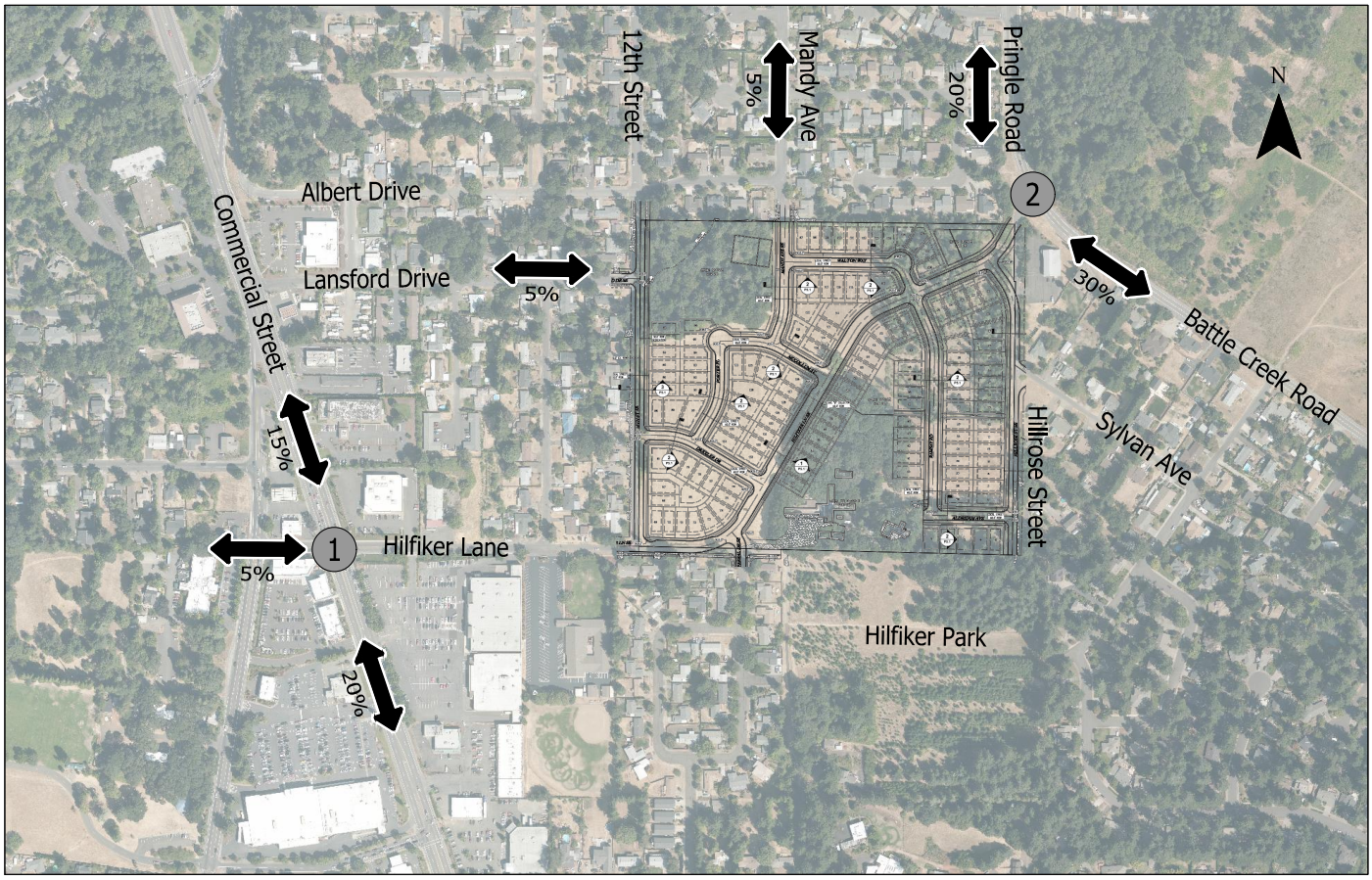
- ADDITIONAL LANE

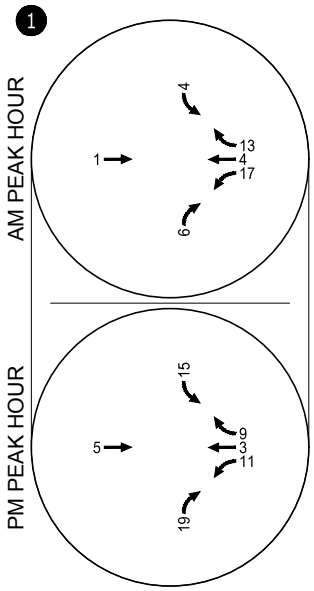
- TRAFFIC SIGNAL

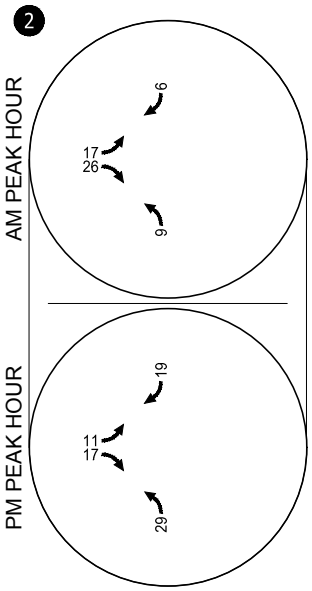
CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/INTERSECTION MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/INTERSECTION MOVEMENT CONTROL DELAY (UNSIGNALIZED)

Year 2023 Background Traffic Operations And Lane Configurations Weekday AM & PM Peak Hour - Salem, OR

Figure 5







CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/INTERSECTION MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/INTERSECTION MOVEMENT CONTROL DELAY (UNSIGNALIZED)

Site Generated Traffic
Weekday AM & PM Peak Hour
Salem, OR

Figure
6

Year 2023 Total Traffic Conditions

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed development. The site-generated traffic shown in Figure 6 was added to the year 2023 background traffic volumes shown in Figure 5 to arrive at the total traffic volumes for the weekday AM and PM peak hours shown in Figure 7. Figure 7 also presents the corresponding traffic operations at the study intersections.

As shown, both study intersections are forecast to continue operating acceptably after build-out of the proposed development, with the overall intersection LOS operating at an LOS "E" or better. *Appendix "G" contains the 2023 Total Traffic Conditions intersection analysis worksheets.*

95th-percentile Queuing Analysis

A 95th-percentile queuing analysis was performed in Synchro at both of the study intersections for all analysis scenarios. Table 5 summarizes the existing and future 95th-percentile queues for each movement during the weekday AM and PM peak hours. Queues are rounded up to the nearest vehicle length (approximately 25 feet).

Table 5. Summary of 95th-percentile Queues

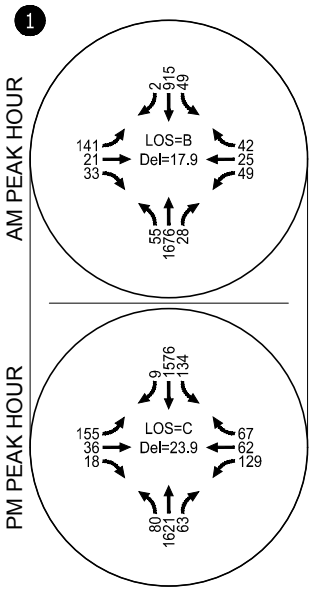
Intersection	Movement	Storage (feet)	95th-percentile Queue (feet)						Adequate Storage Provided?
			Existing		2023 Background		2023 Total		
			AM	PM	AM	PM	AM	PM	
1: Hilfiker Lane/ Commercial Street	EBL	Undefined	-	-	100	100	100	100	-
	EBTR	175	275	275	75	75	75	75	Yes[2]
	WBL	Undefined	-	-	50	175	75	200	-
	WBTR	Continuous (200'[1])	125	300	75	175	125	200	Yes
	NBL	250	25	25	25	50	25	25	Yes
	NBTR	Continuous (300'[1])	525	550	525	625	550	650	Yes
	SBL	125	25	75	25	100	25	125	Yes
	SBTR	Continuous (300'[1])	225	500	225	550	225	550	Yes
2: Battle Creek Road/Hillrose Street	NBLTR	-	0	0	0	0	0	25	Yes
	EBLR	-	0	25	0	25	25	25	Yes

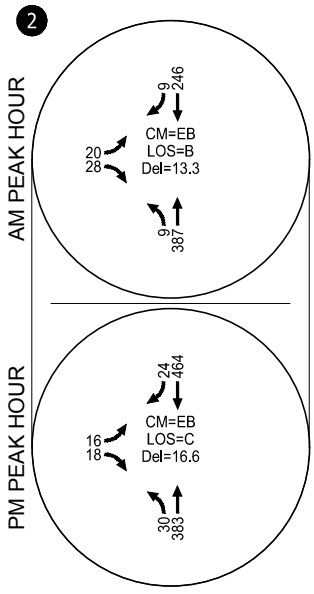
Where: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = left-turn, TR = shared through/right, LTR = shared left/through/right

[1]Distance until blocking accesses

[2]Yes, with the construction of the planned Hilfiker Lane left-turn improvement by the City

As shown in the table, all 95th-percentile queues are projected to be accommodated within the available storage lengths assuming the planned improvement is in place. Therefore, no capacity-based off-site mitigation is recommended in conjunction with the proposed development. *95th-percentile queue information from Synchro is included in Appendices "C", "D", and "F".*





CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/INTERSECTION MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/INTERSECTION MOVEMENT CONTROL DELAY (UNSIGNALIZED)

Year 2023 Total Traffic Operations
Weekday AM & PM Peak Hour
Salem, OR

Figure
7

Sight Distance

Preliminary sight distance was reviewed at the proposed public street connection to Battle Creek Road. For the analysis, measurements of intersection sight distance (ISD) and stopping sight distance (SSD) were approximated and then compared against design parameters from *A Policy on Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials (AASHTO, Reference 6). With a posted speed of 40 miles per hour on Battle Creek Road, the corresponding recommended ISD for a left-turn from a stop (left turn from Hillrose Street onto Battle Creek Road) is 445 feet and the recommended SSD is 305 feet. From preliminary sight distance measurements ISD and SSD are anticipated to be met and no obstructions or grade issues were identified that would impact sight distance upon buildout of the site.

The eastbound approach will be reconfigured with site buildout, and, as such, we recommend that a final sight distance evaluation be conducted during design and after construction in conformance with City standards. We further recommend that all above ground utilities, signage, and on-street parking be located and maintained to provide adequate intersection sight distance in conformance with City standards.

Turn Lane Analysis

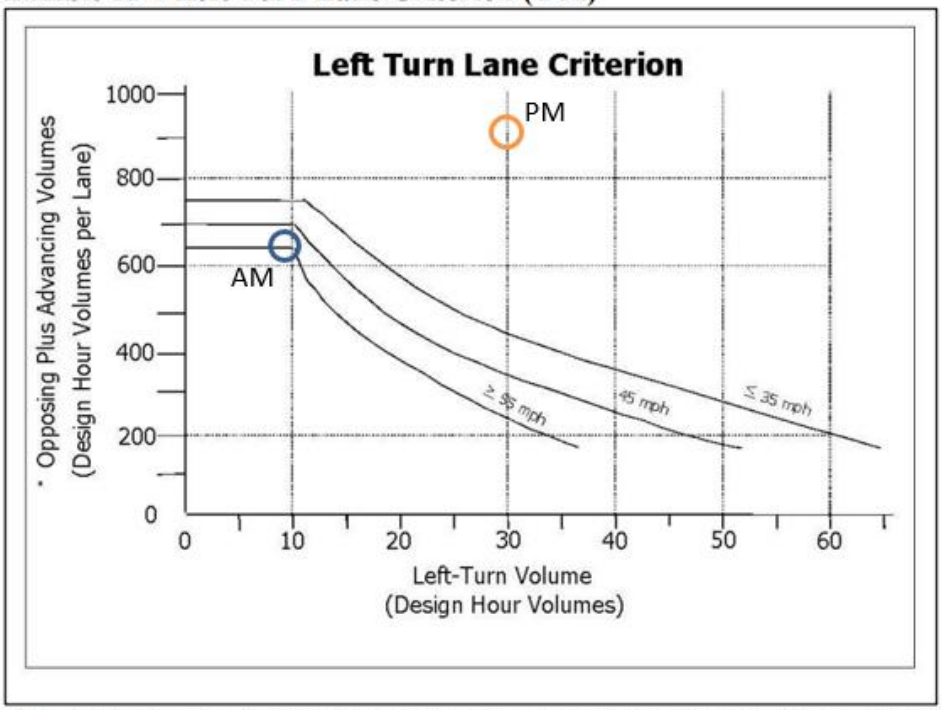
At the request of City staff, the northbound approach at the Battle Creek Road/Hillrose Street intersection was reviewed to assess the potential need for a left turn lane based on traffic volumes. The northbound through-left movement is forecast to operate under capacity and at LOS “A” during both the weekday AM and PM peak hours under 2023 total conditions. However, a separate left-turn lane could provide additional sight distance for northbound traveling vehicles through the horizontal curve at the intersection.

Left-turn lane volume criteria were reviewed based on the ODOT *Analysis Procedures Manual* (Reference 7) and *A Policy on Geometric Design of Highways and Streets* (Reference 6) turn lane methodologies. Based on the forecast left-turning volume during the weekday AM and PM peak hours and a posted speed of 40 miles per hour, provision of a separate left turn lane is considered appropriate in conjunction with site development using both the ODOT and AASHTO left-turn lane assessment methodologies.

Exhibits 1 and 2 show the AM and PM volumes relative to the respective turn lane evaluation methodologies.

Exhibit 1. ODOT Left Turn Criterion (Reference 7)

Exhibit 12-1 Left Turn Lane Criterion (TTI)



*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)
Opposing left turns are not counted as opposing volumes

Exhibit 2. AASHTO Left-turn Lane Warrant (Reference 6)

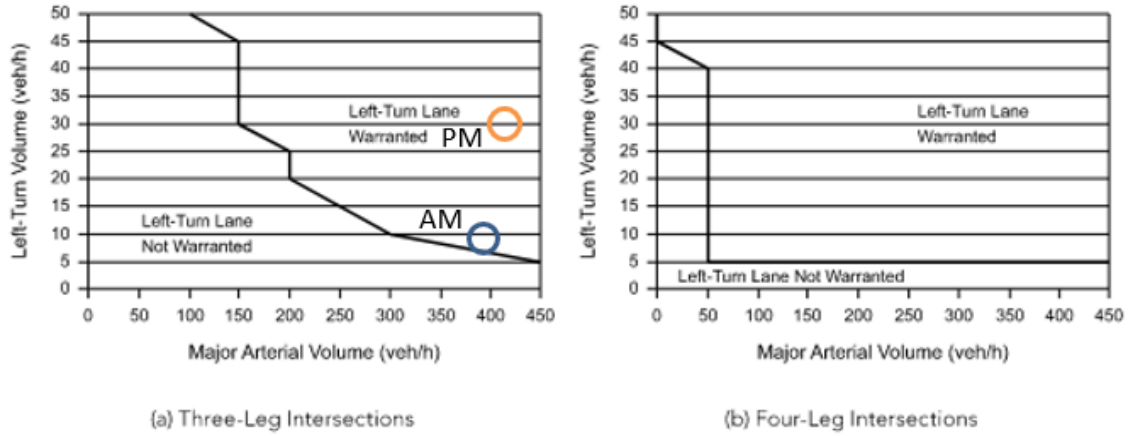


Figure 9-35. Suggested Left-Turn Lane Warrants Based on Results from Benefit–Cost Evaluations for Intersections on Arterials in Urban Areas (*16*)

A sensitivity analysis of the projected intersection total traffic operations was prepared assuming provision of a left turn lane and the following results were obtained:

- Weekday AM Peak Hour
  - LOS: B
  - 95th percentile left-turn queue demand: 0 feet
- Weekday PM Peak Hour
  - LOS: C
  - 95th percentile left-turn queue demand: 25 feet

Based on the above sensitivity analysis, we recommend a left-turn lane design with a minimum storage of at least two vehicles (50 feet) be constructed in conjunction with site development. *The sensitivity analysis output worksheets are included in Appendix "H".*

We further recommend the applicant and the City work together to identify a concept left-turn striping plan that, if possible, can be installed within the existing right-of-way along Battle Creek Road given the lack of development site frontage at the intersection.

