

Pictsweet Master Plan

Transportation Impact Analysis

Salem, Oregon

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Brownstone Development

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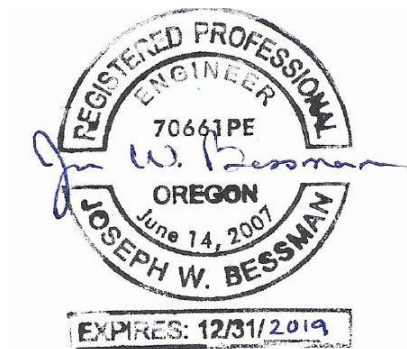


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EXECUTIVE SUMMARY

The analysis of the Pictsweet site follows prior planning efforts that were conducted in 2006 for the annexation and zone change of the property. The proposed development plan included within this application remains within the previously assumed density assumptions for the property, and thereby continues to remain in compliance with the Transportation Planning Rule.

The analysis for the Pictsweet site contained within this report assesses conditions in the year 2039 in order to comply with Marion County requirements for a 20-year analysis. This timeframe extends beyond the adopted City of Salem and Marion County planning horizon and shows conditions beyond what has been planned on the surrounding transportation network. Despite this extended horizon period, the analysis results are generally consistent with the adopted agency plans. Namely, Cordon Road needs to be widened to a five-lane cross-section to serve in its *Parkway* designation, and improvements are needed along State Street and Center Street as these roads connect the neighborhoods and services located east and west of the I-5 corridor.

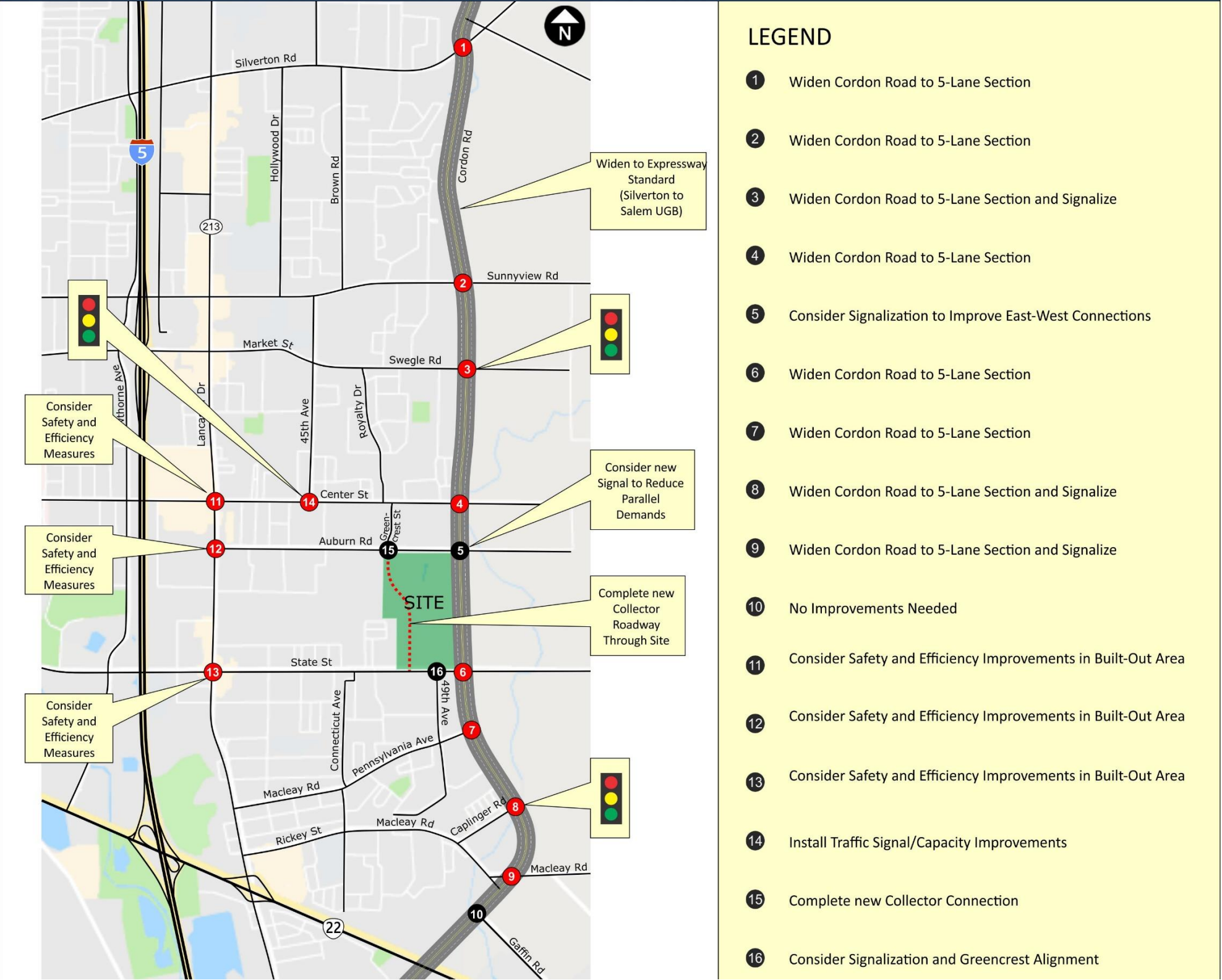
Development plans within the Pictsweet property include over 1,100 new housing units and provides a mix of detached and two- to three-story multifamily products. Plans also identify 10,000 square-feet of neighborhood commercial building space and a 7.5-acre park. When fully developed, this plan provides a mix of residential products and supporting recreational and retail services within this mixed-use neighborhood.

The proposed project enables the Cordon Road widening by supporting the right-of-way needs for the *Parkway* plans and recommends improvements along State Street to address current and projected capacity needs. With the proposed development improvements will be provided along Auburn Road and the project will extend Greencrest Street from its terminus at Auburn Road south to State Street. These roadway improvements will reduce reliance on Lancaster Avenue, State Street, and Cordon for localized circulation, benefiting the proposed development

The provision of a new north-south *Collector* roadway (Greencrest Street extension) through the site will provide a new connection between State Street and Center Avenue that reduces the current reliance on either Lancaster Avenue or Cordon Road for neighborhood connections and will provide access to the commercial services included within the development.

The illustration highlights the surrounding transportation needs to support the Pictsweet property development. Most of the transportation improvements are needed regardless of whether the project is built. The benefit of the new Greencrest Street and Auburn Road improvements in relieving area transportation congestion will depend on the type of movements and specific intersection treatments that are allowed onto the major roads that surround the project site. Additional details on the specific transportation improvement needs and priorities are provided within this report.

Year 2039 Transportation Improvement Needs



Summary of Roadway and Intersection Improvement Needs

PROJECT BACKGROUND

The Pictsweet site was operated as a mushroom plant for many years before closing in 2001 and has since remained vacant. It is bordered on the north by Auburn Road, on the south by State Street, and on the east by Cordon Road. The site is generally surrounded by residential uses and is bisected by an abandoned railway right-of-way that follows an east-west alignment through the center of the site.

The Pictsweet site work efforts started in 2006 with the proposal for an annexation and zone change to develop a Neighborhood Development. For the purposes of the previous study, the Traffic Engineers looked at a proposal that included an Elementary and Middle School, neighborhood commercial, and high- and low-density housing. The site was annexed into the city limits and is composed of retail commercial (CR), Single Family Residential (RS), Multiple Family Residential 1 (RM1), and Multiple Family Residential 2 (RM2) zoning.

Traffic conditions on the east side of Salem are very constrained, with significant residential density on the east side of the City that is reliant on the Lancaster Drive corridor for commercial services. This congestion is particularly evident along the limited area east-west routes such as Center Street and State Street that provide I-5 under or over crossings, which will also serve as primary routes for the subject property.

The Pictsweet Master Plan identifies over 1,100 residential units with a variety of housing types, and approximately 10,000 square-feet of commercial uses and a new neighborhood park. A new *Collector* roadway bisects the site following a north-south alignment that is also shown within the City's Transportation System Plan. Figure 1 depicts the site location and Figure 2 depicts the proposed site plan.