Additional Site Development Considerations

Development of this site includes construction of a collector roadway that connects Hillrose Street and Hilfiker Lane. This project is included in the City of Salem TSP (Reference 2) and is identified as Project #105, as shown below in Exhibit 3.

Exhibit 3. Salem TSP Project Description

Hilfiker Lane SE (Commercial Street SE to Pringle Road SE via Hillrose Street SE) (105)

This project will construct a new street extension between Hilfiker Lane SE and Hillrose Street SE and reconstruct both to urban standards, creating a new connection between Commercial Street SE and Pringle Road SE. Although not expected to divert large amounts of commuting traffic away from Commercial Street SE and 12th Street SE, this collector street will provide a much-needed east-west connection to Pringle Road SE. Design of this project should be closely coordinated with the Morningside Neighborhood Association and adjacent properties to incorporate context sensitive elements, including appropriate access to the City-owned park property.

The following sections discuss additional considerations associated with TSP project.

Collector Roadway Alignment and Speed

The proposed roadway connection should be designed as a collector street per the City's TSP designation. Collector facilities typically require a posted speed of 35 mph with horizontal curves designed with a minimum radius of 510 feet to satisfy City standards. The applicant proposes to alternatively design the new roadway to a 25-mph design speed with a minimum centerline design radius of 200 feet based on the existing off-site roadway context and site topography.

Per direction from City of Salem traffic engineering staff, the proposed new collector roadway design will require approval of a design exception request to accommodate the change in design speed. We recommend that the design exception request, which will be prepared under separate cover, be approved in part based on the following:

- Consideration of existing factors including site topography, connectivity with existing roadways, and consistency with the residential character of the existing and proposed neighborhoods the new roadway will serve;
- The proposed 25 mph design speed is consistent with the current speed posted on Hilfiker Lane and the assumed speed of Hillrose Street, thus offering drivers a consistent driving environment (as opposed to creating the potential for a higher speed facility between two existing lower speed segments).
- The proposed minimum 200-foot centerline radius is consistent with roadway geometries on other City roadway facilities aligned through residential areas.

Deviation of Future Street Alignment

Per conversations and confirmation with City of Salem Public Works Department staff, the proposed diagonal alignment (southwest to northeast) of the future roadway connection (shown in Figure 2) is not expected to require a TSP amendment. City staff confirmed support of construction of the roadway as a *B-style Collector roadway* with parking along one side of the road.

FINDINGS AND RECOMMENDATIONS

Based on the results of this traffic impact analysis, the proposed development can be developed while maintaining acceptable levels of service at the study intersections assuming provision of the recommended mitigation measures. The primary findings and recommendations of this study are summarized below.

Findings

Existing Conditions

- The study intersections operate acceptably during the weekday AM and weekday PM peak hours.
- A 95th percentile queuing analysis revealed that the eastbound approach at Commercial Street/Hilfiker Lane does not provide adequate storage today. A planned improvement at this intersection identified in the City's Capital Improvement Plan (CIP) is anticipated to address this condition by providing additional storage for left-turning vehicles.
- A review of historical crash data found that neither intersection exceeds the critical crash rate by intersection type or the critical crash rate by intersection volume.

2023 Background Conditions

- The City's CIP signal improvement project at the Commercial Street/Hilfiker Lane intersection was included in the background conditions analysis.
- The study intersections are forecast to continue to operate acceptably during the weekday AM and weekday PM peak hours.

Proposed Development Plan

- The proposed development includes up to 138 single-family tax lots.
    - The trip generation prepared for this analysis includes up to 155 single family homes, which is estimated to generate approximately 1,463 weekday daily trips, of which 115 are anticipated to occur during the AM peak hour, and 154 are anticipated to occur during the PM peak hour.
- The proposed alignment of the Hilfiker Lane/Hillrose Street connection is proposed to align the approach angle with Battle Creek Road to comply with the City's design standards and provide a better alignment for the Hilfiker Lane/Hillrose Street connection.
- The Hilfiker Lane/Hillrose Street connection is proposed to have a posted speed of 25 mph with the cross-section of a collector street in recognition of existing posted speeds off-site

and the site topography. The proposed design speed will require City approval of a design exception request.

2023 Total Conditions

- The study intersections are forecast to continue to operate acceptably during the weekday AM and weekday PM peak hours.
- A 95th-percentile queuing analysis was performed for the study intersections during the weekday AM and PM peak hours, and no queuing deficiencies are expected.
- Provision of a left-turn lane on Battle Creek Road approaching Hillrose Street was found to be appropriate in conjunction with site development considering both state and national guidance for providing separate left-turn lanes.

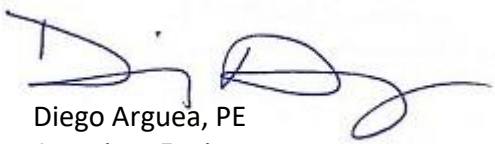
Recommendations

- A left turn lane with at least 50 feet of storage should be designed and constructed on Battle Creek Road approaching Hillrose Street at the Hillrose Street/Battle Creek Road in conjunction with site development.
- On-site landscaping, as well as any above ground utilities and signage, should be located and maintained at the site roadways to provide adequate intersection sight distance, per City and County requirements. Additionally, when the eastbound approach at the Hillrose Street/Battle Creek Road intersection is reconfigured with site buildout, a full sight distance evaluation should be conducted during design and after construction to provide adequate site distance in conformance with City standards.

We trust that this letter adequately addresses the traffic impacts associated with the proposed Meyer Farm residential development. Please contact us if you have any questions or comments regarding the contents of this report or the analyses performed.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Alec Kauffman
Transportation Analyst



Diego Arguea, PE
Associate Engineer

REFERENCES

1. Transportation Research Board. *Highway Capacity Manual, 6th Edition*. 2016
2. City of Salem. *Salem Transportation System Plan*. Amended January 2020.
3. "Services, Maps, and Routes." *Cherriots*. <http://www.cherriots.org/>.
4. City of Salem. *Adopted Fiscal Years 2021-2025 Five-Year Capital Improvement Plan*. 2020.
5. Institute of Transportation Engineers. *Trip Generation Manual, 10th Edition*. 2016.
6. American Association of State Highway and Transportation Officials. *A Policy on Geometric Design of Highways and Streets*. 2018.
7. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. March 2020 Update.

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 Battlecreek Rd SE & Hillrose St (Dr) SE
January 1, 2015 through December 31, 2019

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														

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.

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 Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

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: 2019														
ANGLE	0	1	0	1	0	3	0	1	0	1	0	1	0	0
REAR-END	0	1	2	3	0	1	0	3	0	3	0	3	0	0
TURNING MOVEMENTS	0	2	1	3	0	5	0	2	1	3	0	3	0	0
2019 TOTAL	0	4	3	7	0	9	0	6	1	7	0	7	0	0
YEAR: 2018														
ANGLE	0	1	0	1	0	1	0	1	0	0	1	1	0	0
PEDESTRIAN	0	1	0	1	0	1	0	1	0	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	1	0	2	0	2	0	2	0	0
2018 TOTAL	0	4	2	6	0	4	0	6	0	4	2	6	0	0
YEAR: 2017														
REAR-END	0	2	1	3	0	4	0	3	0	3	0	3	0	0
TURNING MOVEMENTS	0	2	1	3	0	6	0	2	1	2	1	3	0	0
2017 TOTAL	0	4	2	6	0	10	0	5	1	5	1	6	0	0
YEAR: 2016														
REAR-END	0	2	0	2	0	2	0	1	1	2	0	2	0	0
TURNING MOVEMENTS	0	2	3	5	0	2	0	3	2	4	1	5	0	0
2016 TOTAL	0	4	3	7	0	4	0	4	3	6	1	7	0	0
YEAR: 2015														
ANGLE	0	1	1	2	0	2	0	2	0	1	1	2	0	0
BACKING	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	3	1	4	0	5	0	4	0	3	1	4	0	0
2015 TOTAL	0	5	2	7	0	8	0	7	0	5	2	7	0	0
FINAL TOTAL	0	21	12	33	0	35	0	28	5	27	6	33	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.

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
04175	N	N	N			10/29/2015	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLD	O-1STOP	01	NONE 0	BACK											10
NONE			N			Thu 9A	0	HILFIKER LN SE	E		TRF SIGNAL	N	DRY	BACK		PRVTE	W E									000		00
No	*44 53 24.83*		*-123 2 4.23*					1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	45	F	OR-Y OR<25		011,014	000		10
															02	NONE 0	STOP									011		00
																PRVTE	E W											
																PSNGR CAR		01	DRVR	INJC	78	M	OR-Y OR>25		000	000		00
01380	N	N	N			04/03/2016	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 9	TURN-L											08
NONE			N			Sun 2P	0	HILFIKER LN SE	SE		L-GRN-SIG	N	DRY	TURN		N/A	E SE									000		00
No	*44 53 24.83*		*-123 2 4.23*					1	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	STOP									012		00
																N/A	SE NW											
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
03350	N	N	N			09/06/2018	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
CITY			N			Thu 5P	0	HILFIKER LN SE	SE		TRF SIGNAL	N	DRY	REAR		N/A	SE NW									000		00
No	*44 53 24.83*		*-123 2 4.23*					1	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	STOP									011		00
																N/A	SE NW											
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
04002	N	N	N			10/22/2018	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE			N			Mon 4P	0	HILFIKER LN SE	SE		TRF SIGNAL	N	DRY	REAR		PRVTE	SE NW									000		00
No	*44 53 24.83*		*-123 2 4.24*					1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	66	F	OR-Y OR<25		026	000		29
															02	NONE 0	STOP									011		00
																PRVTE	SE NW											
																PSNGR CAR		01	DRVR	NONE	67	M	OR-Y OR<25		000	000		00
																		02	PSNG	INJC	52	F			000	000		00
03212	N	N	N	N	N	08/23/2019	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 0	TURN-L											40,08
CITY			N			Fri 6P	0	HILFIKER LN SE	SE		TRF SIGNAL	N	DRY	TURN		PRVTE	E SE									000		00
No	*44 53 24.84*		*-123 2 4.24*					1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	68	F	OR-Y OR<25		002	026		40,08
															02	NONE 0	STOP									012		00
																PRVTE	SE NW											
																PSNGR CAR		01	DRVR	NONE	21	M	OTH-Y N-RES		000	000		00

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
03851	N	N	N			10/04/2019	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE			N			Fri 11A	0	HILFIKER LN SE	SE		TRF SIGNAL	N	DRY	REAR		PRVTE	SE NW										000		00
No	*44 53 24.83*					*-123 2 4.23*	1		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OTH-Y N-RES		026	000		29
															02	NONE 0	STOP											
																PRVTE	SE NW									011		00
																PSNGR CAR		01	DRVR	INJC	43	M	OR-Y OR<25		000	000		00
01150	N	N	N			03/24/2017	18	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE			N			Fri 4P	0	HILFIKER LN SE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W E									000		00
No	*44 53 24.83*					*-123 2 4.23*	1		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	UNK UNK		026	000		29
															02	NONE 0	STOP											
																PRVTE	W E									011		00
																PSNGR CAR		01	DRVR	INJC	24	F	OR-Y OR<25		000	000		00
03714	N	Y	N	N	N	09/09/2017	18	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
CITY			N			Sat 3P	0	HILFIKER LN SE	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W E									000		00
No	*44 53 24.83*					*-123 2 4.23*	1		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	35	M	SUSP OR<25		016,026	038		27,29
															02	NONE 0	STOP											
																PRVTE	W E									011		00
																PSNGR CAR		01	DRVR	NONE	44	M	OR-Y OR<25		000	000		00
																		02	PSNG	INJC	38	F			000	000		00
																		03	PSNG	INJC	61	F			000	000		00
																		04	PSNG	INJC	35	F			000	000		00
04913	N	N	N			11/14/2017	18	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE			N			Tue 11A	0	HILFIKER LN SE	W		TRF SIGNAL	N	DRY	REAR		N/A	W E									000		00
No	*44 53 24.83*					*-123 2 4.23*	1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	STOP											
																N/A	W E									011		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
02447	N	N	N	N	N	07/07/2018	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	PED	01	NONE 0	STRGHT											04,18
CITY			N			Sat 10P	0	HILFIKER LN SE	NW		TRF SIGNAL	N	DRY	PED		PRVTE	SE NW									000		00
No	*44 53 24.83*					*-123 2 4.23*	1		05	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y OR<25		000	000		00
																	STRGHT	01	PED	INJB	12	F		01	020	000		04,18
																	W E											

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
															02	NONE 0 PRVTE	STRGHT SE NW									000	00
																PSNGR CAR		01	DRVR	NONE	17	F	OR-Y OR<25		000	000	00
03124 NONE	N	N	N N			07/25/2016 Mon 3P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER NW	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT NW SE									000	29 00
No	*44 53 24.83*		*-123 2 4.23*				1		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y OR<25		026	000	29
															02	NONE 0 PRVTE	STOP NW SE									011	00
																PSNGR CAR		01	DRVR	INJC	64	F	OTH-Y N-RES		000	000	00
03006 NONE	N	N	N N			08/08/2019 Thu 6P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER NW	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 9 N/A	STRGHT NW SE									000	29,14 00
No	*44 53 24.83*		*-123 2 4.23*				1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000	00
															02	NONE 9 N/A	STOP NW SE									011	00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000	00
04659 NONE	N	N	N N			11/21/2019 Thu 11A	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER NW	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 9 N/A	STRGHT NW SE									000	29 00
No	*44 53 24.86*		*-123 2 4.21*				1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000	00
															02	NONE 9 N/A	STOP NW SE									011	00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000	00
00814 NONE	N	N	N N			03/05/2015 Thu 4P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	ANGL-OTH ANGL	01	NONE 0 PRVTE	STRGHT NW SE									000	04 00
No	*44 53 24.83*		*-123 2 4.23*				1		01	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	48	M	OR-Y OR<25		097	000	00
															02	UNKN 0 UNKN	STRGHT E W									000	00
																UNKNOWN		01	DRVR	NONE	00	M	UNK UNK		097	000	00
04057 CITY	N	N	N N	N	N	10/21/2015 Wed 7P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	O-1 L-TURN TURN	01	NONE 0 PRVTE	TURN-L SE W									000	02 00
No	*44 53 24.83*		*-123 2 4.23*				1		01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	16	F	NONE N-RES		028,015,004	000	02