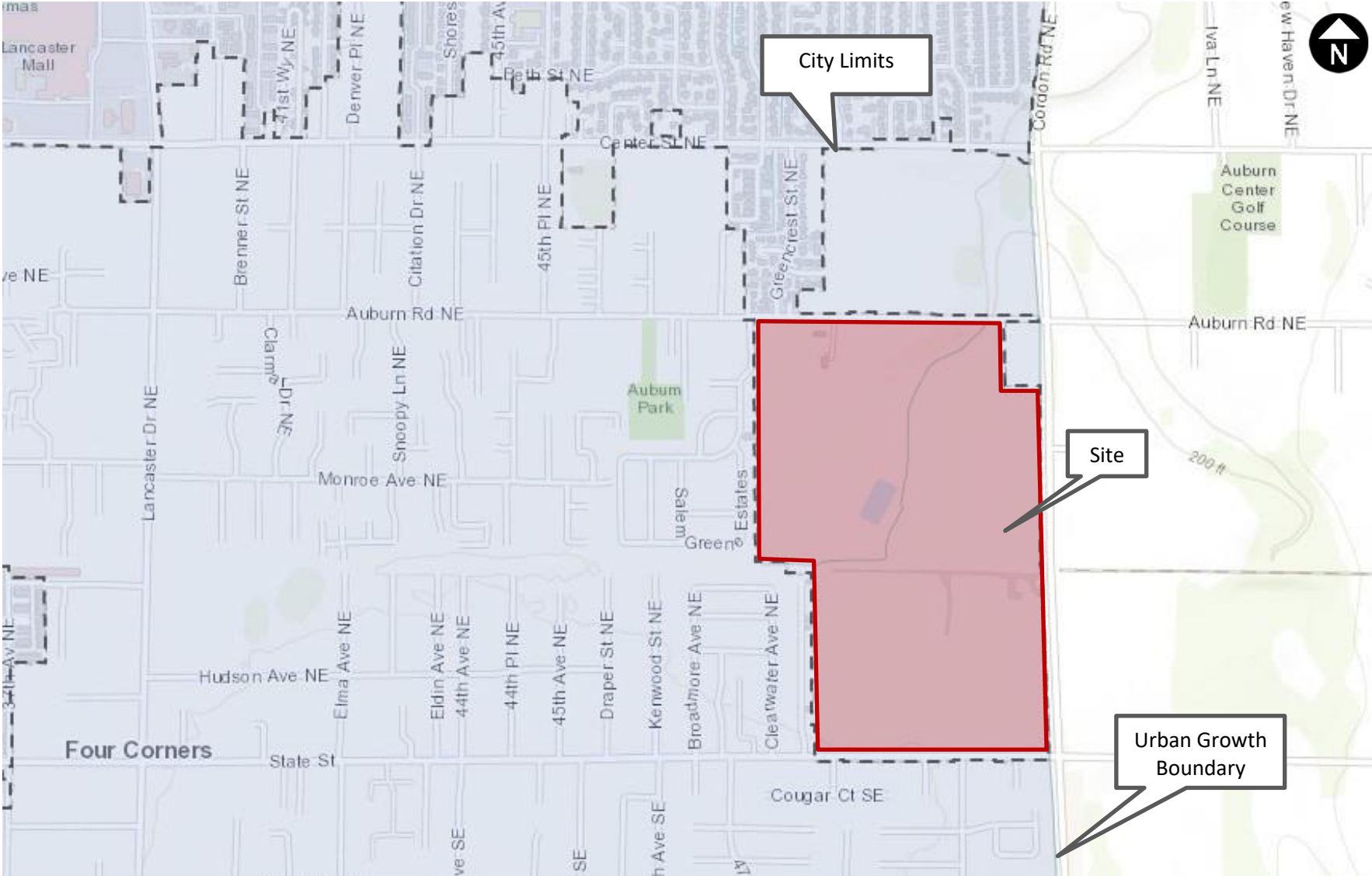


Figure 1. Pictsweet Location. Source: Marion County Land Use Planning & Zoning GIS.



Figure 2. Proposed Site Plan and Anticipated Phasing. Source: MULTI/TECH Engineering Services, Inc.

EXISTING TRAFFIC CONDITIONS

EXISTING TRANSPORTATION FACILITIES

The proposed site is currently undeveloped. The previous annexation and zone change resulted in portions of the site being zoned RS (Single Family Residential), RM1 (Multiple Family Residential 1), RM2 (Multiple Family Residential 2) and CR (Retail Commercial). The site is bordered on the east by Cordon Road, which is also the location of the urban growth boundary. Land uses to the east of the site include the Holland Youth Park, Marion County Fire Station, a nursery, and several residences. The areas north, west and south of the site are primarily residential neighborhoods, along with Auburn Elementary School which is located approximately 1,000 feet west of the property on the south side of Auburn Road.

As shown in Figure 2, vehicular access to the site is provided by the extension of Greencrest Street, a collector road, from Auburn Road to State Street. Two additional local street connections are proposed on Auburn Road and an additional connection is proposed on State Street to serve the site. Table 1 summarizes the existing area roadways included in this study and the pertinent characteristics.

Table 1. Existing Transportation Facilities

Roadway	Jurisdiction	Functional Classification	Cross Section	Speed	Shoulder /Bicycle Lanes	Sidewalk	On-Street Parking
Cordon Rd	Marion County ¹	Parkway	2 lanes	55 mph	Paved shoulder	No	No
Silverton Rd	ODOT/ Marion County	Major Arterial	3-5 lanes	45 mph	Bicycle Lanes	West of Cordon Rd	No
Sunnyview Rd	Marion County	Minor Arterial	3 lanes	35 mph	Bicycle Lanes	Partial	No
Market St	City of Salem	Major/Minor Arterial	3 lanes	30 mph	Bicycle Lanes	Yes	No
Swegle Rd	Marion County/ City of Salem	Minor Arterial	2-3 lanes	30/35 mph	Partial ²	Partial ³	No
Center St	Marion County/ City of Salem	Major Arterial	2-3 lanes	35/45 mph	Bicycle Lanes	Partial	Partial
Auburn Rd	Marion County/ City of Salem	Collector	2 lanes	30/35 mph	Partial paved shoulder	Partial	No
State St	Marion County/ City of Salem	Major Arterial	2 lanes	35 mph	Bicycle Lanes	Partial	No
Pennsylvania St	Marion County	Collector	2 lanes	25 mph	Curbs	Yes	Yes
Rickey St	City of Salem	Minor Arterial	2-5 lanes	35 mph	Bicycle Lanes	Yes	No
Caplinger Rd	City of Salem	Local	2 lanes	25 mph	Paved shoulder	Partial	No

(Continued)

Table 1 (Continued). Existing Transportation Facilities

Roadway	Jurisdiction	Functional Classification	Cross Section	Speed	Shoulder Bicycle Lanes	Sidewalk	On-Street Parking
Macleay Rd	Marion County/ City of Salem	Collector/Minor Arterial	2 lanes	35 mph	Mix of bicycle lanes, gravel and paved shoulder	Partial	No
Gaffin Rd	City of Salem	Minor Arterial	2-3 lanes	45 mph	Gravel/ paved shoulder	No	No
Lancaster Dr	Marion County/ City of Salem	Major Arterial	5 lanes	40 mph	Bicycle lanes	Yes	No
45 th Avenue	City of Salem	Collector	2 lanes	35 mph	Bicycle lanes	Yes	No
Greencrest St	City of Salem	Collector	2 lanes	25 mph	Curbs	Yes	Yes
49 th Ave	Marion County	Local	2 lanes	25 mph	Curbs	Partial	Yes

¹City of Salem jurisdiction south of Caplinger Rd

²Bicycle lanes west of Hoffman Rd

³Sidewalks west of Hoffman Rd

Transit Service

Transit service in the area is provided by Cherriots. Bus service is generally provided on weekdays between 5:30 a.m. and 9:30 p.m. depending on the route and schedule. No service is provided on weekends or holidays. Two bus routes, Route 4 and Route 7, travel along the property frontage on State Street.

Route 4

Bus Route 4 travels along State Street connecting the Downtown Transit Center to the east side of Salem on Cordon Road, Pennsylvania Avenue, and Lancaster Drive with headways of one hour on weekdays.

Route 7

Bus Route 7 travels along State Street between Cordon Road and Hawthorne Avenue, and then runs along Mission St to the Downtown Transit Center. On the east side of the City it operates on Cordon Road, Pennsylvania Avenue, Rickey Street and Lancaster Drive with headways of one hour on weekdays.

Route 24 operates on Lancaster Drive and State Street to the south and west of the site. Additional bus service is provided in the area by routes 2, 5, and 11. These bus routes provide more frequent service ranging from 15 to 30-minute headways. Their routes are shown in Figure 3.

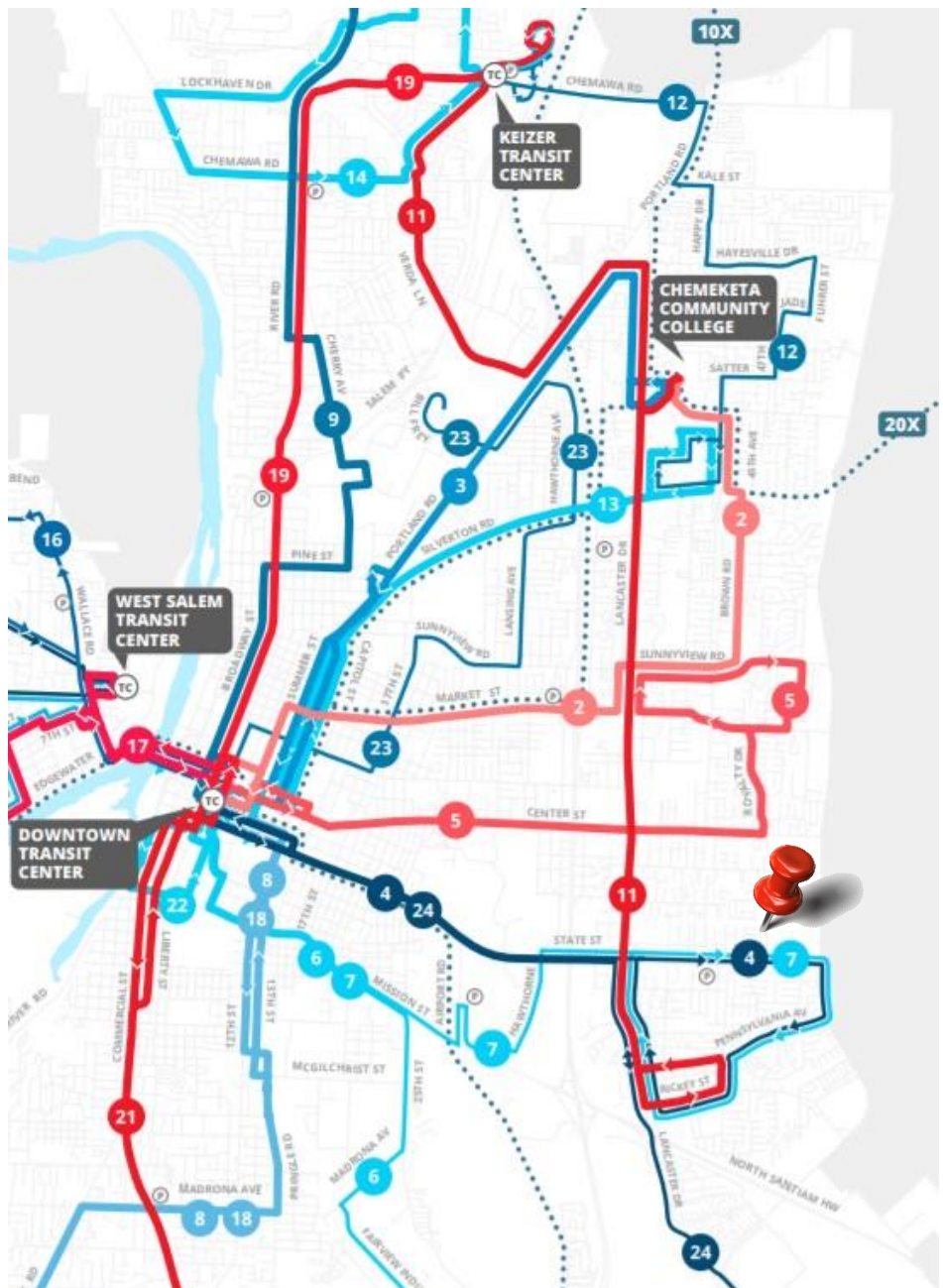


Figure 3. Cherriots Transit Routes.