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
															02	NONE 0 PRVTE	STRGHT NW SE								000		00
																PSNGR CAR		01	DRVR	INJA	36	M	OR-Y OR<25		000	000		00
																		02	PSNG	INJB	08	M			000	000		00
05276	N	N	N	N	N	12/30/2015	14	COMMERCIAL ST SE	INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 0 PRVTE	STRGHT E W										04
CITY		N				Wed 5P	0	HILFIKER LN SE	CN		TRF SIGNAL		N	DRY	ANGL										000		00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		01	0			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	58	F	OR-Y OR<25		020	000		04
															02	NONE 0 PRVTE	STRGHT NW SE								000		00
																PSNGR CAR		01	DRVR	INJB	27	F	OR-Y OR<25		000	000		00
01737	N	N	N			04/24/2016	14	COMMERCIAL ST SE	INTER	CROSS	N		N	CLR	O-1 L-TURN	01	NONE 0 PRVTE	TURN-L SE W										02
NO RPT		N				Sun 8P	0	HILFIKER LN SE	CN		TRF SIGNAL		N	WET	TURN										000		00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		01	0			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		028,004	000		02
															02	NONE 0 PRVTE	STRGHT NW SE								000		00
																PSNGR CAR		01	DRVR	INJC	46	M	OR-Y OR<25		000	000		00
02774	N	N	N	N	N	07/03/2016	14	COMMERCIAL ST SE	INTER	CROSS	N		N	CLR	O-1 L-TURN	01	NONE 0 PRVTE	STRGHT NW SE										02
CITY		N				Sun 1P	0	HILFIKER LN SE	CN		TRF SIGNAL		N	DRY	TURN										000		00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		01	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	27	F	OR-Y OR<25		000	000		00
															02	NONE 0 PRVTE	TURN-L SE W								000		00
																PSNGR CAR		01	DRVR	INJB	52	M	OR-Y OR<25		028,004	000		02
03480	N	N	N			08/25/2017	14	COMMERCIAL ST SE	INTER	CROSS	N		N	CLR	ANGL-OTH	01	NONE 9 N/A	TURN-L SE W										40,04
NONE		N				Fri 5A	0	HILFIKER LN SE	CN		TRF SIGNAL		N	DRY	TURN										000		00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		01	0			N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9 N/A	TURN-L E SE								000		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
05168	N	N	N	N	N	11/29/2017	14	COMMERCIAL ST SE	INTER	CROSS	N		N	CLR	O-1 L-TURN	01	NONE 0 PRVTE	TURN-L SE W									087,013	02
CITY		N				Wed 4P	0	HILFIKER LN SE	CN		TRF SIGNAL		N	DRY	TURN										000	087,013	00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		01	0			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	19	F	OR-Y OR<25		028,004	022		02
																		02	PSNG	INJC	18	F			000	000		00

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																		03	PSNG	INJB	18	F			000	000		00
															02	NONE 0 PRVTE	STRGHT NW SE									000	087	00
																PSNGR CAR		01	DRVR	INJB	35	F	OR-Y OR<25		000	000		00
															03	NONE 0 PRVTE	STOP W E									012	087	00
																PSNGR CAR		01	DRVR	NONE	56	M	OR-Y OR<25		000	000		00
03468	N	N	N	N	N	09/08/2019	14	COMMERCIAL ST SE	INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 0	TURN-L										087	27,02
CITY		N				Sun 4P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	WET	TURN		PRVTE	SE W								000	087	00
No	*44 53 24.84*		*-123 2 4.26*				1		01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	16	M	OR-Y OR<25		028,016,004	038		27,02
																		02	PSNG	INJC	80	M			000	000		00
															02	NONE 0 PRVTE	STRGHT NW SE									000	087	00
																PSNGR CAR		01	DRVR	INJC	63	M	OR-Y OR<25		000	000		00
																		02	PSNG	INJC	55	F			000	000		00
01821	N	N	N			05/13/2015	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											02
NONE		N				Wed 11A	0	HILFIKER LN SE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	E W								000		00
No	*44 53 24.83*		*-123 2 4.23*				1		02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	43	F	OR-Y OR<25		000	000		00
															02	NONE 0 PRVTE	TURN-L W N									000		00
																PSNGR CAR		01	DRVR	NONE	00	M	UNK OR<25		028,004	000		02
00152	N	N	N			01/11/2016	14	COMMERCIAL ST SE	INTER	CROSS	N	N	RAIN	O-OTHER	01	NONE 9	TURN-R											02
STATE		N				Mon 4P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	WET	TURN		N/A	E NW								000		00
No	*44 53 24.83*		*-123 2 4.23*				1		02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9 N/A	TURN-L W NW									000		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
01169	N	N	N			04/01/2015	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											04
CITY		N				Wed 12P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NW SE								000		00
No	*44 53 24.83*		*-123 2 4.23*				1		03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	48	M	OR-Y OR<25		020	000		04

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
															02	NONE 0 PUBLC	TURN-L W NW								000		00
																SCHL BUS		01	DRVR	NONE	58	F	OR-Y OR<25		000	000		00
03067 NO RPT	N	N	N N			08/18/2018 Sat 9P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	ANGL-OTH ANGL	01	NONE 0 PRVTE	STRGHT W E									000		04 00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		03	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	36	F	OR-Y OR<25		020	000		04
															02	NONE 0 PRVTE	STRGHT NW SE								000		00
																PSNGR CAR		01	DRVR	INJC	17	F	OR-Y OR<25		000	000		00
01679 CITY	N	N	N N	N	N	05/06/2019 Mon 4P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	ANGL-OTH ANGL	01	NONE 0 PRVTE	STRGHT NW SE									000	013	04 00
No	*44 53 24.84*		*-123*	*2*	*4.25*		1		03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	19	F	OR-Y OR<25		020	000		04
																		02	PSNG	INJB	20	F			000	000		00
															02	NONE 0 PRVTE	STRGHT W E								000	013	00
																PSNGR CAR		01	DRVR	INJA	79	F	OR-Y OR<25		000	022		00
															03	NONE 0 PRVTE	STOP SE NW								012		00
																PSNGR CAR		01	DRVR	NONE	39	F	OR-Y OR<25		000	000		00
01841 NONE	N	N	N N			05/16/2019 Thu 8P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	O-1 L-TURN TURN	01	NONE 9 N/A	TURN-L E SE									000		02 00
No	*44 53 24.86*		*-123*	*2*	*4.24*		1		03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9 N/A	STRGHT W E								000		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
04343 CITY	N	N	N N	N	N	11/09/2015 Mon 3P	14 0	COMMERCIAL ST SE HILFIKER LN SE	INTER CN	CROSS	N TRF SIGNAL	N N	CLR DRY	O-1 L-TURN TURN	01	NONE 0 PRVTE	STRGHT SE NW									000		02 00
No	*44 53 24.83*		*-123*	*2*	*4.23*		1		04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	18	F	OR-Y OR<25		000	000		00
																		02	PSNG	NO<5	01	F			000	000		00
															02	NONE 0 PRVTE	TURN-L NW E								000		00
																PSNGR CAR		01	DRVR	INJC	20	F	OR-Y OR>25		028,004	000		02

CITY OF SALEM, MARION COUNTY

Intersectional Crashes at Commercial St SE & Hilfiker Ln SE
January 1, 2015 through December 31, 2019

SER# / INVEST / UNLOC?	SPED	ALC	DRUG/MJ	SCHL	WORK	DATE / DAY/TIME / *LAT/LONG*	FC / DISTNC	CITY STREET / FIRST STREET / SECOND STREET / INTERSECTION SEQ #	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
00936	N	N	N			03/05/2016	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLD	S-STRGHT	01	NONE 0	STRGHT											29
NONE			N			Sat 10A	0	HILFIKER LN SE	CN		TRF SIGNAL	N	WET	REAR		PRVTE	SE NW									000		00
No	*44 53 24.83*		*-123 2 4.23*				1		04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	F	UNK UNK		042	000		29
															02	NONE 0	STRGHT											
																PRVTE	SE NW									000		00
																PSNGR CAR		01	DRVR	INJC	17	M	OR-Y OR<25		000	000		00
04700	N	N	N			10/24/2016	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-L											02
NONE			N			Mon 4P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	DRY	TURN		N/A	NW E									000		00
No	*44 53 24.83*		*-123 2 4.23*				1		04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	STRGHT											
																N/A	SE NW									000		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
05085	N	N	N	N	N	11/25/2017	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	STRGHT											27,04
CITY			N			Sat 3P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	WET	TURN		PRVTE	SE NW									000		00
No	*44 53 24.83*		*-123 2 4.23*				1		04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	M	OR-Y OR<25		016,020	038		27,04
															02	NONE 0	TURN-L											
																PRVTE	NW E									000		00
																PSNGR CAR		01	DRVR	INJC	58	F	OR-Y OR<25		000	000		00
																		02	PSNG	INJC	17	F			000	000		00
00021	N	N	N	N	N	01/03/2018	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											02
CITY			N			Wed 1P	0	HILFIKER LN SE	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NW E									000		00
No	*44 53 24.83*		*-123 2 4.23*				1		04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	69	M	OR-Y OR<25		028,004	000		02
															02	NONE 0	STRGHT											
																PRVTE	SE NW									000		00
																PSNGR CAR		01	DRVR	INJC	24	F	OR-Y OR<25		000	000		00
04175	N	N	N			11/02/2018	14	COMMERCIAL ST SE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 9	STRGHT											02
NONE			N			Fri 9A	0	HILFIKER LN SE	CN		TRF SIGNAL	N	DRY	TURN		N/A	SE NW									000		00
No	*44 53 24.83*		*-123 2 4.23*				1		04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00
															02	NONE 9	TURN-L											
																N/A	NW E									000		00
																PSNGR CAR		01	DRVR	NONE	00	U	UNK UNK		000	000		00

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

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
052	MERGING	MERGING
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	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED 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/ VEHIC
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	JACKNIFE	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 CONVEYA
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	OFCR/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
Traffic Counts

Type of peak hour being reported: Intersection Peak

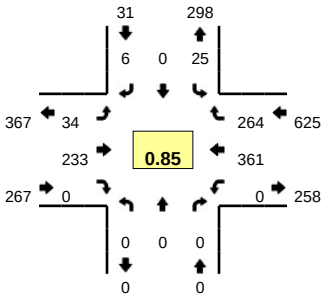
Method for determining peak hour: Total Entering Volume

LOCATION: Reed Rd SE -- Battle Creek Rd SE

CITY/STATE: Salem, OR

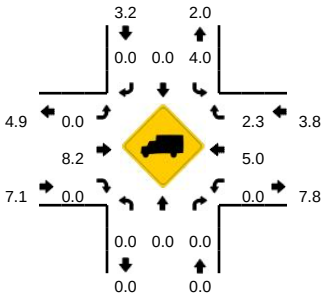
QC JOB #: 14711001

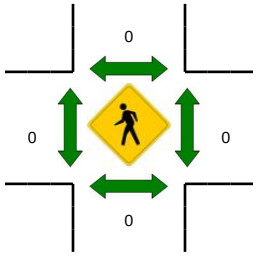
DATE: Wed, May 16 2018

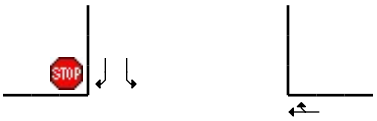


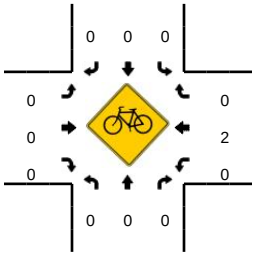
Peak-Hour: 7:10 AM -- 8:10 AM

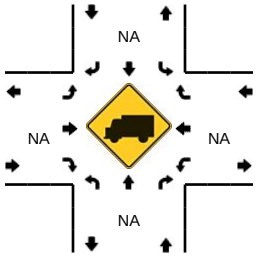
Peak 15-Min: 7:45 AM -- 8:00 AM

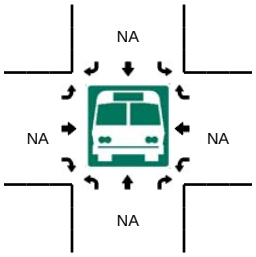












5-Min Count Period Beginning At	Reed Rd SE (Northbound)				Reed Rd SE (Southbound)				Battle Creek Rd SE (Eastbound)				Battle Creek Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	2	0	1	0	1	11	0	0	0	26	12	0	53	
7:05 AM	0	0	0	0	0	0	1	0	1	20	0	0	0	24	5	0	51	
7:10 AM	0	0	0	0	1	0	1	0	1	15	0	0	0	35	18	0	71	
7:15 AM	0	0	0	0	4	0	0	0	1	24	0	0	0	40	17	0	86	
7:20 AM	0	0	0	0	2	0	0	0	3	17	0	0	0	22	14	0	58	
7:25 AM	0	0	0	0	0	0	0	0	2	14	0	0	0	26	22	0	64	
7:30 AM	0	0	0	0	0	0	0	0	2	18	0	0	0	24	14	0	58	
7:35 AM	0	0	0	0	1	0	1	0	2	24	0	0	0	36	22	0	86	
7:40 AM	0	0	0	0	3	0	0	0	2	17	0	0	0	28	29	0	79	
7:45 AM	0	0	0	0	2	0	0	0	2	19	0	0	0	45	20	0	88	
7:50 AM	0	0	0	0	3	0	0	0	4	21	0	0	0	30	32	0	90	
7:55 AM	0	0	0	0	3	0	1	0	4	30	0	0	0	26	30	0	94	878
8:00 AM	0	0	0	0	3	0	2	0	5	12	0	0	0	20	30	0	72	897
8:05 AM	0	0	0	0	3	0	1	0	6	22	0	0	0	29	16	0	77	923
8:10 AM	0	0	0	0	8	0	0	0	4	13	0	0	0	16	14	0	55	907
8:15 AM	0	0	0	0	0	0	4	0	2	12	0	0	0	13	20	0	51	872
8:20 AM	0	0	0	0	5	0	2	0	0	10	0	0	0	20	23	0	60	874
8:25 AM	0	0	0	0	2	0	3	0	3	9	0	0	0	23	13	0	53	863
8:30 AM	0	0	0	0	4	0	2	0	3	15	0	0	0	19	8	0	51	856
8:35 AM	0	0	0	0	2	0	1	0	2	22	0	0	0	22	9	0	58	828
8:40 AM	0	0	0	0	5	0	2	0	1	19	0	0	0	33	17	0	77	826
8:45 AM	0	0	0	0	4	0	1	0	3	21	0	0	0	23	13	0	65	803
8:50 AM	0	0	0	0	3	0	1	0	0	14	0	0	0	25	18	0	61	774
8:55 AM	0	0	0	0	2	0	1	0	4	21	0	0	0	26	18	0	72	752

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	32	0	4	0	40	280	0	0	0	404	328	0	1088
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	28	4		48
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/29/2018 3:44 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Reed Rd SE -- Battle Creek Rd SE

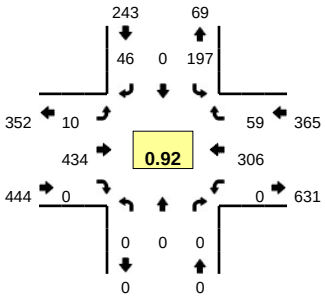
CITY/STATE: Salem, OR

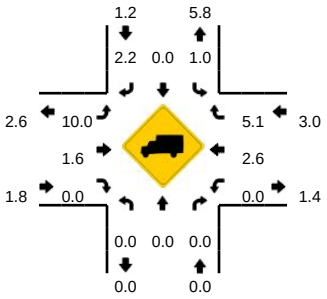
QC JOB #: 14711002

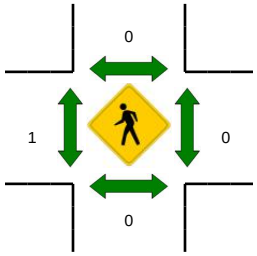
DATE: Wed, May 16 2018

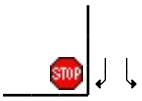
Peak-Hour: 4:30 PM -- 5:30 PM

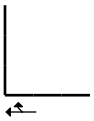
Peak 15-Min: 5:05 PM -- 5:20 PM

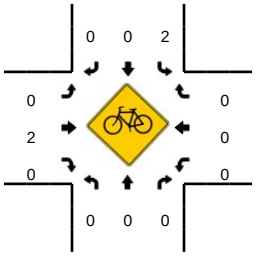


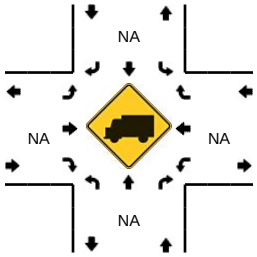


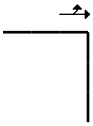


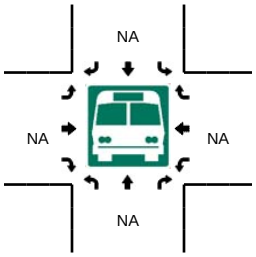












5-Min Count Period Beginning At	Reed Rd SE (Northbound)				Reed Rd SE (Southbound)				Battle Creek Rd SE (Eastbound)				Battle Creek Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	15	0	2	0	0	26	0	0	0	21	3	0	67	
4:05 PM	0	0	0	0	22	0	2	0	1	35	0	0	0	30	2	0	92	
4:10 PM	0	0	0	0	18	0	1	0	0	23	0	0	0	20	6	0	68	
4:15 PM	0	0	0	0	17	0	4	0	0	33	0	0	0	27	8	0	89	
4:20 PM	0	0	0	0	8	0	1	0	0	37	0	0	0	29	5	0	80	
4:25 PM	0	0	0	0	16	0	5	0	0	25	0	0	0	25	5	0	76	
4:30 PM	0	0	0	0	15	0	3	0	2	36	0	0	0	27	2	0	85	
4:35 PM	0	0	0	0	26	0	6	0	2	29	0	0	0	22	7	0	92	
4:40 PM	0	0	0	0	21	0	4	0	0	35	0	0	0	20	6	0	86	
4:45 PM	0	0	0	0	8	0	2	0	0	38	0	0	0	21	5	0	74	
4:50 PM	0	0	0	0	13	0	3	0	2	27	0	0	0	23	8	0	76	
4:55 PM	0	0	0	0	13	0	5	0	0	39	0	0	0	24	6	0	87	972
5:00 PM	0	0	0	0	18	0	6	0	0	43	0	0	0	26	2	0	95	1000
5:05 PM	0	0	0	0	25	0	4	0	1	33	0	0	0	26	4	0	93	1001
5:10 PM	0	0	0	0	18	0	5	0	1	35	0	0	0	25	3	0	87	1020
5:15 PM	0	0	0	0	12	0	3	0	1	53	0	0	0	34	3	0	106	1037
5:20 PM	0	0	0	0	15	0	1	0	1	43	0	0	0	23	7	0	90	1047
5:25 PM	0	0	0	0	13	0	4	0	0	23	0	0	0	35	6	0	81	1052
5:30 PM	0	0	0	0	8	0	6	0	3	26	0	0	0	27	9	0	79	1046
5:35 PM	0	0	0	0	16	0	6	0	1	20	0	0	0	28	7	0	78	1032
5:40 PM	0	0	0	0	12	0	3	0	0	35	0	0	0	28	2	0	80	1026
5:45 PM	0	0	0	0	9	0	1	0	1	35	0	0	0	35	3	0	84	1036
5:50 PM	0	0	0	0	8	0	2	0	4	29	0	0	0	23	3	0	69	1029
5:55 PM	0	0	0	0	9	0	2	0	2	20	0	1	0	17	2	0	53	995

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	220	0	48	0	12	484	0	0	0	340	40	0	1144
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	4	8		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/29/2018 3:44 PM

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

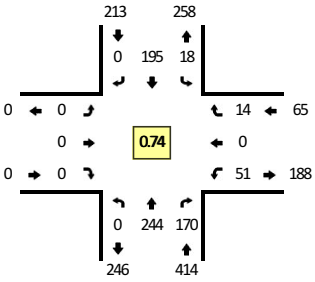
Type of peak hour being reported: Intersection Peak

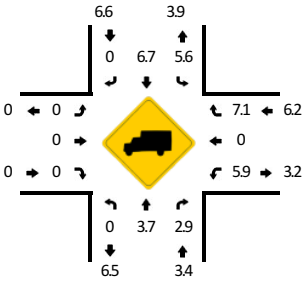
Method for determining peak hour: Total Entering Volume

LOCATION: Battle Creek Rd SE -- Reed Rd SE
CITY/STATE: Salem, OR

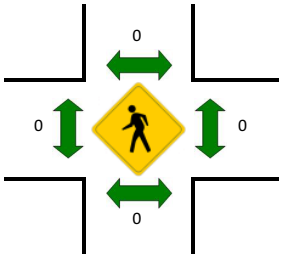
QC JOB #: 15446101
DATE: Thu, May 13 2021

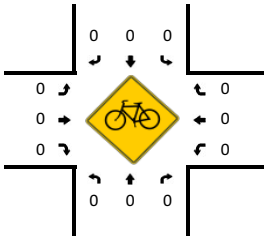
Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

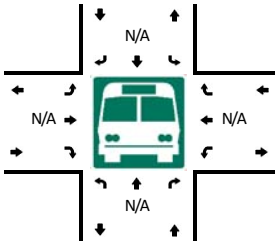


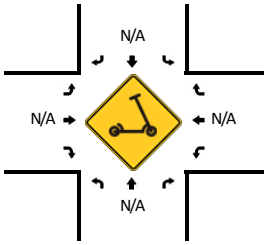


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	Battle Creek Rd SE (Northbound)				Battle Creek Rd SE (Southbound)				Reed Rd SE (Eastbound)				Reed Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	10	10	0	0	14	0	0	0	0	0	0	4	0	0	0	38	
7:05 AM	0	13	7	0	0	15	0	0	0	0	0	0	2	0	0	0	37	
7:10 AM	0	16	8	0	2	12	0	0	0	0	0	0	3	0	0	0	41	
7:15 AM	0	17	10	0	1	4	0	0	0	0	0	0	1	0	0	0	33	
7:20 AM	0	11	20	0	0	8	0	0	0	0	0	0	2	0	0	0	41	
7:25 AM	0	20	10	0	2	15	0	0	0	0	0	0	3	0	1	0	51	
7:30 AM	0	16	17	0	1	9	0	0	0	0	0	0	3	0	0	0	46	
7:35 AM	0	21	14	0	0	8	0	0	0	0	0	0	2	0	0	0	45	
7:40 AM	0	27	13	0	1	9	0	0	0	0	0	0	1	0	0	0	51	
7:45 AM	0	27	11	0	1	26	0	0	0	0	0	0	8	0	0	0	73	
7:50 AM	0	31	22	0	1	21	0	0	0	0	0	0	5	0	2	0	82	
7:55 AM	0	22	28	0	2	18	0	0	0	0	0	0	6	0	2	0	78	616
8:00 AM	0	21	14	0	1	16	0	0	0	0	0	0	3	0	1	0	56	634
8:05 AM	0	18	5	0	2	21	0	0	0	0	0	0	5	0	2	0	53	650
8:10 AM	0	14	10	0	0	13	0	0	0	0	0	0	4	0	2	0	43	652
8:15 AM	0	15	11	0	3	12	0	0	0	0	0	0	4	0	0	0	45	664
8:20 AM	0	14	18	0	3	16	0	0	0	0	0	0	3	0	0	0	54	677
8:25 AM	0	14	15	0	1	12	0	0	0	0	0	0	5	0	1	0	48	674
8:30 AM	0	25	12	0	1	11	0	0	0	0	0	0	5	0	2	0	56	684
8:35 AM	0	16	11	0	2	20	0	0	0	0	0	0	2	0	2	0	53	692
8:40 AM	0	14	6	0	0	22	0	0	0	0	0	0	5	0	1	0	48	689
8:45 AM	0	26	10	0	2	18	0	0	0	0	0	0	0	0	0	0	56	672
8:50 AM	0	17	9	0	3	15	0	0	0	0	0	0	8	0	0	0	52	642
8:55 AM	0	14	10	0	1	13	0	0	0	0	0	0	1	0	1	0	40	604

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	320	244	0	16	260	0	0	0	0	0	0	76	0	16	0	932
Heavy Trucks	0	8	4		0	12	0		0	0	0		0	0	4		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/19/2021 3:23 PM

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

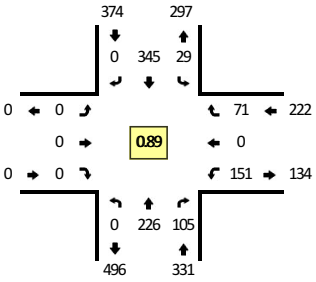
Type of peak hour being reported: Intersection Peak

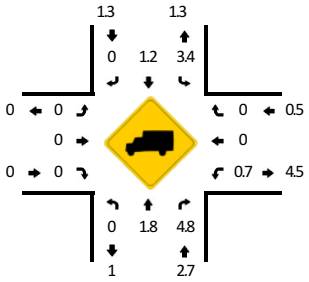
Method for determining peak hour: Total Entering Volume

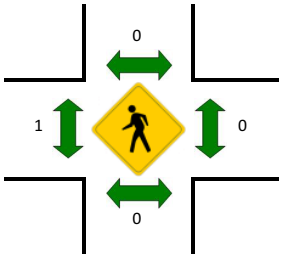
LOCATION: Battle Creek Rd SE -- Reed Rd SE
CITY/STATE: Salem, OR

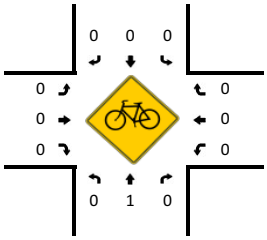
QC JOB #: 15446102
DATE: Thu, May 13 2021

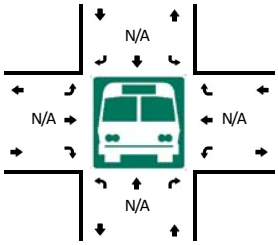
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

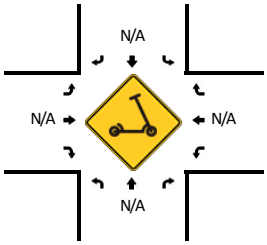












5-Min Count Period Beginning At	Battle Creek Rd SE (Northbound)				Battle Creek Rd SE (Southbound)				Reed Rd SE (Eastbound)				Reed Rd SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	17	7	0	0	24	0	0	0	0	0	0	3	0	1	0	52	
4:05 PM	0	28	3	0	0	38	0	0	0	0	0	0	16	0	4	0	89	
4:10 PM	0	24	6	0	1	27	0	0	0	0	0	0	8	0	2	0	68	
4:15 PM	0	16	12	0	0	33	0	0	0	0	0	0	15	0	1	0	77	
4:20 PM	0	27	7	0	2	14	0	0	0	0	0	0	11	0	1	0	62	
4:25 PM	0	24	5	0	0	21	0	0	0	0	0	0	14	0	1	0	65	
4:30 PM	0	32	3	0	2	24	0	0	0	0	0	0	16	0	2	0	79	
4:35 PM	0	23	10	0	0	30	0	0	0	0	0	0	13	0	3	0	79	
4:40 PM	0	32	9	0	0	27	0	0	0	0	0	0	11	0	0	0	79	
4:45 PM	0	17	3	0	1	23	0	0	0	0	0	0	7	0	0	0	51	
4:50 PM	0	19	7	0	1	19	0	0	0	0	0	0	13	0	0	0	59	
4:55 PM	0	19	5	0	1	19	0	0	0	0	0	0	13	0	3	0	60	820
5:00 PM	0	29	9	0	1	32	0	0	0	0	0	0	7	0	1	0	79	847
5:05 PM	0	20	6	0	1	26	0	0	0	0	0	0	20	0	3	0	76	834
5:10 PM	0	24	7	0	3	34	0	0	0	0	0	0	18	0	7	0	93	859
5:15 PM	0	13	11	0	2	41	0	0	0	0	0	0	10	0	8	0	85	867
5:20 PM	0	22	4	0	2	30	0	0	0	0	0	0	9	0	9	0	76	881
5:25 PM	0	22	9	0	8	36	0	0	0	0	0	0	13	0	10	0	98	914
5:30 PM	0	13	7	0	2	30	0	0	0	0	0	0	14	0	6	0	72	907
5:35 PM	0	16	6	0	3	29	0	0	0	0	0	0	13	0	13	0	80	908
5:40 PM	0	15	13	0	3	26	0	0	0	0	0	0	10	0	5	0	72	901
5:45 PM	0	14	21	0	2	23	0	0	0	0	0	0	11	0	6	0	77	927
5:50 PM	0	12	7	0	1	21	0	0	0	0	0	0	3	0	9	0	53	921
5:55 PM	0	22	9	0	2	14	0	0	0	0	0	0	8	0	8	0	63	924

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	228	96	0	48	428	0	0	0	0	0	0	128	0	108	0	1036
Heavy Trucks	0	0	12		0	8	0		0	0	0		4	0	0		24
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 5/19/2021 3:24 PM

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

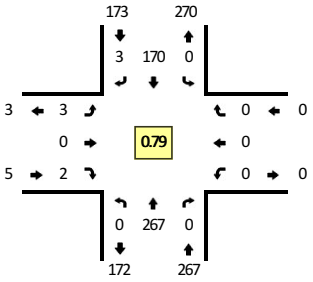
Type of peak hour being reported: Intersection Peak