TRAFFIC OPERATIONS

The 2019 analysis of traffic operations was prepared using Synchro 10 software and Highway Capacity Manual 6th Edition and 2000 Edition operations methods. All traffic operations within this report reflect peak fifteen-minute conditions during the peak hour. The study intersections are under the jurisdiction of Marion County and the City of Salem, and each has varying operational standards.

Marion County has jurisdiction of the study intersections along Cordon Road north of Caplinger Road and the study intersections on Lancaster Drive at Auburn Road and State Street. The County's operation standards for signalized and all-way stop controlled intersections is Level of Service (LOS) D or better (all individual movements operate at LOS E or better) with a v/c ratio of 0.85 or less. All unsignalized intersections operate at LOS E or better, though LOS F may be accepted by County staff if the movement has a relatively low volume.

The City of Salem Administrative Rules 109-006 defines the maximum operation standards for City intersections. Signalized intersections must operate at LOS E or better and with a v/c ratio of less than 0.90. Two-way stop-controlled and all-way stop-controlled intersections have a standard of LOS E or better. In addition, the 2016 Salem Transportation System Plan under Policy 2.5.2c states that "traffic impacts created by new development, as defined in a traffic impact analysis, must be mitigated to maintain a peak hour LOS D or better."

STUDY INTERSECTIONS

Study intersections within the 2018 analysis were identified based on review of the original March 2007 Transportation Impact Analysis for the Pictsweet property, and scoping meetings and discussions with City and County staff. This coordination and review of site impacts resulted in the inclusion of 16 study intersections throughout the Salem area. Figure 4 illustrates the study intersection locations.

Existing Traffic Operations

Traffic counts were collected throughout the study area in June 2017, September 2018, and January 2019. Traffic counts were conducted during the weekday morning (6:00 – 9:00 a.m.) and evening (3:00 – 6:00 p.m.) peak hours for all the study intersections. The weekday morning peak hour was found to occur between 7:30 and 8:30 a.m. and the weekday p.m. peak hour was found to occur between 4:50 and 5:50 p.m. An annual growth rate of 1% was applied to the 2017 and 2018 counts to adjust them to the existing 2019 conditions. This growth rate was developed from historical count data in the area. Volumes were balanced at various study intersections following standard engineering practice. The turning movement counts from the weekday a.m. and p.m. peak hours are summarized and shown in Figures 4 and 5, respectively.



Figure 4. Year 2019 Existing Traffic Volumes, Weekday AM Peak Hour.

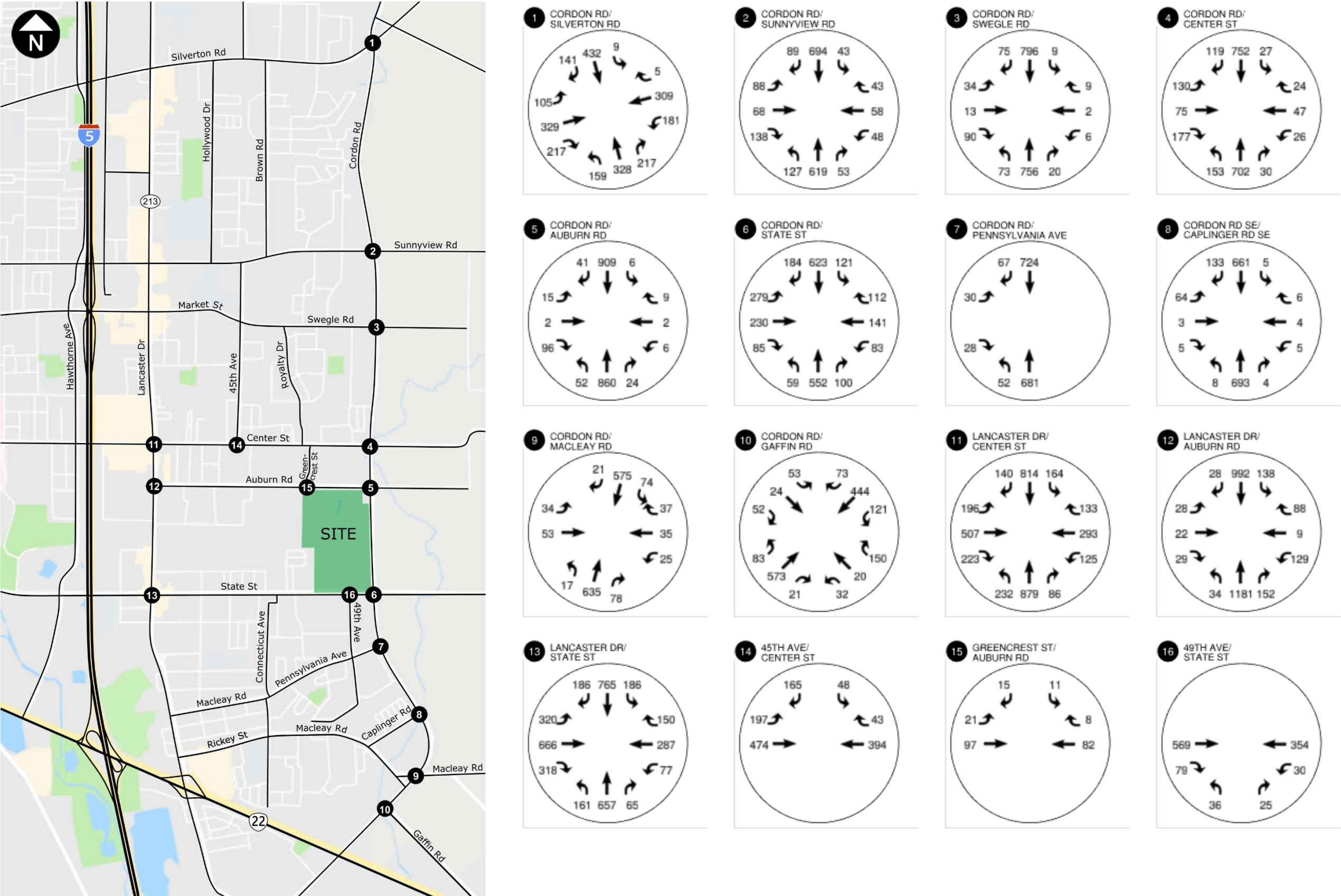


Figure 5. Year 2019 Existing Traffic Volumes, Weekday PM Peak Hour (Design Hour Volumes).

The existing traffic conditions reflect the current operations throughout the study area during the weekday a.m. and p.m. peak hours. This analysis is used to calibrate operational models to field conditions. A summary of the existing conditions analysis is presented in Table 2. This analysis shows that all the study area intersections meet jurisdiction standards with the exception of the following six intersections:

- Cordon Road/Swegle Road
- Cordon Road/Auburn Road
- Cordon Road/State Street
- Cordon Road/Pennsylvania Street
- Cordon Road/Caplinger Road
- Lancaster Drive/State Street

Table 2. Summary of Existing Traffic Conditions

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: Cordon Rd/Silverton Rd	Marion County	LOS D v/c≤0.85		C	26.4	0.77	D	36.9	0.84
2: Cordon Rd/Sunnyview Rd	Marion County	LOS D v/c≤0.85		C	23.2	0.71	C	26.9	0.82
3: Cordon Rd/Swegle Rd	Marion County	LOS E	EB LTR	F	>50.0	0.57	F	>50.0	>1.00
4: Cordon Rd/Center St	Marion County	LOS D v/c≤0.85		B	12.4	0.63	B	18.9	0.77
5: Cordon Rd/Auburn Rd	Marion County	LOS E	EB LTR WB LTR	F	50.0	0.25	F F	>50.0 >50.0	0.88 0.39
6: Cordon Rd/State St	Marion County	LOS D v/c≤0.85		C	26.0	0.81	D	41.0	0.99
7: Cordon Rd/Pennsylvania St	Marion County	LOS E	EB LR	D	29.4	0.36	F	>50.0	0.64
8: Cordon Rd/Caplinger Rd	City of Salem	LOS E	EB LTR	E	47.5	0.52	F	>50.0	0.85
9: Cordon Rd/Macleay Rd	City of Salem	LOS E v/c≤0.90		B	10.3	0.58	B	11.1	0.69
10: Cordon Rd/Gaffin Rd	City of Salem	LOS E v/c≤0.90		B	17.2	0.59	B	18.8	0.63
11: Lancaster Dr/Center St	City of Salem	LOS E v/c≤0.90		C	33.0	0.56	D	41.1	0.79
12: Lancaster Dr/Auburn Rd	Marion County	LOS D v/c≤0.85		A	7.6	0.34	A	9.1	0.66
13: Lancaster Dr/State St	Marion County	LOS D v/c≤0.85		D	43.2	0.65	E	62.3	0.91
14: 45th Ave/Center St	Marion County	LOS E	SB L	C	18.2	0.08	E	45.2	0.36
15: Greencrest St/Auburn Rd	City of Salem	LOS E	SB LR	A	9.2	0.02	A	9.4	0.04
16: 49th Ave/State St	City of Salem	LOS E	NB LR	B	14.5	0.20	C	21.0	0.22

BOLD: Performance standard not met

Roadway Safety

Area safety was reviewed based on historical information within the ODOT crash database and field observations of the intersections. Critical safety issues are summarized below.