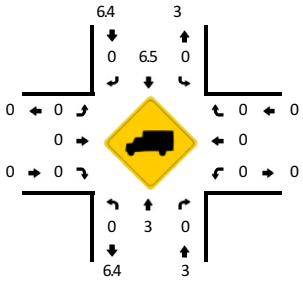
Method for determining peak hour: Total Entering Volume

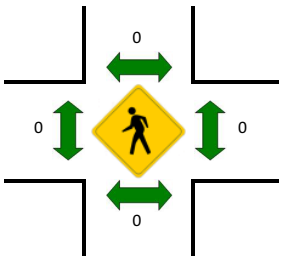
LOCATION: Battle Creek Rd SE -- Hillrose St SE
CITY/STATE: Salem, OR

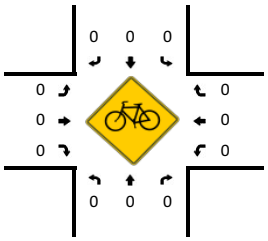
QC JOB #: 15446103
DATE: Thu, May 13 2021

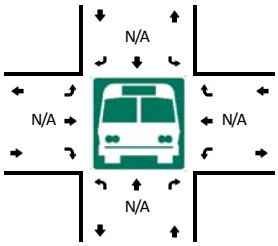
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

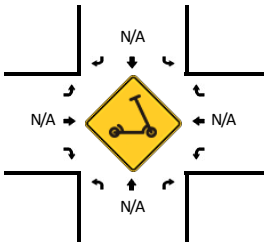












5-Min Count Period Beginning At	Battle Creek Rd SE (Northbound)				Battle Creek Rd SE (Southbound)				Hillrose St SE (Eastbound)				Hillrose St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	9	0	0	0	9	0	0	1	0	0	0	0	0	0	0	19	
7:05 AM	0	18	0	0	0	14	0	0	0	0	0	0	0	0	0	0	32	
7:10 AM	0	12	0	0	0	15	0	0	0	0	0	0	0	0	0	0	27	
7:15 AM	0	18	0	0	0	4	0	0	2	0	0	0	0	0	0	0	24	
7:20 AM	0	22	0	0	0	9	0	0	0	0	0	0	0	0	0	0	31	
7:25 AM	0	21	0	0	0	15	0	0	0	0	0	0	0	0	0	0	36	
7:30 AM	0	23	0	0	0	6	0	0	2	0	0	0	0	0	0	0	31	
7:35 AM	0	22	0	0	0	10	0	0	0	0	0	0	0	0	0	0	32	
7:40 AM	0	25	0	0	0	7	0	0	0	0	0	0	0	0	0	0	32	
7:45 AM	0	29	0	0	0	18	0	0	1	0	0	0	0	0	0	0	48	
7:50 AM	0	35	0	0	0	17	0	0	0	0	1	0	0	0	0	0	53	
7:55 AM	0	24	0	0	0	16	0	0	0	0	0	0	0	0	0	0	40	405
8:00 AM	0	22	0	0	0	18	0	0	0	0	0	0	0	0	0	0	40	426
8:05 AM	0	15	0	0	0	14	0	0	0	0	0	0	0	0	0	0	29	423
8:10 AM	0	24	0	0	0	8	0	0	1	0	0	0	0	0	0	0	33	429
8:15 AM	0	12	0	0	0	15	0	0	0	0	0	0	0	0	0	0	27	432
8:20 AM	0	19	0	0	0	13	1	0	0	0	0	0	0	0	0	0	33	434
8:25 AM	0	17	0	0	0	8	0	0	1	0	0	0	0	0	0	0	26	424
8:30 AM	0	30	0	0	0	11	0	0	0	0	1	0	0	0	0	0	42	435
8:35 AM	0	23	0	0	0	16	0	0	0	0	0	0	0	0	0	0	39	442
8:40 AM	0	17	0	0	0	16	2	0	0	0	0	0	0	0	0	0	35	445
8:45 AM	0	29	0	0	0	12	1	0	1	0	0	0	0	0	0	0	43	440
8:50 AM	0	19	0	0	0	17	0	0	0	0	1	0	0	0	0	0	37	424
8:55 AM	0	13	0	0	0	19	0	0	0	0	0	0	0	0	0	0	32	416

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	352	0	0	0	204	0	0	4	0	4	0	0	0	0	0	564
Heavy Trucks	0	4	0		0	12	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

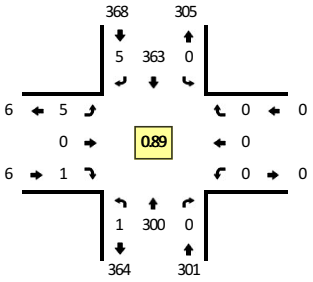
Report generated on 5/19/2021 3:24 PM

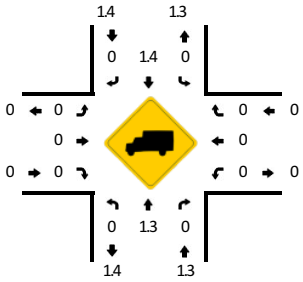
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

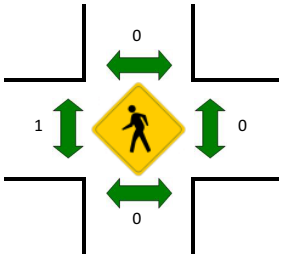
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

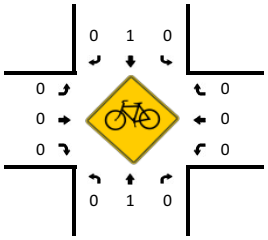
LOCATION: Battle Creek Rd SE -- Hillrose St SE | **QC JOB #:** 15446104
CITY/STATE: Salem, OR | **DATE:** Thu, May 13 2021

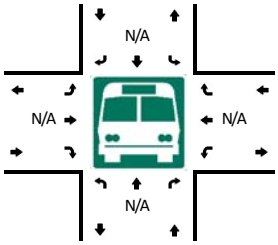
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

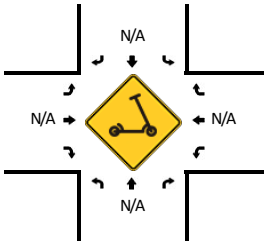












5-Min Count Period Beginning At	Battle Creek Rd SE (Northbound)				Battle Creek Rd SE (Southbound)				Hillrose St SE (Eastbound)				Hillrose St SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	21	0	0	0	36	0	0	0	0	0	0	0	0	0	0	57	
4:05 PM	0	24	0	0	0	37	1	0	1	0	0	0	0	0	0	0	63	
4:10 PM	0	25	0	0	0	22	0	0	0	0	0	0	0	0	0	0	47	
4:15 PM	0	18	0	0	0	37	1	0	0	0	0	0	0	0	0	0	56	
4:20 PM	0	28	0	0	0	18	1	0	0	0	0	0	0	0	0	0	47	
4:25 PM	0	28	0	0	0	26	1	0	0	0	0	0	0	0	0	0	55	
4:30 PM	0	32	0	0	0	20	0	1	1	0	0	0	0	0	0	0	54	
4:35 PM	0	15	0	0	0	29	1	0	0	0	1	0	0	0	0	0	46	
4:40 PM	0	34	0	0	0	33	0	0	2	0	0	0	0	0	0	0	69	
4:45 PM	0	15	0	0	0	23	0	0	0	0	0	0	0	0	0	0	38	
4:50 PM	0	24	0	0	0	22	0	0	0	0	0	0	0	0	0	0	46	
4:55 PM	0	21	0	0	0	22	1	0	0	0	0	0	0	0	0	0	44	622
5:00 PM	0	23	0	0	0	37	0	0	0	0	0	0	0	0	0	0	60	625
5:05 PM	0	31	0	0	0	31	0	0	0	0	0	0	0	0	0	0	62	624
5:10 PM	0	24	0	0	0	34	1	0	0	0	0	0	0	0	0	0	59	636
5:15 PM	0	23	0	0	0	37	1	0	0	0	0	0	0	0	0	0	61	641
5:20 PM	0	28	0	0	0	29	0	0	0	0	0	0	0	0	0	0	57	651
5:25 PM	0	33	0	0	0	37	0	0	1	0	0	0	0	0	0	0	71	667
5:30 PM	1	19	0	0	0	28	2	0	2	0	1	0	0	0	0	0	53	666
5:35 PM	0	25	0	0	0	30	0	0	0	0	0	0	0	0	0	0	55	675
5:40 PM	0	20	0	0	0	30	0	0	0	0	0	0	0	0	0	0	50	656
5:45 PM	0	19	0	0	0	26	1	0	0	0	0	0	0	0	0	0	46	664
5:50 PM	0	27	0	0	0	25	0	0	0	0	0	0	0	0	0	0	52	670
5:55 PM	0	27	0	0	0	16	0	0	1	0	0	0	0	0	0	0	44	670

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	336	0	0	0	412	4	0	4	0	0	0	0	0	0	0	756
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 5/19/2021 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

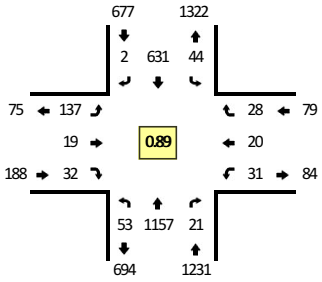
Type of peak hour being reported: Intersection Peak

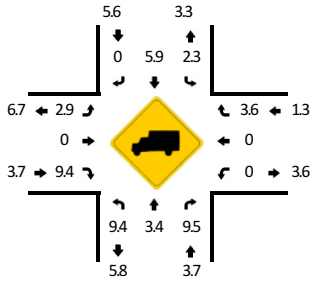
Method for determining peak hour: Total Entering Volume

LOCATION: Commercial St SE -- Hilfiker Ln SE
CITY/STATE: Salem, OR

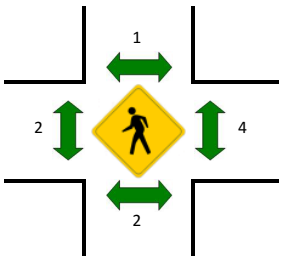
QC JOB #: 15446105
DATE: Thu, May 13 2021

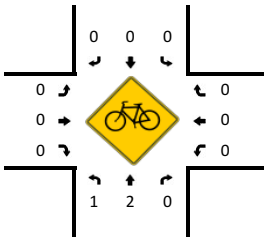
Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:40 AM -- 8:55 AM

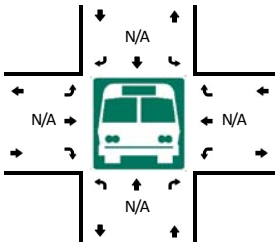


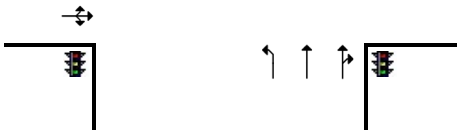


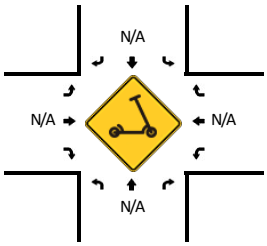
Quality Counts
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	Commercial St SE (Northbound)				Commercial St SE (Southbound)				Hilfiker Ln SE (Eastbound)				Hilfiker Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	57	0	0	0	28	0	0	8	0	0	0	2	1	1	0	98	
7:05 AM	4	65	0	0	0	34	0	0	6	0	0	0	1	0	0	0	110	
7:10 AM	3	60	1	0	1	30	0	0	10	0	0	0	0	0	0	0	105	
7:15 AM	2	80	0	0	1	39	0	0	9	0	0	0	0	0	3	0	134	
7:20 AM	1	97	2	0	1	45	0	0	11	0	2	0	0	0	0	0	159	
7:25 AM	5	90	3	0	1	39	0	0	5	0	1	0	0	0	0	0	144	
7:30 AM	3	97	1	0	1	40	0	0	12	0	1	0	0	1	2	0	158	
7:35 AM	3	95	0	0	0	42	0	0	11	0	3	0	3	0	1	0	158	
7:40 AM	5	132	0	0	3	50	0	0	9	0	1	0	0	1	1	0	202	
7:45 AM	9	119	0	0	0	46	0	0	11	0	2	0	3	1	0	0	191	
7:50 AM	9	115	0	0	2	53	1	0	17	1	1	0	0	1	1	0	201	
7:55 AM	5	97	1	0	6	61	0	0	11	1	2	0	2	0	0	0	186	1846
8:00 AM	7	101	1	0	3	47	0	0	11	2	2	0	0	0	2	0	176	1924
8:05 AM	3	83	1	0	5	52	0	0	7	3	2	0	3	1	0	0	160	1974
8:10 AM	5	82	2	0	3	55	0	0	10	1	7	0	2	3	2	0	172	2041
8:15 AM	5	86	3	0	2	46	0	0	10	2	0	0	3	1	1	0	159	2066
8:20 AM	3	106	0	0	5	41	1	0	9	1	4	0	3	1	2	0	176	2083
8:25 AM	10	81	2	0	2	45	0	0	13	2	4	0	2	5	3	0	169	2108
8:30 AM	8	99	2	0	3	53	0	0	10	1	2	0	5	1	4	0	188	2138
8:35 AM	2	88	3	0	4	53	0	0	10	2	4	0	4	1	4	0	175	2155
8:40 AM	2	104	4	0	3	44	1	0	16	1	1	0	2	7	4	0	189	2142
8:45 AM	0	109	1	0	7	66	0	0	21	1	2	0	3	0	3	0	213	2164
8:50 AM	3	121	1	0	1	68	0	0	9	2	2	0	2	0	3	0	212	2175
8:55 AM	2	81	0	0	5	64	0	0	11	3	3	0	2	2	3	0	176	2165

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	20	1336	24	0	44	712	4	0	184	16	20	0	28	28	40	0	2456
Heavy Trucks	8	24	4		0	64	0		12	0	8		0	0	4		124
Buses																	
Pedestrians		0				4				8				8			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/19/2021 3:24 PM

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

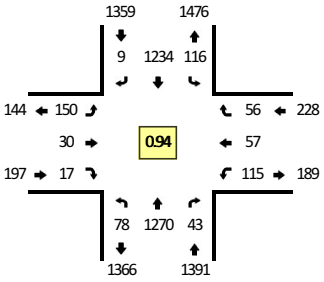
Type of peak hour being reported: Intersection Peak

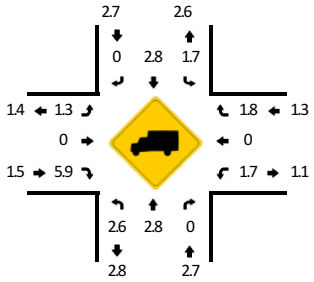
Method for determining peak hour: Total Entering Volume

LOCATION: Commercial St SE -- Hilfiker Ln SE
CITY/STATE: Salem, OR

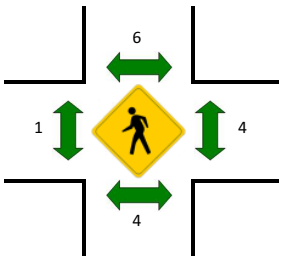
QC JOB #: 15446106
DATE: Thu, May 13 2021

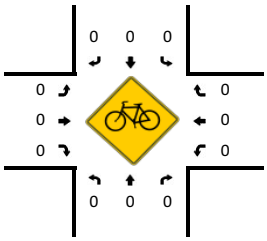
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

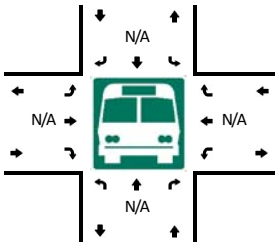


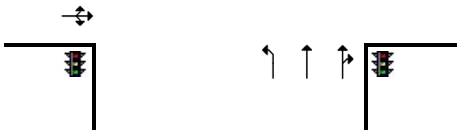


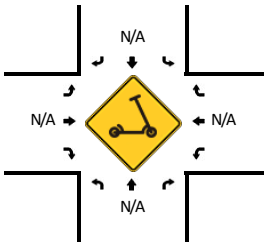
Quality Counts
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	Commercial St SE (Northbound)				Commercial St SE (Southbound)				Hilfiker Ln SE (Eastbound)				Hilfiker Ln SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	123	3	0	14	104	0	0	15	3	1	0	9	2	8	0	291	
4:05 PM	4	113	3	0	8	103	1	0	13	2	1	0	9	4	5	0	266	
4:10 PM	6	76	2	0	15	97	1	0	16	5	3	0	10	3	5	0	239	
4:15 PM	3	107	6	0	8	141	0	0	7	0	2	0	8	6	4	0	292	
4:20 PM	7	128	7	0	11	103	0	0	9	2	1	0	10	4	4	0	286	
4:25 PM	9	100	8	0	13	88	2	0	13	4	1	0	9	10	11	0	268	
4:30 PM	6	114	5	0	6	93	1	0	16	1	0	0	10	5	2	0	259	
4:35 PM	7	111	0	0	8	119	2	0	12	3	1	0	10	7	4	0	284	
4:40 PM	5	96	3	0	6	85	0	0	12	3	3	0	13	7	7	0	240	
4:45 PM	7	109	1	0	10	107	0	0	12	0	1	0	11	3	2	0	263	
4:50 PM	3	113	1	0	7	108	2	0	11	2	2	0	5	3	0	0	257	
4:55 PM	12	80	4	0	10	86	0	0	14	5	1	0	11	3	4	0	230	3175
5:00 PM	8	84	3	0	5	92	1	0	15	3	1	0	7	1	8	0	228	3112
5:05 PM	7	102	3	0	13	121	0	0	8	3	0	0	8	0	5	0	270	3116
5:10 PM	4	128	3	0	6	93	0	0	11	0	3	0	13	3	6	0	270	3147
5:15 PM	5	110	3	0	6	120	0	0	16	3	0	0	8	5	6	0	282	3137
5:20 PM	8	113	8	0	6	117	2	0	12	3	2	0	3	2	4	0	280	3131
5:25 PM	5	121	6	0	9	105	1	0	16	1	2	0	7	3	4	0	280	3143
5:30 PM	4	86	6	0	10	86	2	0	17	4	1	0	10	8	8	0	242	3126
5:35 PM	2	97	1	0	17	88	1	0	13	2	0	0	7	2	7	0	237	3079
5:40 PM	8	124	6	0	11	85	0	0	10	5	1	0	11	4	3	0	268	3107
5:45 PM	2	88	3	0	4	88	0	0	18	4	1	0	12	7	8	0	235	3079
5:50 PM	6	100	1	0	4	102	0	0	15	1	0	0	9	3	5	0	246	3068
5:55 PM	6	116	2	0	6	87	0	0	8	3	4	0	6	7	3	0	248	3086

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	76	1340	84	0	128	1328	8	0	116	24	16	0	108	80	76	0	3384
Heavy Trucks	0	40	0		8	48	0		4	0	0		0	0	4		104
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/19/2021 3:24 PM

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

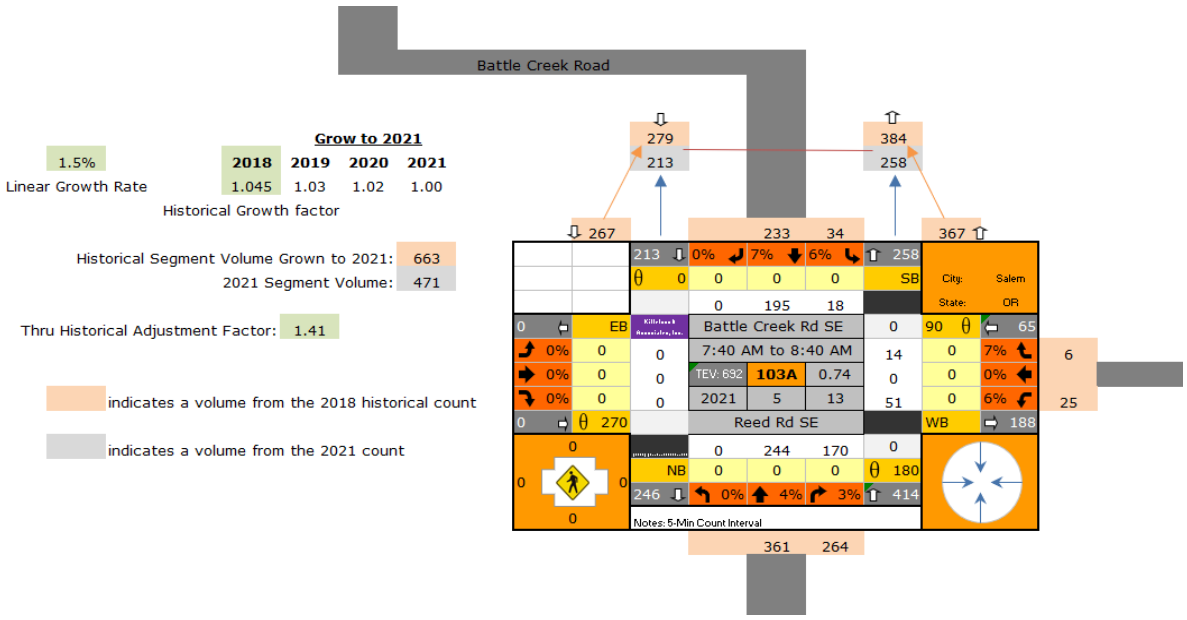
Appendix C

COVID Adjustment Factor Calculations

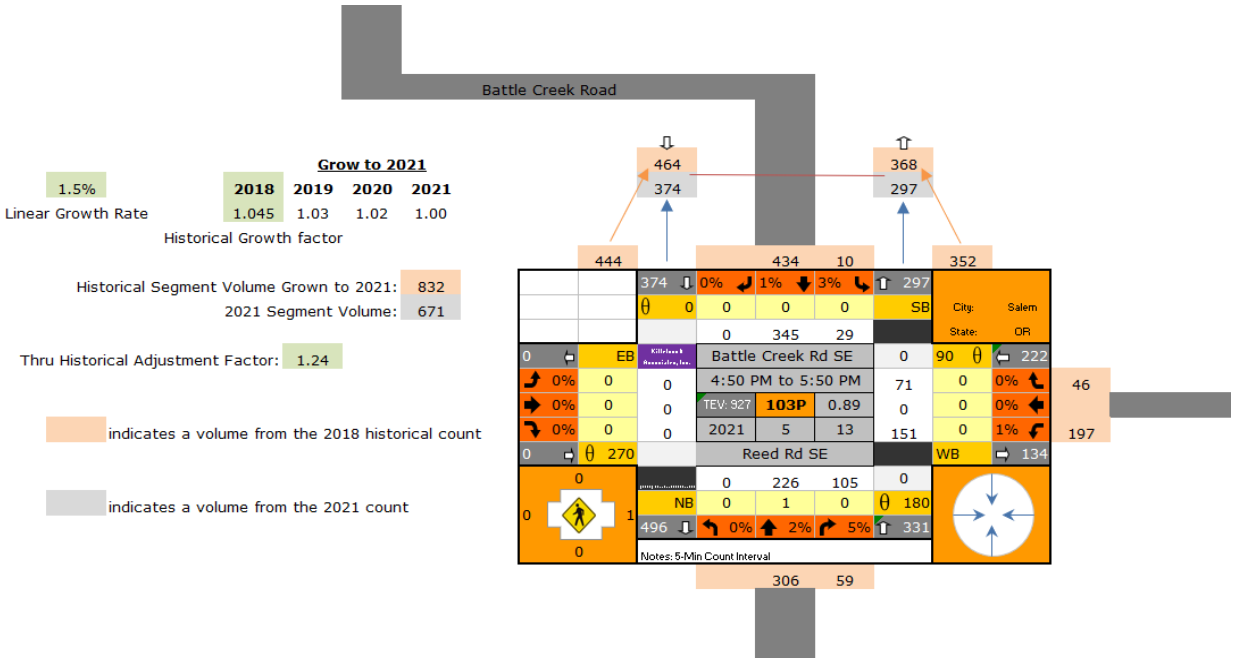
COVID Adjustment Factor

The 2018 historical count was grown by 1.5% per year (consistent with the background traffic conditions yearly growth rate) and then compared to the 2021 count to create an adjustment factor for the AM and PM peak hours. To avoid differences in the counts that may not be due to COVID-19, the volumes north of the intersection of Battle Creek Road/Reed Road were used to develop the adjustment factors.

AM peak hour

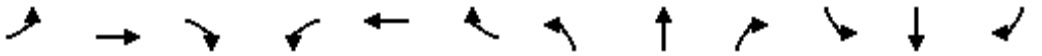


PM peak hour



Appendix D

Existing Conditions Traffic Analysis Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	19	32	31	20	28	53	1627	21	44	888	2
Future Volume (veh/h)	137	19	32	31	20	28	53	1627	21	44	888	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1767	1900	1900	1841	1767	1856	1752	1870	1811	1900
Adj Flow Rate, veh/h	154	21	36	35	22	31	60	1828	24	49	998	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	9	0	0	4	9	3	10	2	6	0
Cap, veh/h	219	23	40	130	84	95	414	2559	34	194	2521	5
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.02	0.72	0.72	0.02	0.72	0.72
Sat Flow, veh/h	1057	144	247	560	517	586	1682	3562	47	1781	3523	7
Grp Volume(v), veh/h	211	0	0	88	0	0	60	903	949	49	487	513
Grp Sat Flow(s),veh/h/ln	1448	0	0	1663	0	0	1682	1763	1846	1781	1721	1810
Q Serve(g_s), s	12.7	0.0	0.0	0.0	0.0	0.0	1.3	38.4	38.7	1.0	14.6	14.6
Cycle Q Clear(g_c), s	18.6	0.0	0.0	5.9	0.0	0.0	1.3	38.4	38.7	1.0	14.6	14.6
Prop In Lane	0.73		0.17	0.40		0.35	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	283	0	0	309	0	0	414	1267	1326	194	1231	1295
V/C Ratio(X)	0.75	0.00	0.00	0.29	0.00	0.00	0.15	0.71	0.72	0.25	0.40	0.40
Avail Cap(c_a), veh/h	437	0	0	475	0	0	531	1267	1326	324	1231	1295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	0.0	0.0	48.0	0.0	0.0	5.6	10.6	10.6	11.8	7.3	7.3
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.2	0.0	0.0	0.1	3.4	3.3	0.3	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.1	0.0	0.0	4.6	0.0	0.0	0.7	19.9	20.8	0.8	8.7	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	0.0	0.0	48.2	0.0	0.0	5.6	14.0	13.9	12.0	8.3	8.3
LnGrp LOS	D	A	A	D	A	A	A	B	B	B	A	A
Approach Vol, veh/h		211			88			1912			1049	
Approach Delay, s/veh		54.8			48.2			13.7			8.4	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	98.0		25.1	6.5	98.4		25.1				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	12.0	70.0		35.0	12.0	70.0		35.0				
Max Q Clear Time (g_c+I1), s	3.3	16.6		7.9	3.0	40.7		20.6				
Green Ext Time (p_c), s	0.0	5.6		0.1	0.0	2.8		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

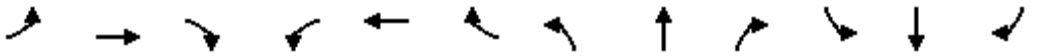
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	0	376	239	3
Future Vol, veh/h	3	2	0	376	239	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	3	6	0
Mvmt Flow	4	3	0	476	303	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	781	305	307	0	-	0
Stage 1	305	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	366	740	1265	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	366	740	1265	-	-	-
Mov Cap-2 Maneuver	366	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1265	-	459	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	30	17	115	57	56	78	1574	43	116	1530	9
Future Volume (veh/h)	150	30	17	115	57	56	78	1574	43	116	1530	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1900	1811	1870	1900	1870	1856	1856	1900	1870	1856	1900
Adj Flow Rate, veh/h	160	32	18	122	61	60	83	1674	46	123	1628	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	6	2	0	2	3	3	0	2	3	0
Cap, veh/h	224	35	20	195	86	79	230	2342	64	224	2430	15
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.03	0.67	0.67	0.04	0.68	0.68
Sat Flow, veh/h	900	180	101	790	441	404	1767	3505	96	1781	3592	22
Grp Volume(v), veh/h	210	0	0	243	0	0	83	840	880	123	798	840
Grp Sat Flow(s),veh/h/ln	1181	0	0	1634	0	0	1767	1763	1838	1781	1763	1851
Q Serve(g_s), s	4.9	0.0	0.0	0.0	0.0	0.0	1.9	39.2	39.7	2.8	34.8	34.9
Cycle Q Clear(g_c), s	23.1	0.0	0.0	18.1	0.0	0.0	1.9	39.2	39.7	2.8	34.8	34.9
Prop In Lane	0.76		0.09	0.50		0.25	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	279	0	0	360	0	0	230	1178	1228	224	1193	1253
V/C Ratio(X)	0.75	0.00	0.00	0.68	0.00	0.00	0.36	0.71	0.72	0.55	0.67	0.67
Avail Cap(c_a), veh/h	381	0	0	474	0	0	343	1178	1228	323	1193	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	0.0	0.0	49.4	0.0	0.0	12.3	13.7	13.7	16.8	12.4	12.4
Incr Delay (d2), s/veh	3.3	0.0	0.0	1.1	0.0	0.0	0.4	3.7	3.6	0.8	3.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.3	0.0	0.0	12.2	0.0	0.0	1.3	21.4	22.4	3.1	19.1	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	0.0	0.0	50.5	0.0	0.0	12.7	17.3	17.3	17.5	15.4	15.3
LnGrp LOS	E	A	A	D	A	A	B	B	B	B	B	B
Approach Vol, veh/h		210			243			1803			1761	
Approach Delay, s/veh		55.2			50.5			17.1			15.5	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	93.0		29.3	8.8	91.9		29.3				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	12.0	70.0		35.0	12.0	70.0		35.0				
Max Q Clear Time (g_c+I1), s	3.9	36.9		20.1	4.8	41.7		25.1				
Green Ext Time (p_c), s	0.0	11.9		0.4	0.0	2.5		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	372	450	5
Future Vol, veh/h	5	1	1	372	450	5
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	6	1	1	418	506	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	930	510	513	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	299	567	1063	-	-	-
Stage 1	607	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	298	566	1062	-	-	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	666	-	-	-	-	-