ODOT Historical Crash Records

Historical crash records were obtained from ODOT Crash Analysis and Reporting System (CARS) from the period between January 2013 and December 2017. This reflects the most recent five-year period available. Crashes that are required to be reported through this time period include those that involve at least one motor vehicle, involve any level of personal injury, or that result in \$1,500 or more in property damage. Table 3 summarizes the number and severity of reported crashes at each of the study area intersections. The table also provides a crash rate per million entering vehicles and comparison to the ODOT critical crash rate, which is often used to assess whether a geometric or traffic control deficiency is present. Table 4 shows the crash history of individual intersections in further detail.

Table 3. Reported Crash Summary (January 2013 to December 2017)

Intersection	Number of Crashes	Crash Severity			Crash Rate per MEV	> ODOT Critical Crash Rate?*	> Statewide 90 th Percentile Crash Rate
		Fatal	Injury	Non-Injury			
1: Cordon Rd/Silverton Rd	27	0	13	14	0.61	Yes	No
2: Cordon Rd/Sunnyview Rd	39	0	25	14	1.01	Yes	No
3: Cordon Rd/Swegle Rd	16	0	13	3	0.47	No	No
4: Cordon Rd/Center St	45	0	28	17	1.09	Yes	No
5: Cordon Rd/Auburn Rd	9	0	6	3	0.25	No	No
6: Cordon Rd/State St	38	0	17	21	0.80	Yes	No
7: Cordon Rd/Pennsylvania St	5	0	3	2	0.20	No	No
8: Cordon Rd/Caplinger Rd	15	0	8	7	0.59	No	No
9: Cordon Rd/Macleay Rd	11	0	8	3	0.41	No	No
10: Cordon Rd/Gaffin Rd	14	0	5	9	0.47	Yes	No
11: Lancaster Dr/Center St	128	0	69	59	1.85	Yes	No
12: Lancaster Dr/Auburn Rd	92	0	52	40	1.78	Yes	No
13: Lancaster Dr/State St	101	0	64	37	1.44	Yes	No
14: 45 th Ave/Center St	6	0	4	2	0.25	No	No
15: Greencrest St/Auburn Rd	3	0	1	2	0.81	Yes	Yes
16: 49 th Ave/State St	4	0	2	2	0.21	No	No

*Critical Crash Rate calculation based on "weighted average crash rate for reference population" from June 2011 *Assessment of Statewide Intersection Safety Performance*.

Table 4. Reported Collision Types (January 2013 to December 2017)

Intersection	Turning	Rear-End	Angle	Fixed Object	Side-swipe	Pedestrian	Head On	Other
1: Cordon Rd/Silverton Rd	4	13	3	4	2	0	1	0
2: Cordon Rd/Sunnyview Rd	19	15	2	2	0	0	0	1
3: Cordon Rd/Swegle Rd	6	3	6	0	1	0	0	0
4: Cordon Rd/Center St	8	27	6	3	0	0	0	1
5: Cordon Rd/Auburn Rd	3	3	1	0	2	0	0	0
6: Cordon Rd/State St	13	17	5	0	3	0	0	0
7: Cordon Rd/Pennsylvania St	3	0	0	1	1	0	0	0
8: Cordon Rd/Caplinger Rd	7	5	0	2	1	0	0	0
9: Cordon Rd/Macleay Rd	2	7	0	2	0	0	0	0
10: Cordon Rd/Gaffin Rd	6	4	2	1	0	0	0	1
11: Lancaster Dr/Center St	16	83	9	0	18	0	0	2
12: Lancaster Dr/Auburn Rd	22	60	5	0	2	2	1	0
13: Lancaster Dr/State St	15	71	6	3	6	0	0	0
14: 45 th Ave/Center St	1	2	1	2	0	0	0	0
15: Greencrest St/Auburn Rd	0	2	0	0	1	0	0	0
16: 49 th Ave/State St	2	2	0	0	0	0	0	0

As a result of the review, it was noted that no fatal crashes were reported at the study intersections during the five-year study period. Each intersection having a crash rate exceeding the ODOT Critical Crash Rate is discussed in greater detail below.

Cordon Road/Silverton Road

Twenty-seven crashes were reported at the Cordon Road/Silverton Road intersection over the five-year study period. The overall crash rate is less than one, but is greater than the ODOT critical crash rate. Of these crashes, the majority (13) were rear-end collisions. A review of these crashes indicates that the rear-end collisions occurred on all approaches with the majority on the north and south approaches. Three fixed object crashes were also reported at this intersection. All three involved southbound vehicles that were struck by an object from another vehicle before going into the ditch. Cordon Road has a posted speed of 55 mph and curves on the approaches to Silverton Road. The County has posted *Reverse Turn* signs with an *Advisory Speed* plaque of 30 mph and advance *Signal Ahead* signs on both approaches in advance of the intersection. Crashes should continue to be monitored and reviewed at this intersection to evaluate whether further improvements may be needed.

Cordon Road/Sunnyview Road

The Cordon Road/Sunnyview Road intersection had 39 crashes reported over the study period, which resulted in a crash rate of 1.01. The majority of crashes at this intersection were turning collisions. Of the 19 reported, seven of these involved the northbound right-turn movement and the southbound through. The remaining crashes were evenly distributed on the approaches. This is consistent with the volume demand at this intersection. The highest volume left-turn is the northbound left-turn movement. All four left-turn movements at this intersection are controlled by protected-permissive phasing with 5-section (doghouse) signal heads.

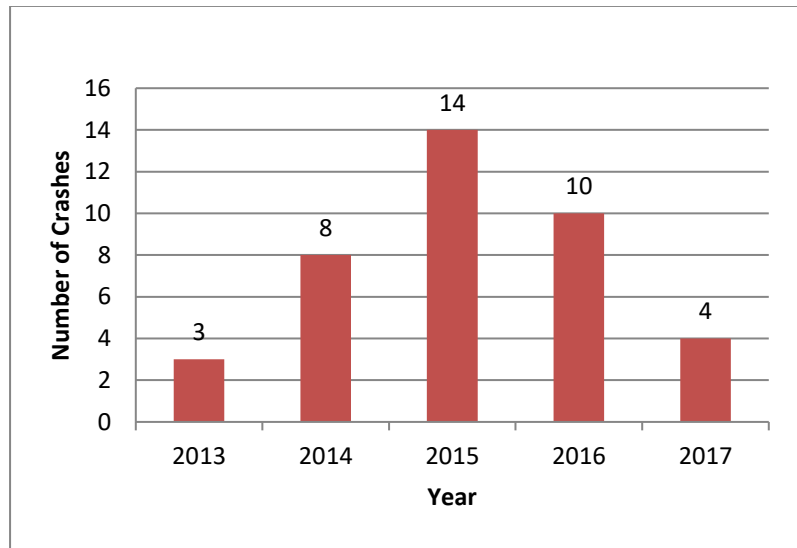


Figure 6. Cordon Road/Sunnyview Road Annual Crash Frequency.

This intersection also experienced 15 rear-end crashes over the study period. The majority (10) were in the southbound direction. Overall this intersection experienced the highest number of crashes in year 2015. The number of reported crashes has decreased in the last two years for which data is available, as shown in Figure 6.

Cordon Road/Center Street

The Cordon Road/Center Street intersection was reported to have forty-five crashes over the five-year study period, which resulted in a crash rate greater than the ODOT critical crash rate. Most of these crashes were rear-end collisions that occurred on the northern and southern approaches at the traffic signal. Given the higher volumes and higher speeds on Cordon Road, this pattern is not unexpected. A review of the signal timing at this intersection shows that 5 seconds of yellow time and 1 second of all red is provided for northbound and southbound movements, which is consistent with ODOT practices based on the 55mph posted speed.

In addition to these, the intersection also experienced eight turning collisions. Half of these involved an eastbound left-turn vehicle and a westbound through vehicle. Six angle collisions also occurred at this intersection, of which five involved northbound through vehicles. Based on the crash data available, it appears that these vehicles may have disregarded the traffic signal indications.

Cordon Road/State Street

The Cordon Road/State Street intersection has a crash rate of 0.82, which is greater than ODOT's critical crash rate, but not greater than the statewide 90th percentile crash rate. Most of the crashes at this intersection were rear-end collisions that occurred on the north and south approaches on Cordon Road. Rear-end collisions are typical of traffic signals and are not unexpected given the 45 mph speed posting

on Cordon Road. This intersection also experienced thirteen turning collisions, but no crash patterns were identified with these crashes.

Cordon Road/Gaffin Road

A traffic signal was recently installed at the Cordon Road/Gaffin Road intersection. All crash data reported reflects the unsignalized intersection traffic control. During this time, fourteen crashes were recorded of which six were turning collisions and four were rear-end collisions.

Lancaster Drive/Center Street

The Lancaster Drive/Center Street intersection had a total of 128 crashes reported over the five-year study period. The majority of the crashes were rear-end collisions. Figure 7 depicts the number of rear-end collisions recorded on each intersection approach. As shown in the figure, the majority of rear-end crashes occurred on the southbound approach. A review of the signal timing shows that the surrounding traffic signals at Lancaster Drive/Market Street, Lancaster Drive/Auburn Road, and Lancaster Drive/State Street have longer yellow times (5 seconds) for

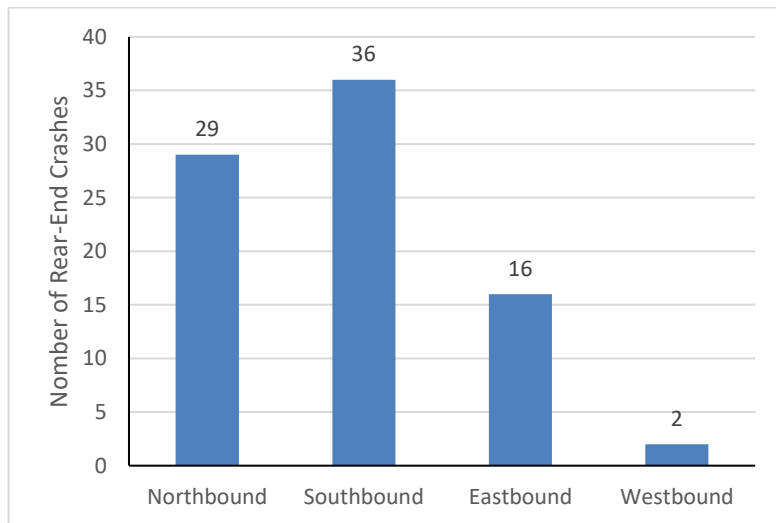


Figure 7. Rear-End Crashes by Approach at Lancaster Dr/Center St Intersection.

the northbound and southbound approaches than the traffic signal at Lancaster Drive/Center Street, which has 4 seconds of yellow time for the northbound and southbound approaches. Although it may not be related to the crash pattern, consideration should be given to increasing the yellow time at Lancaster Drive/Center Street to 5 seconds to be consistent with driver expectations at the traffic signals on this corridor.

This intersection also experienced sixteen turning collisions. However, no turning crash patterns were identified due to the even distribution of crashes.

Eighteen sideswipe crashes were reported at this intersection. The crashes were evenly distributed on the approaches and were reportedly due to improper lane changes. The information in the crash data indicates that many of these crashes occurred mid-block, though they were within the influence area of the traffic signal. A review of the intersection area reveals numerous driveways in close proximity to the intersection. It is likely that this is contributing to the lane changes and resulting crashes at or near the intersection.

Lancaster Drive/Auburn Rd

Ninety-two crashes were reported at the Lancaster Drive/Auburn Road intersection over the five-year study period. A review of the timeline of the crashes indicated that this intersection typically experiences around 15 crashes per year except for in 2016, when this number doubled (see Figure 8). A review of the crash data does not provide an explanation for this anomaly.

The majority of these crashes (60) were rear-end collisions, followed by turning collisions (22). The vast majority, 49, of the rear-end collisions were in the northbound direction. The weekday a.m. and p.m. peak hour volumes are slightly higher in the northbound direction than the southbound direction. However, this doesn't explain the disparity in the rear-end crashes. A review of the signal timing, sight distance, driveways and roadway alignment did not offer any explanation for this crash pattern.

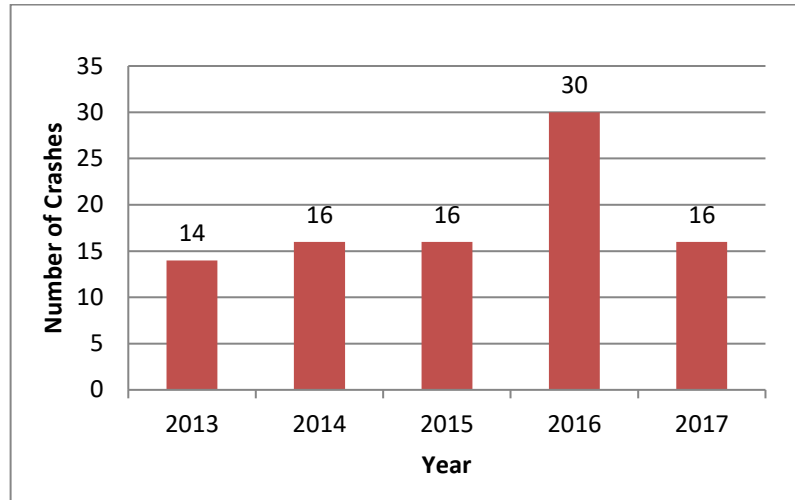


Figure 8. Crash History at Lancaster Dr/Auburn Rd Intersection.

In addition, no crash patterns were identified among the turning movement collisions. The crashes were evenly distributed among the approaches and movements.

Two pedestrian crashes were reported at this intersection during the study period. Both crashes involved a turning vehicle. One involved a northbound left-turning vehicle, the other a westbound left-turning vehicle. Both occurred during the daylight and were non-fatal injury collisions. The cause for both crashes was reported as a failure to yield right-of-way.

Lancaster Drive/State Street

The Lancaster Drive/State Street intersection had a reported 101 crashes over the five-year study period. This results in a crash rate of 1.47 and is greater than the ODOT critical crash rate for similar intersections in the urban area. Most of the crashes at this intersection were rear-end collisions on the north and south approaches. In addition, 15 turning collisions were reported at this intersection. No crash patterns were identified with this review. The Lancaster Drive/State Street traffic signal serves high volumes of traffic and is congested during the peak hours of the day. This can lead to more aggressive driving and can result in more rear-end collisions.

Greencrest Street/Auburn Road

The Greencrest Street/Auburn Road intersection has a reported crash rate greater than the ODOT critical crash rate and greater than the statewide 90th percentile crash rate for similarly configured intersections in urban areas. Although only three crashes have been reported at this intersection in the five-year period reviewed, the crash rate is high due to the low volumes entering this intersection. A review of these crashes indicates that two of the crashes were rear-end collisions in the eastbound direction. Neither crash involved waiting for a left-turn maneuver and although there is a marked crosswalk on the west leg of the intersection, the report does not indicate that the vehicles were waiting for pedestrians to cross. One sideswipe crash occurred during icy conditions also in the eastbound direction. No crash patterns were identified at this intersection. However, crashes should be continued to be monitored at this intersection based on the higher than expected crash rate.

ANALYSIS PERIODS

The City requires that the TIA study the year of opening or year of opening of each phase for phased developments, while the County requires an analysis of a 20-year horizon based on the size of development. The timing and phasing of the Pictsweet development will be dependent on market conditions. Tentative development plans will include the start of residential construction in the fall of 2019 with an initial phase consisting of up to 100 residences. The timing of the commercial element and future phases is not known. As such, the analysis addresses the year 2039 conditions to evaluate the full development impact.

YEAR 2039 BACKGROUND TRAFFIC CONDITIONS

Background traffic conditions identify conditions in the future year that the proposed development will be fully built-out but without the trips associated with the site. This scenario is presented to provide the basis for comparison to “with-site” conditions. This provides an understanding of area transportation needs that are attributable to the proposed development. These conditions consider the regional traffic growth and specific approved developments.

GROWTH FORECASTS

The original 2006 traffic study for the Pictsweet site assessed year 2014 conditions through the application of an annual growth rate of 3 percent on Cordon Road, Sunnyview Road, Center Street, Auburn Road, and State Street. An annual growth rate of 1.5% was applied on Lancaster Drive. A review of the companion document to Marion County’s Rural Transportation System Plan, the 2013 Urban Strategy, demonstrates much lower annual growth rate projections within this largely built-out area forecast between year 2011 and year 2032. The anticipated volumes and resulting annual growth rate are shown in Table 5.

Table 5. Projected Growth from Marion County 2013 Urban Strategy

Road Segment	2011 Daily Volume	Projected 2032 Daily Volume	Average Annual Growth
Cordon Rd (State St to Center St)	16,400	22,300	1.71%
Sunnyview Rd (Walker Rd to Cordon Rd)	5,800	6,800	0.82%
Center St (Lancaster Dr to Brenner St)	11,400	12,800	0.58%
(Brenner St to 75’ west of Citation Dr)	10,500	11,700	0.54%
(100’ west of Shores St to 122’ east of Mitchell St)	10,100	11,300	0.57%
(100’ west of Horseback to 100’ west of Hoffman)	8,000	9,000	0.60%
Auburn Rd (Lancaster Dr to Baldwin Ave)	3,600	3,900	0.40%
(Baldwin Ave to Serge Ln)	2,300	2,500	0.41%
State St (Lancaster Dr to Elma Ave)	12,600	18,500	2.23%
(Elma Ave to city limits)	12,300	18,000	2.21%
Lancaster Dr (State St to Center St)	30,500	33,000	0.39%

The majority of turning movement counts for the original traffic impact analysis were conducted in 2005. In the period between those traffic counts and the most recent traffic counts collected by the County, 2017, the traffic volumes have not grown as much as anticipated. Figure 9 depicts the average daily traffic data collected on Cordon Road and State Street, two of the streets that are projected to have higher

growth rates. As shown, both roads have had little growth over the twelve-year period reviewed. Cordon Road and State Street grew at annual rates of less than 1 percent per year at these locations, with nearly flat growth until 2014.