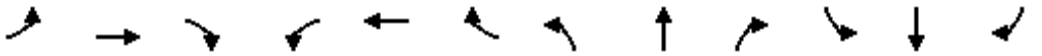
Approach	EB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	324	-	-
HCM Lane V/C Ratio	0.001	-	0.021	-	-
HCM Control Delay (s)	8.4	0	16.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Appendix E

2023 Background Conditions

Traffic Analysis Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	20	33	32	21	29	55	1676	22	45	915	2
Future Volume (veh/h)	141	20	33	32	21	29	55	1676	22	45	915	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1767	1900	1900	1841	1767	1856	1752	1870	1811	1900
Adj Flow Rate, veh/h	158	22	37	36	24	33	62	1883	25	51	1028	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	9	0	0	4	9	3	10	2	6	0
Cap, veh/h	199	59	99	186	42	58	410	2597	34	190	2559	5
Arrive On Green	0.06	0.09	0.09	0.03	0.06	0.06	0.02	0.73	0.73	0.02	0.73	0.73
Sat Flow, veh/h	1767	634	1066	1810	720	990	1682	3561	47	1781	3523	7
Grp Volume(v), veh/h	158	0	59	36	0	57	62	930	978	51	502	528
Grp Sat Flow(s),veh/h/ln	1767	0	1700	1810	0	1710	1682	1763	1846	1781	1721	1810
Q Serve(g_s), s	8.0	0.0	4.2	2.4	0.0	4.2	1.2	39.3	39.7	1.0	14.7	14.7
Cycle Q Clear(g_c), s	8.0	0.0	4.2	2.4	0.0	4.2	1.2	39.3	39.7	1.0	14.7	14.7
Prop In Lane	1.00		0.63	1.00		0.58	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	199	0	157	186	0	101	410	1286	1346	190	1250	1315
V/C Ratio(X)	0.79	0.00	0.38	0.19	0.00	0.57	0.15	0.72	0.73	0.27	0.40	0.40
Avail Cap(c_a), veh/h	199	0	340	246	0	342	528	1286	1346	320	1250	1315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	55.5	55.3	0.0	59.6	5.2	10.1	10.1	11.9	6.9	6.9
Incr Delay (d2), s/veh	19.3	0.0	0.5	0.5	0.0	1.8	0.1	3.6	3.5	0.3	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	3.3	2.0	0.0	3.4	0.7	20.0	21.0	0.9	8.6	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.5	0.0	56.0	55.8	0.0	61.4	5.3	13.6	13.6	12.2	7.8	7.8
LnGrp LOS	E	A	E	E	A	E	A	B	B	B	A	A
Approach Vol, veh/h		217			93			1970			1081	
Approach Delay, s/veh		69.5			59.2			13.3			8.0	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	99.4	12.0	11.7	6.5	99.8	7.6	16.0
Change Period (Y+Rc), s	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	12.0	67.0	8.0	26.0	12.0	67.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	3.2	16.7	10.0	6.2	3.0	41.7	4.4	6.2
Green Ext Time (p_c), s	0.0	5.9	0.0	0.1	0.0	2.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

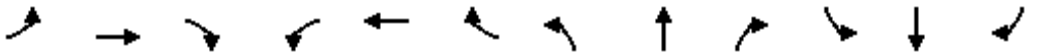
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	0	387	246	3
Future Vol, veh/h	3	2	0	387	246	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	3	6	0
Mvmt Flow	4	3	0	490	311	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	803	313	315	0	-	0
Stage 1	313	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	355	732	1257	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	355	732	1257	-	-	-
Mov Cap-2 Maneuver	355	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	620	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1257	-	447	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	31	18	118	59	58	80	1621	44	119	1576	9
Future Volume (veh/h)	155	31	18	118	59	58	80	1621	44	119	1576	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1900	1811	1870	1900	1870	1856	1856	1900	1870	1856	1900
Adj Flow Rate, veh/h	165	33	19	126	63	62	85	1724	47	127	1677	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	6	2	0	2	3	3	0	2	3	0
Cap, veh/h	220	126	72	278	97	96	216	2304	63	211	2393	14
Arrive On Green	0.06	0.11	0.11	0.06	0.11	0.11	0.03	0.66	0.66	0.04	0.67	0.67
Sat Flow, veh/h	1795	1123	646	1781	870	856	1767	3506	95	1781	3593	21
Grp Volume(v), veh/h	165	0	52	126	0	125	85	864	907	127	822	865
Grp Sat Flow(s),veh/h/ln	1795	0	1769	1781	0	1727	1767	1763	1838	1781	1763	1852
Q Serve(g_s), s	8.0	0.0	3.5	8.0	0.0	9.0	2.1	42.9	43.4	3.0	38.0	38.0
Cycle Q Clear(g_c), s	8.0	0.0	3.5	8.0	0.0	9.0	2.1	42.9	43.4	3.0	38.0	38.0
Prop In Lane	1.00		0.37	1.00		0.50	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	220	0	198	278	0	193	216	1158	1208	211	1174	1233
V/C Ratio(X)	0.75	0.00	0.26	0.45	0.00	0.65	0.39	0.75	0.75	0.60	0.70	0.70
Avail Cap(c_a), veh/h	220	0	354	278	0	345	327	1158	1208	307	1174	1233
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	0.0	52.8	47.9	0.0	55.3	14.1	15.0	15.1	20.2	13.6	13.6
Incr Delay (d2), s/veh	13.5	0.0	0.3	1.2	0.0	1.4	0.4	4.4	4.3	1.0	3.5	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	0.0	2.8	6.8	0.0	7.3	1.5	23.4	24.5	3.9	20.9	21.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	0.0	53.1	49.1	0.0	56.6	14.5	19.4	19.4	21.2	17.1	16.9
LnGrp LOS	E	A	D	D	A	E	B	B	B	C	B	B
Approach Vol, veh/h		217			251			1856			1814	
Approach Delay, s/veh		62.3			52.8			19.2			17.3	
Approach LOS		E			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	91.6	12.0	18.5	9.0	90.4	12.0	18.5
Change Period (Y+Rc), s	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	12.0	67.0	8.0	26.0	12.0	67.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	4.1	40.0	10.0	11.0	5.0	45.4	10.0	5.5
Green Ext Time (p_c), s	0.0	11.6	0.0	0.2	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	1	1	383	464	5
Future Vol, veh/h	5	1	1	383	464	5
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	6	1	1	430	521	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	957	525	528	0	-	0
Stage 1	525	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	288	556	1049	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	287	555	1048	-	-	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0	0
HCM LOS	C		

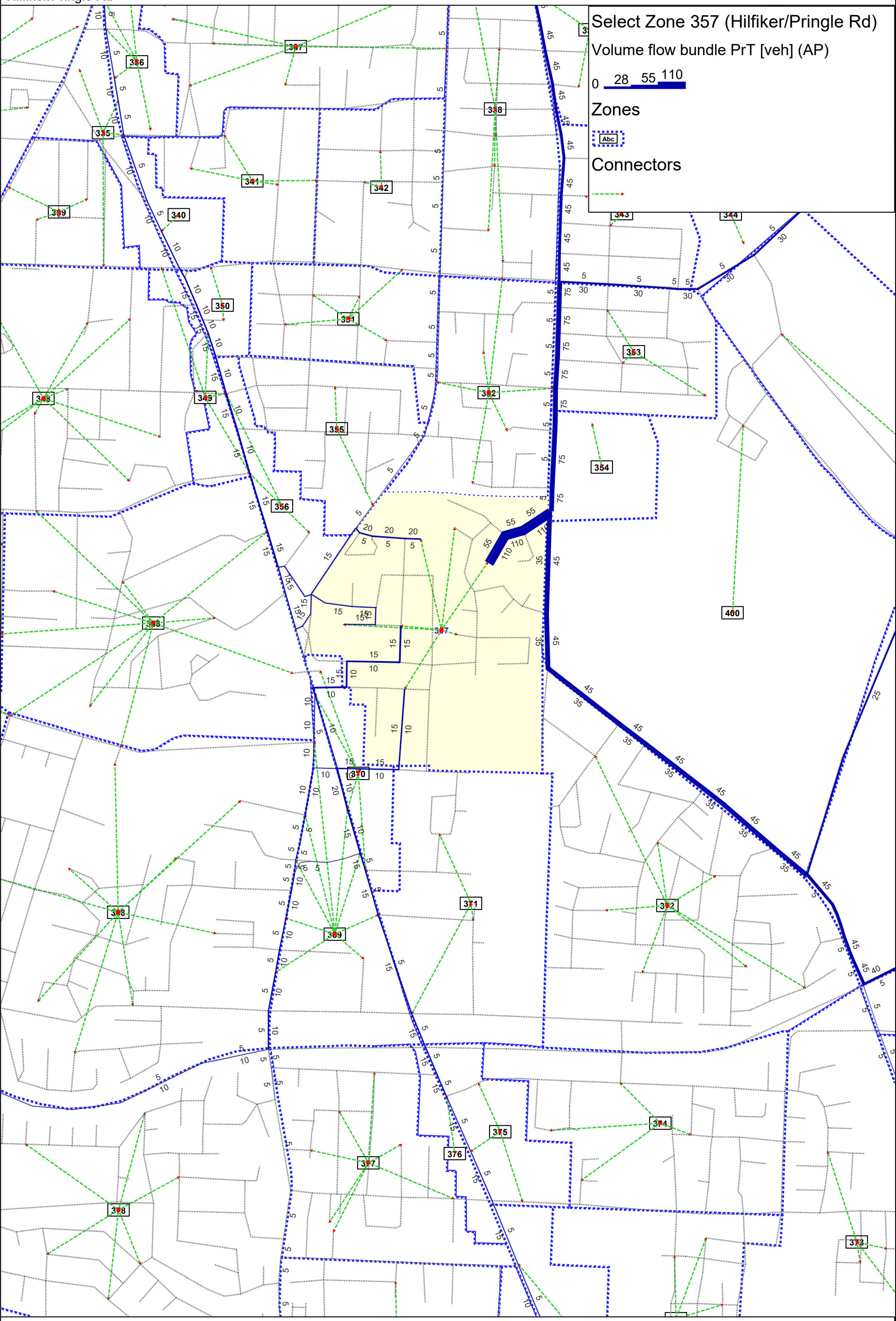
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1048	-	312	-	-
HCM Lane V/C Ratio	0.001	-	0.022	-	-
HCM Control Delay (s)	8.4	0	16.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Appendix F

Select Zone Analysis Model
Output Worksheets

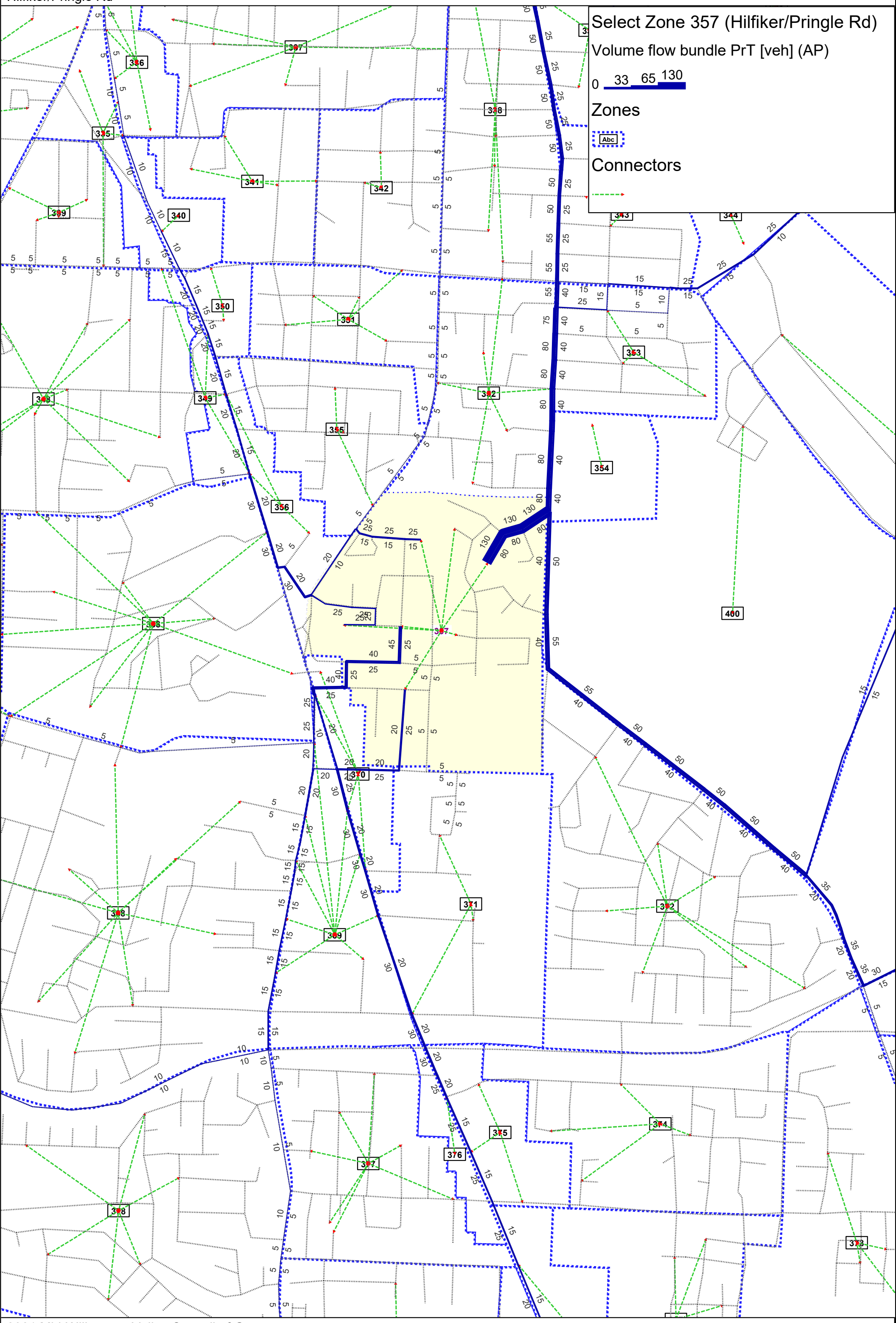
2017 SKATS Model AM Peak Select Zone Analysis