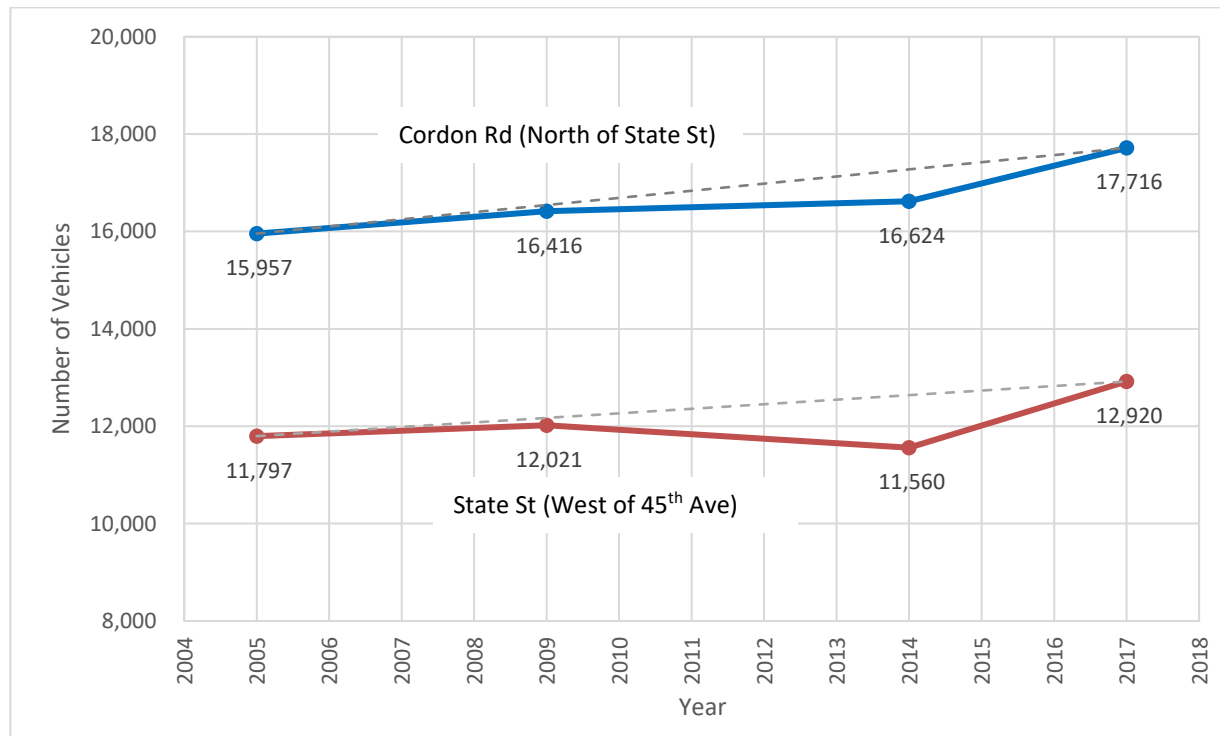


Figure 9. Average Daily Traffic Volume.

In addition to reviewing historical growth rates in the area, the data within the Mid-Willamette Valley Council of Governments (MWVCOG) model was also reviewed. This model provides the most current regional travel forecasts on the regional roadways that surround the subject property. The Urban Growth Boundary edge along Cordon Road forms the eastern limit of the model, so travel forecasts and the interaction along the model edge are less reliable and do not reflect the interaction between the adjacent urbanized County lands with those within the City.

Model-based growth, as well as the growth rates provided in the Marion County Urban Strategy reflect planned development of the surrounding area based on the current zoning. Major land uses in the area include the Mill Creek Corporate Center, located on the east side of Cordon Road/Kuebler Boulevard and south of Oregon 22. This is a 650-acre site that is anticipated to develop gradually over the next 20 to 30 years. Two parcels have been constructed (The Home Depot and FedEx distribution centers) and the Amazon distribution center is approved and under construction.

Based on a review of the model and the County's projections throughout the area, an annual growth rate of 1.5% was applied to most of the study roadways. A lower annual growth rate (0.5%) was applied to Sunnyview Road and Auburn Road as the model projects little to no growth on both of these roadways with the current traffic control at the Cordon Road/Auburn Road intersection. Macleay Road and Gaffin Road are expected to see higher growth over the next twenty years and a 2% annual growth rate was used to reflect this. The year 2035 model projections overall depicted low growth (0.5%) on Cordon Road due to the constraint of the 2-lane cross section. Despite the low historical growth on Cordon Road and the low growth anticipated by the model, a 1.5% annual growth rate was used based on the County's higher projections and the expectation that widening of Cordon Road will result in increased traffic.

TRANSPORTATION IMPROVEMENTS

Marion County has a signal interconnect project planned for year 2019 on parts of Silverton Road, Cordon Road, and Lancaster Drive. The portion of the interconnect planned for Cordon Road will provide signal coordination at the study intersections on Cordon Road. As a result of this project, reduced delays are expected on Cordon Road and are reflected in the future year analysis.

Figures 10 and 11 depict the estimated resulting traffic volumes for year 2039 and Table 6 depicts the associated traffic operations. As shown in Table 6, multiple intersections are expected to exceed the operation standards established by the City of Salem and Marion County. Again, this planning horizon extends beyond adopted transportation plans that have been prepared by the respective agencies.

- Cordon Road/Silverton Road – This intersection is forecast to exceed the County's v/c standard during the weekday a.m. peak hour and exceed capacity during the weekday p.m. peak hour. The 2005 Marion County Rural Transportation System Plan identified the need for future widening to four lanes on Cordon Road at Silverton Road to address future capacity needs.
- Cordon Road/Sunnyview Road – This intersection is forecast to exceed capacity during the weekday p.m. peak hour. The 2005 Marion County Rural Transportation System Plan identified the need for future widening to four lanes on Cordon Road to address future capacity needs.
- Cordon Road/Swegle Road – This intersection has stop-controlled approaches on the east and west legs to Cordon Road. The eastbound approach is forecast to operate with high delays and over-capacity in the future without the proposed Pictsweet development. The 2005 Marion County Rural Transportation System Plan identified the need for a traffic signal at this location as a safety project.
- Cordon Road/Center Street – This intersection is expected to exceed the County's v/c requirements during the weekday p.m. peak hour without the Pictsweet development. The 2005 Marion County Rural Transportation System Plan identified the need for future widening to four lanes on Cordon Road at Center Street to address capacity needs.
- Cordon Road/Auburn Road – This intersection has stop-controlled approaches on the east and west legs to Cordon Road. The eastbound approach is forecast to operate with high delays and over-capacity in the future without the proposed Pictsweet development. The 2005 Marion County Rural Transportation System Plan identified the need for a traffic signal at this location as a safety project. Conversations with Marion County indicate that the plan for this intersection has changed and the County is considering limiting access to Cordon Road at this location.
- Cordon Road/State Street – This intersection is forecast to operate with high delays and over capacity during the weekday a.m. and p.m. peak hours. The 2005 Marion County Rural Transportation System Plan identified the need for future widening to four lanes on Cordon Road at State Street to address capacity needs.
- Cordon Road/Pennsylvania Avenue – The eastbound, stop-controlled approach at this intersection is expected to operate with high delays and exceed capacity during the weekday p.m. peak hour. The 2005 Marion County Rural Transportation System Plan identified the need for future widening to four lanes on Cordon Road through the Pennsylvania Avenue intersection to address future capacity needs.
- Cordon Road/Caplinger Road – The eastbound, stop-controlled approach at this intersection is expected to operate with high delays and exceed capacity during the weekday a.m. and p.m. peak hours without the Pictsweet development.
- Lancaster Drive/Center Street – This intersection is expected to exceed capacity during the weekday p.m. peak hour without the Pictsweet development.

- Lancaster Drive/Auburn Road – This intersection is expected to exceed the County’s v/c standard during the weekday p.m. peak hour.
- Lancaster Drive/State Street – This intersection is expected to operate with high delays and over capacity during the weekday p.m. peak hour in the future without the Pictsweet development.
- 45th Avenue/Center Street – The southbound left-turn movement is expected to operate with high delays and near capacity with a v/c of 0.92 during the weekday p.m. peak hour.

Table 6. Summary of 2039 Background Traffic Conditions

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: Cordon Rd/ Silverton Rd	Marion County	LOS D v/c≤0.85		F	>80.0	0.92	F	>80.0	1.04
2: Cordon Rd/ Sunnyview Rd	Marion County	LOS D v/c≤0.85		C	31	0.82	E	69.7	1.01
3: Cordon Rd/ Swegle Rd	Marion County	LOS E	EB LTR	F	>50.0	>1.00	F	>50.0	>1.00
4: Cordon Rd/ Center St	Marion County	LOS D v/c≤0.85		C	20.7	0.71	D	49.8	0.99
5: Cordon Rd/ Auburn Rd	Marion County	LOS E	EB LTR WB LTR	F	>50.0	0.87	F	>50.0	>1.00
6: Cordon Rd/ State St	Marion County	LOS D v/c≤0.85		E	58.7	1.06	F	>80.0	1.33
7: Cordon Rd/ Pennsylvania St	Marion County	LOS E	EB LR	F	>50.0	0.74	F	>50.0	>1.00
8: Cordon Rd/ Caplinger Rd	City of Salem	LOS E	EB LTR	F	>50.0	>1.00	F	>50.0	>1.00
9: Cordon Rd/ Macleay Rd	City of Salem	LOS E v/c≤0.90		B	12.5	0.61	B	15.2	0.86
10: Cordon Rd/ Gaffin Rd	City of Salem	LOS E v/c≤0.90		C	28.2	0.64	C	34.8	0.74
11: Lancaster Dr/ Center St	City of Salem	LOS E v/c≤0.90		C	33.4	0.74	E	68.4	1.02
12: Lancaster Dr/ Auburn Rd	Marion County	LOS D v/c≤0.85		A	4.9	0.43	B	19.7	0.93
13: Lancaster Dr/ State St	Marion County	LOS D v/c≤0.85		D	54.1	0.86	F	>80.0	1.17
14: 45th Ave/ Center St	Marion County	LOS E	SB L	D	26.1	0.15	F	>50.0	0.92
15: Greencrest St/ Auburn Rd	City of Salem	LOS E	SB LR	A	9.4	0.03	A	9.8	0.05
16: 49th Ave/ State St	City of Salem	LOS E	NB LR	C	19.9	0.34	E	39.8	0.45

BOLD: Performance standard not met

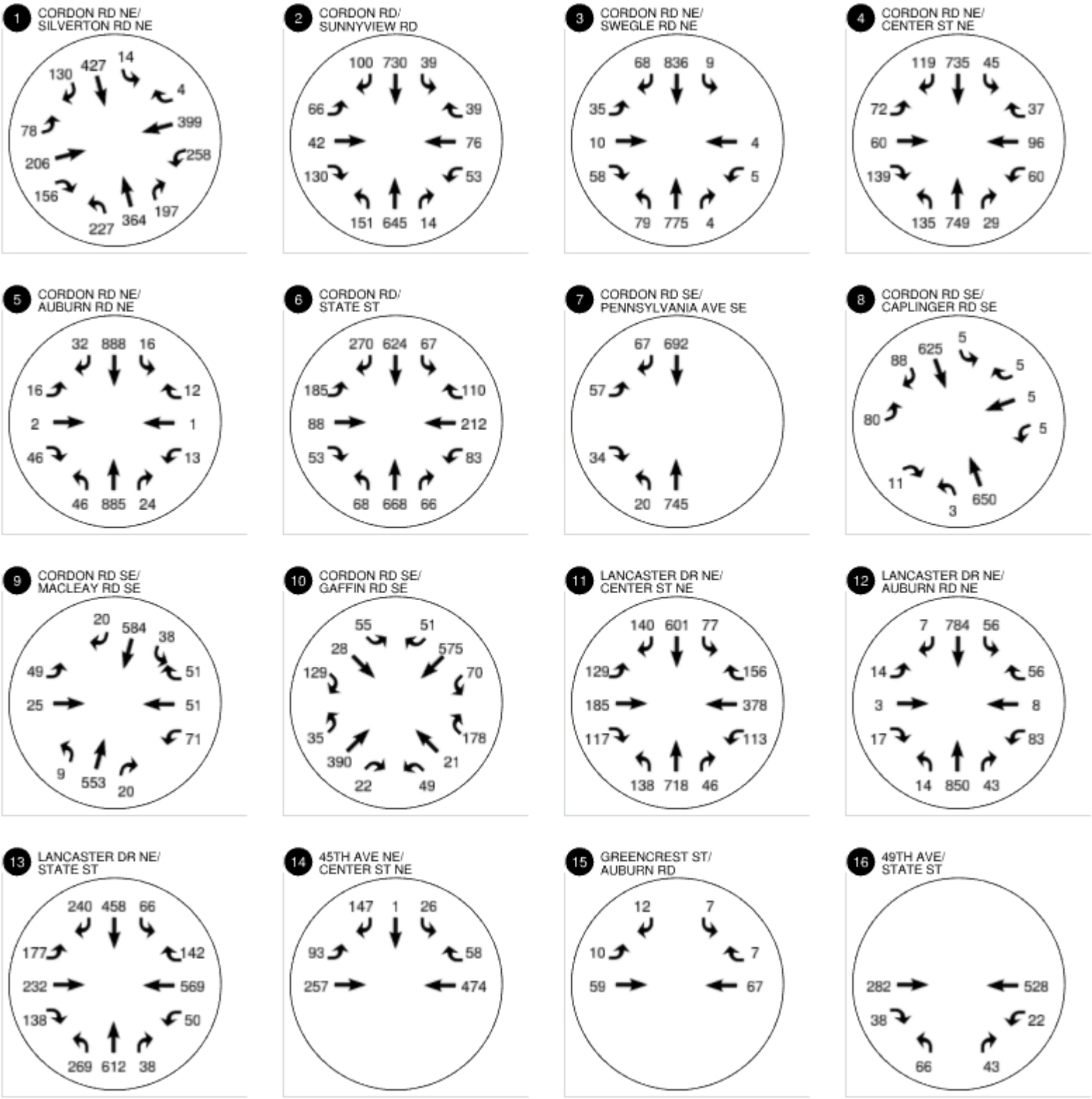
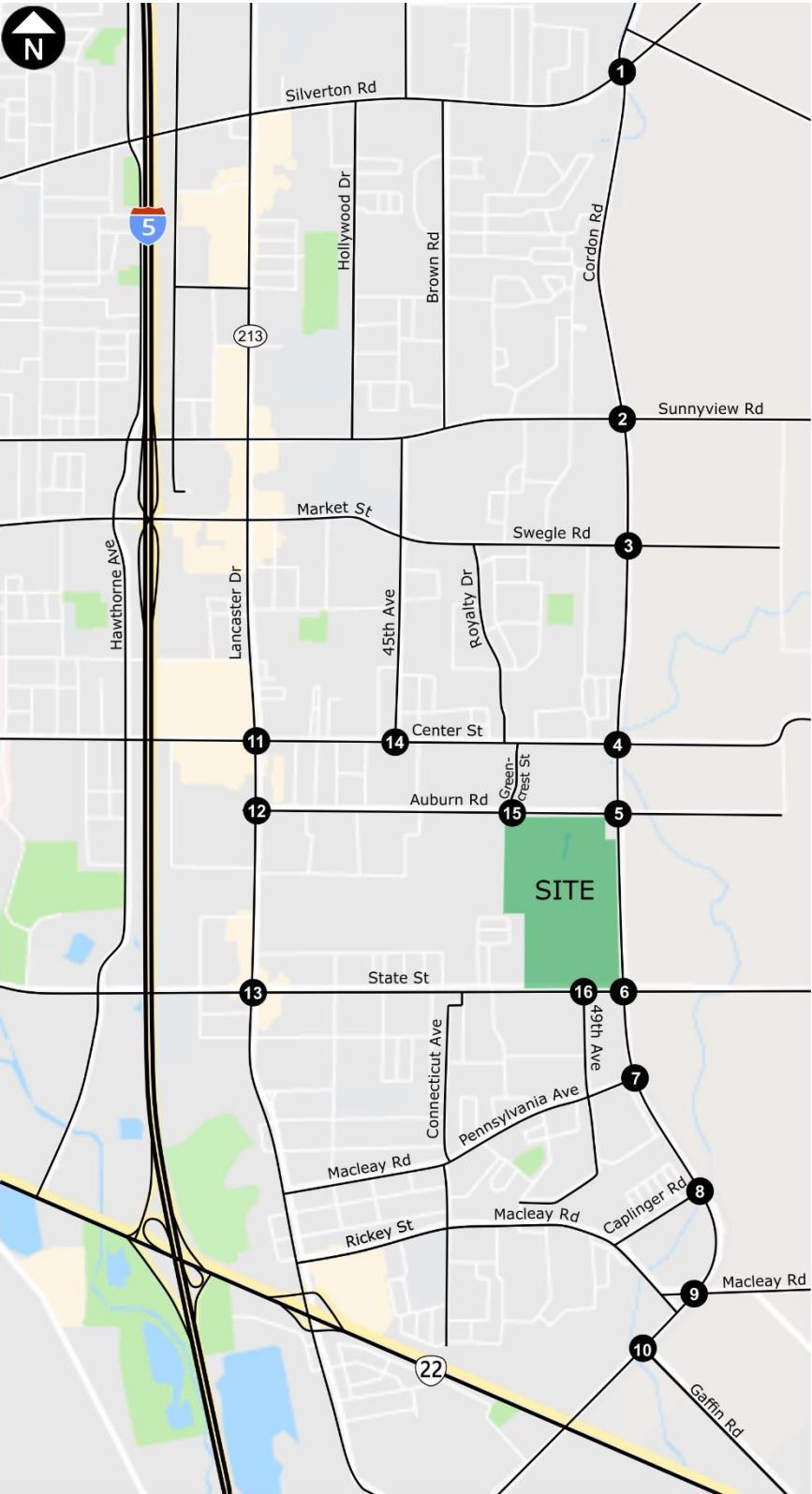


Figure 10. Year 2039 Background Traffic Volumes, Weekday AM Peak Hour.