Hilfiker/Pringle Rd



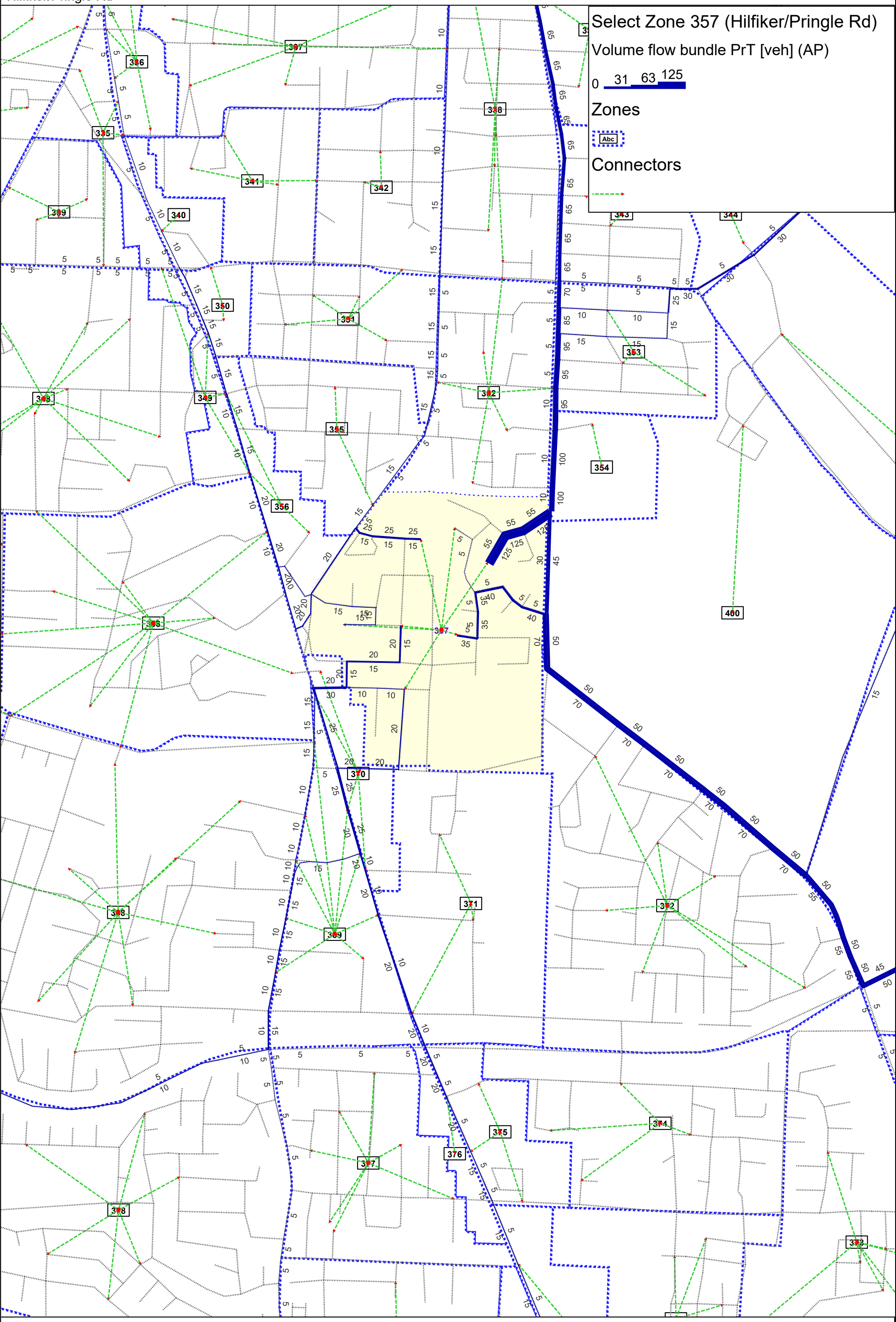
2017 SKATS Model PM Peak Select Zone Analysis

Hilfiker/Pringle Rd



2043 SKATS Model AM Peak Select Zone Analysis

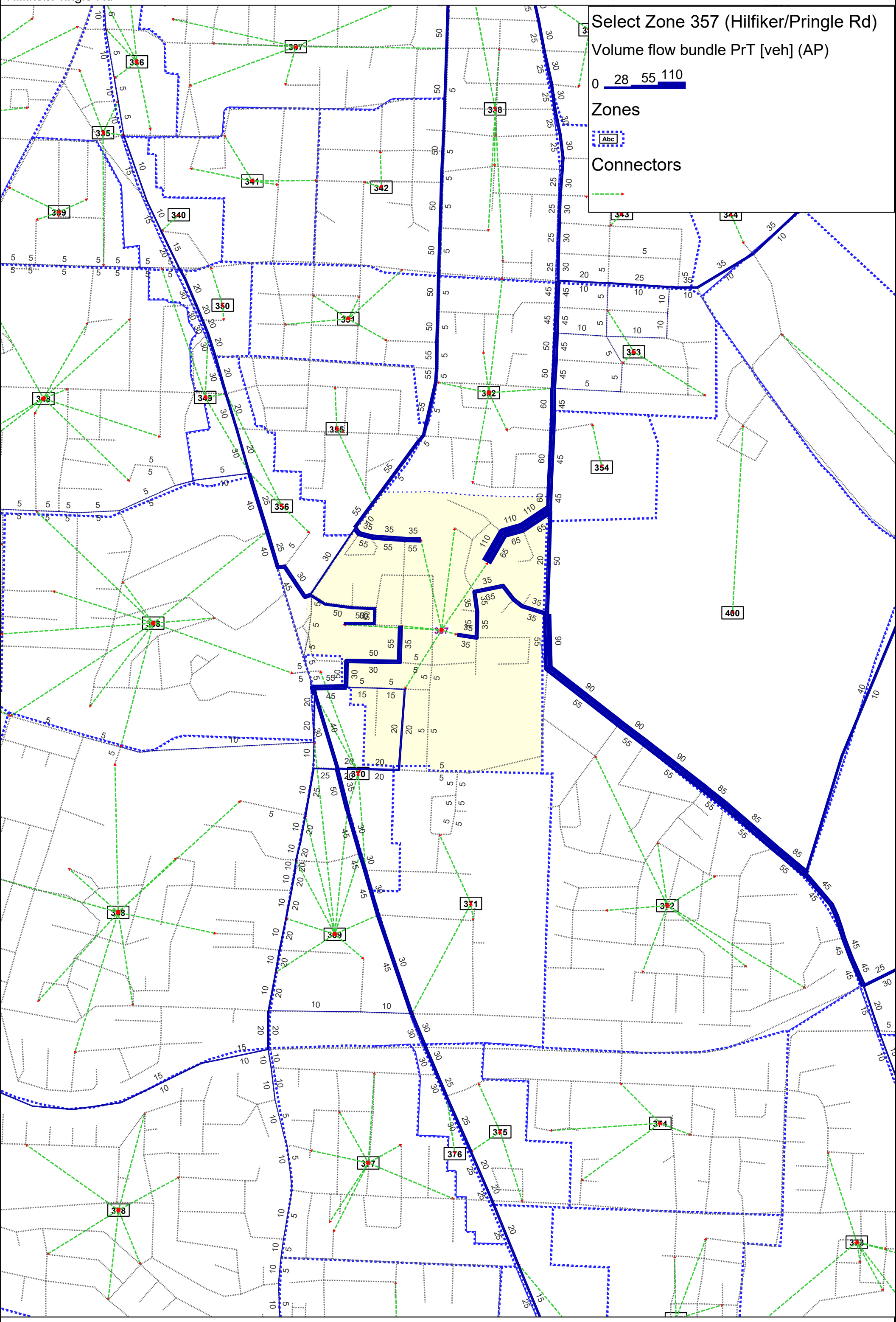
Hilfiker/Pringle Rd



2021 Mid-Willamette Valley Council of Governments

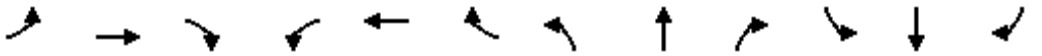
2043 SKATS Model PM Peak Select Zone Analysis

Hilfiker/Pringle Rd



Appendix G

2023 Total Conditions Traffic Analysis Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	21	33	49	25	42	55	1676	28	49	915	2
Future Volume (veh/h)	141	21	33	49	25	42	55	1676	28	49	915	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1900	1767	1900	1900	1841	1767	1856	1752	1870	1811	1900
Adj Flow Rate, veh/h	158	24	37	55	28	47	62	1883	31	55	1028	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	9	0	0	4	9	3	10	2	6	0
Cap, veh/h	198	62	96	204	44	73	403	2547	42	185	2523	5
Arrive On Green	0.06	0.09	0.09	0.04	0.07	0.07	0.02	0.72	0.72	0.02	0.72	0.72
Sat Flow, veh/h	1767	671	1035	1810	634	1064	1682	3548	58	1781	3523	7
Grp Volume(v), veh/h	158	0	61	55	0	75	62	933	981	55	502	528
Grp Sat Flow(s),veh/h/ln	1767	0	1706	1810	0	1698	1682	1763	1843	1781	1721	1810
Q Serve(g_s), s	8.0	0.0	4.4	3.6	0.0	5.6	1.3	41.2	41.7	1.1	15.2	15.2
Cycle Q Clear(g_c), s	8.0	0.0	4.4	3.6	0.0	5.6	1.3	41.2	41.7	1.1	15.2	15.2
Prop In Lane	1.00		0.61	1.00		0.63	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	198	0	159	204	0	117	403	1266	1324	185	1232	1296
V/C Ratio(X)	0.80	0.00	0.38	0.27	0.00	0.64	0.15	0.74	0.74	0.30	0.41	0.41
Avail Cap(c_a), veh/h	198	0	341	247	0	340	520	1266	1324	313	1232	1296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	55.4	53.5	0.0	58.9	5.6	11.0	11.1	13.3	7.4	7.4
Incr Delay (d2), s/veh	20.0	0.0	0.6	0.7	0.0	2.2	0.1	3.9	3.8	0.3	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	0.0	3.4	3.1	0.0	4.5	0.7	21.3	22.3	1.1	9.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.9	0.0	56.0	54.2	0.0	61.1	5.7	14.8	14.8	13.6	8.4	8.4
LnGrp LOS	E	A	E	D	A	E	A	B	B	B	A	A
Approach Vol, veh/h		219			130			1976			1085	
Approach Delay, s/veh		69.7			58.2			14.5			8.6	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	98.1	12.0	13.0	6.7	98.3	8.9	16.1
Change Period (Y+Rc), s	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	12.0	67.0	8.0	26.0	12.0	67.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	3.3	17.2	10.0	7.6	3.1	43.7	5.6	6.4
Green Ext Time (p_c), s	0.0	5.9	0.0	0.1	0.0	2.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

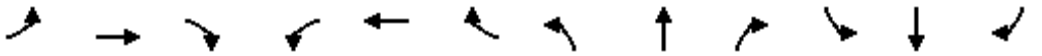
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	28	9	387	246	9
Future Vol, veh/h	20	28	9	387	246	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	3	6	0
Mvmt Flow	25	35	11	490	311	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	829	317	322	0	-	0
Stage 1	317	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	343	728	1249	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	339	728	1249	-	-	-
Mov Cap-2 Maneuver	339	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	606	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1249	-	493	-	-
HCM Lane V/C Ratio	0.009	-	0.123	-	-
HCM Control Delay (s)	7.9	0	13.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	36	18	129	62	67	80	1621	63	134	1576	9
Future Volume (veh/h)	155	36	18	129	62	67	80	1621	63	134	1576	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1900	1811	1870	1900	1870	1856	1856	1900	1870	1856	1900
Adj Flow Rate, veh/h	165	38	19	137	66	71	85	1724	67	143	1677	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	6	2	0	2	3	3	0	2	3	0
Cap, veh/h	217	139	70	282	97	105	214	2241	87	209	2372	14
Arrive On Green	0.06	0.12	0.12	0.06	0.12	0.12	0.03	0.65	0.65	0.04	0.66	0.66
Sat Flow, veh/h	1795	1187	593	1781	829	892	1767	3460	134	1781	3593	21
Grp Volume(v), veh/h	165	0	57	137	0	137	85	874	917	143	822	865
Grp Sat Flow(s),veh/h/ln	1795	0	1780	1781	0	1720	1767	1763	1831	1781	1763	1852
Q Serve(g_s), s	8.0	0.0	3.8	8.0	0.0	9.9	2.1	45.1	45.9	3.5	38.6	38.7
Cycle Q Clear(g_c), s	8.0	0.0	3.8	8.0	0.0	9.9	2.1	45.1	45.9	3.5	38.6	38.7
Prop In Lane	1.00		0.33	1.00		0.52	1.00		0.07	1.00		0.01
Lane Grp Cap(c), veh/h	217	0	209	282	0	202	214	1142	1186	209	1164	1222
V/C Ratio(X)	0.76	0.00	0.27	0.49	0.00	0.68	0.40	0.77	0.77	0.68	0.71	0.71
Avail Cap(c_a), veh/h	217	0	356	282	0	344	323	1142	1186	298	1164	1222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	52.3	47.9	0.0	55.0	14.6	16.0	16.2	23.6	14.1	14.1
Incr Delay (d2), s/veh	14.4	0.0	0.3	1.3	0.0	1.5	0.4	4.9	4.9	1.5	3.6	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	3.1	7.6	0.0	7.9	1.6	24.8	25.9	5.3	21.3	22.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	0.0	52.6	49.2	0.0	56.5	15.0	20.9	21.1	25.1	17.7	17.6
LnGrp LOS	E	A	D	D	A	E	B	C	C	C	B	B
Approach Vol, veh/h		222			274			1876			1830	
Approach Delay, s/veh		62.3			52.8			20.7			18.2	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	90.8	12.0	19.3	9.5	89.2	12.0	19.3
Change Period (Y+Rc), s	4.0	5.0	4.0	4.0	4.0	5.0	4.0	4.0
Max Green Setting (Gmax), s	12.0	67.0	8.0	26.0	12.0	67.0	8.0	26.0
Max Q Clear Time (g_c+I1), s	4.1	40.7	10.0	11.9	5.5	47.9	10.0	5.8
Green Ext Time (p_c), s	0.0	11.5	0.0	0.2	0.1	2.6	0.0	0.0

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	18	30	383	464	24
Future Vol, veh/h	16	18	30	383	464	24
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	18	20	34	430	521	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1034	536	549	0	-	0
Stage 1	536	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	259	549	1031	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	247	548	1030	-	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1030	-	348	-	-
HCM Lane V/C Ratio	0.033	-	0.11	-	-
HCM Control Delay (s)	8.6	0	16.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Appendix H

2023 Total Conditions Sensitivity Analysis Worksheets

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	28	9	387	246	9
Future Vol, veh/h	20	28	9	387	246	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	3	6	0
Mvmt Flow	25	35	11	490	311	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	829	317	322	0	-	0
Stage 1	317	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	343	728	1249	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	340	728	1249	-	-	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	736	-	-	-	-	-
Stage 2	606	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1249	-	493	-	-
HCM Lane V/C Ratio	0.009	-	0.123	-	-
HCM Control Delay (s)	7.9	-	13.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	18	30	383	464	24
Future Vol, veh/h	16	18	30	383	464	24
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	18	20	34	430	521	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1034	536	549	0	-	0
Stage 1	536	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	259	549	1031	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	250	548	1030	-	-	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1030	-	351	-	-
HCM Lane V/C Ratio	0.033	-	0.109	-	-
HCM Control Delay (s)	8.6	-	16.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-