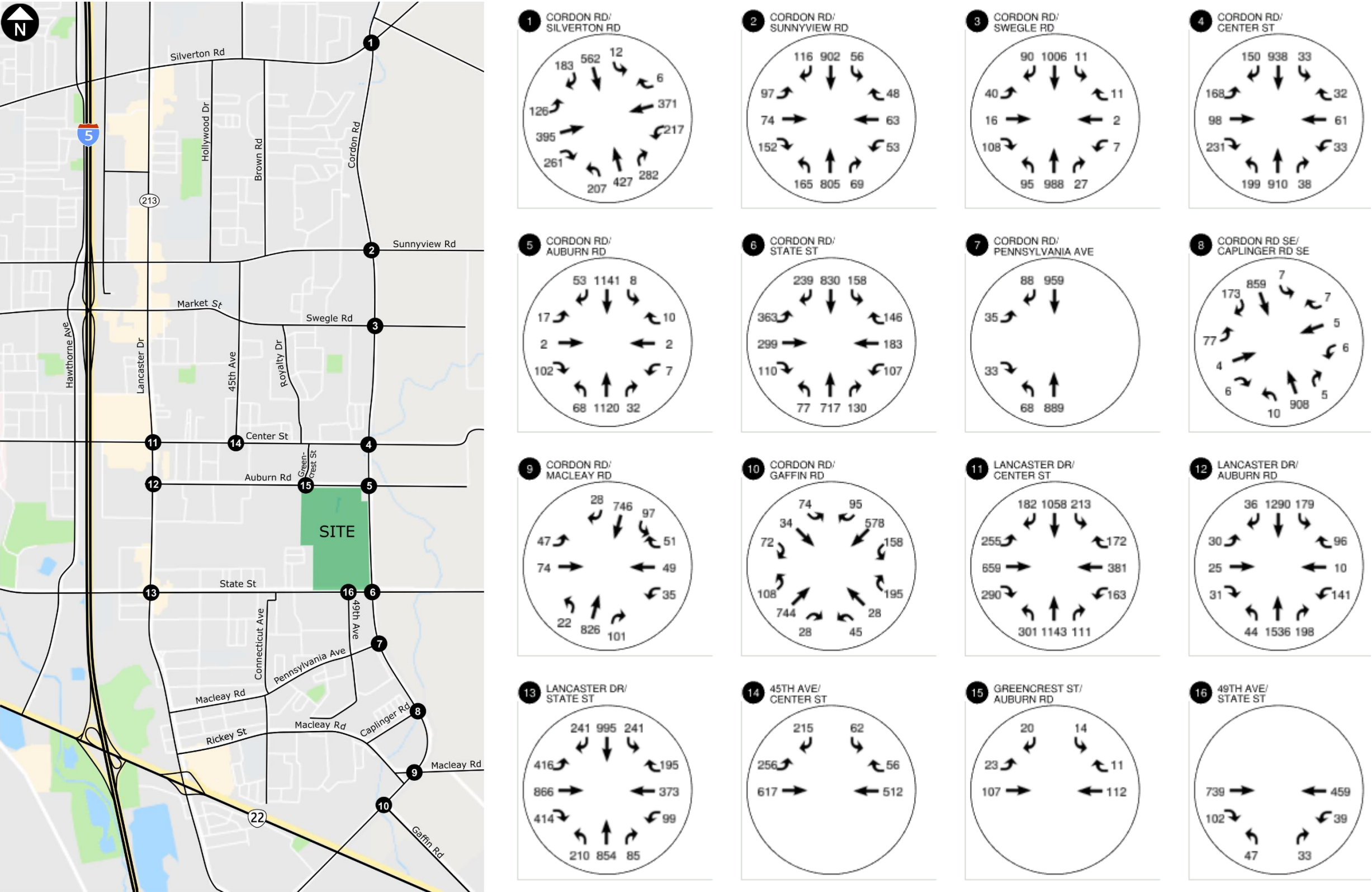


Figure 11. Year 2039 Background Traffic Volumes, Weekday PM Peak Hour.

PROPOSED DEVELOPMENT PLAN

The proposed Pictsweet development is composed of detached single-family homes, duplexes, rowhouses, apartment buildings, a 7.51 acre park, and approximately 10,000 square-feet of commercial development. The initial phase of development is planned to occur on the west side of the property, with the last phase in the northeast corner. As part of development of the site, Greencrest Street will be extended from Auburn Road to State Street, which will serve both the Pictsweet site and as a new area connection that will allow a connection between State Street north to Center Street. The commercial component is located on the northwest corner of the Cordon Road/State Street intersection with access provided from Greencrest Street. Based on scoping direction obtained from the agency staff, Greencrest Street was assumed to connect to State Street across from the existing 49th Avenue. Further discussion addressing the alignment of this connection is included later in this report under “Site Access Characteristics.”

TRIP GENERATION

Estimates of daily, weekday a.m., and weekday p.m. peak hour vehicle trips for the proposed development were based on empirical observations at similar developments. These observations are estimated in the standard reference *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE). Estimates of pass-by trips were obtained from the *Trip Generation Handbook* and estimates for internal trips were obtained from NCHRP Report 684. The Transportation Research Board’s National Cooperative Highway Research Program (NCHRP) published Report 684, which explores an improved methodology for estimating internal trips in mixed use developments.

The proposed plan includes three general types of residential units. Nearly three hundred single-family detached homes are proposed, along with 576 duplexes and rowhouses. In addition, in the southeast corner of the site 264 units are proposed within twenty-two separate three-story buildings. Separate ITE land use codes are used for each housing type and are specified in Table 7.

No specific site plan or tenants have been identified for the commercial component of the site. Therefore, the ITE *Shopping Center* land use was used to estimate the impacts of the site’s commercial components. ITE *Shopping Center* is described as follows:

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center’s composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

Based on this information, the trip generation estimates are summarized in Table 7, including a conservative account of the retail uses applying ITE’s fitted equation for this land use. As shown in the table, the site is estimated to generate approximately 568 net new weekday a.m. peak hour trips and 727 net new weekday p.m. peak hour trips.

Table 7. Trip Generation Estimates

Land Use	ITE Code	Size	Weekday Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single-Family Residential	210	297 units	2,831	216	54	162	289	182	107
Internal Trips			(59)	0	0	0	(6)	(5)	(1)
Multi-Family Residential	220	576 units	4,314	252	58	194	281	177	104
Internal Trips			(92)	(1)	0	(1)	(6)	(5)	(1)
Multi-Family Residential (3-story units)	221	264 units	1,436	95	25	70	116	71	45
Internal Trips			(37)	0	0	0	(3)	(2)	(1)
Shopping Center	820	10,000 sf	1,256	9	6	3	99	47	52
Internal Trips			(190)	(1)	(1)	0	(15)	(3)	(12)
Pass-by Trips (34%)			(362)	(2)	(1)	(1)	(29)	(15)	(14)
Park	411	7.51 ac	6	0	0	0	1	1	0
Total New Trips			13,762	572	143	429	786	478	308
Total Internal Trips			(378)	(2)	(1)	(1)	(30)	(15)	(15)
Total Pass-by Trips			(362)	(2)	(1)	(1)	(29)	(15)	(14)
Net New Trips			13,022	568	141	427	727	448	279

TRIP DISTRIBUTION AND TRIP ASSIGNMENT

Trip distribution patterns were prepared for the Pictsweet development based on the travel demand modeling provided by MWVCOG and were reviewed to ensure consistency with current travel patterns identified from the traffic counts. Figure 12 illustrates the resultant trip distribution patterns. Figures 13 and 14 depict the resulting trip assignment during the weekday a.m. and p.m. peak hours respectively.

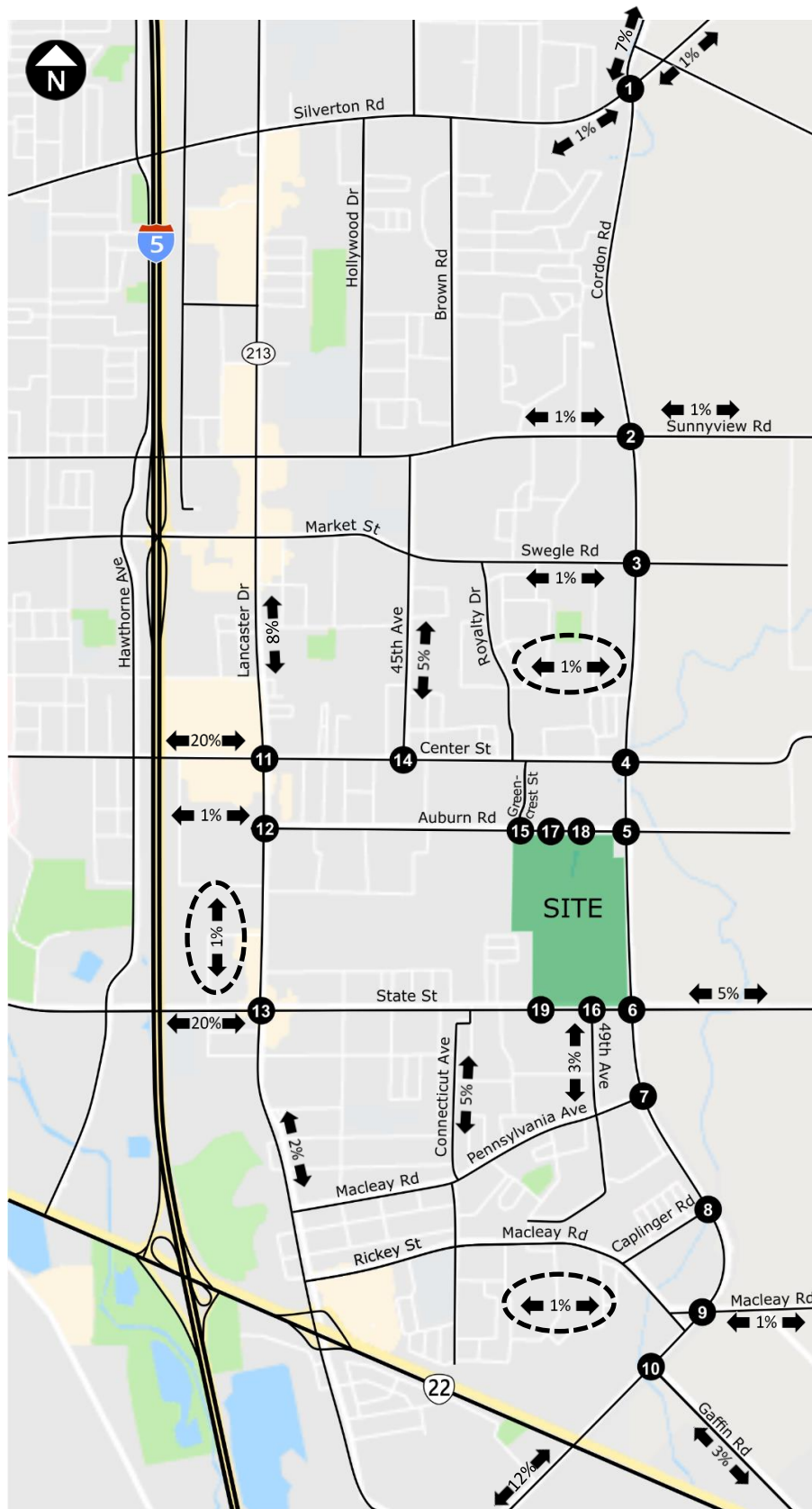


Figure 12. Estimated Trip Distribution Pattern.

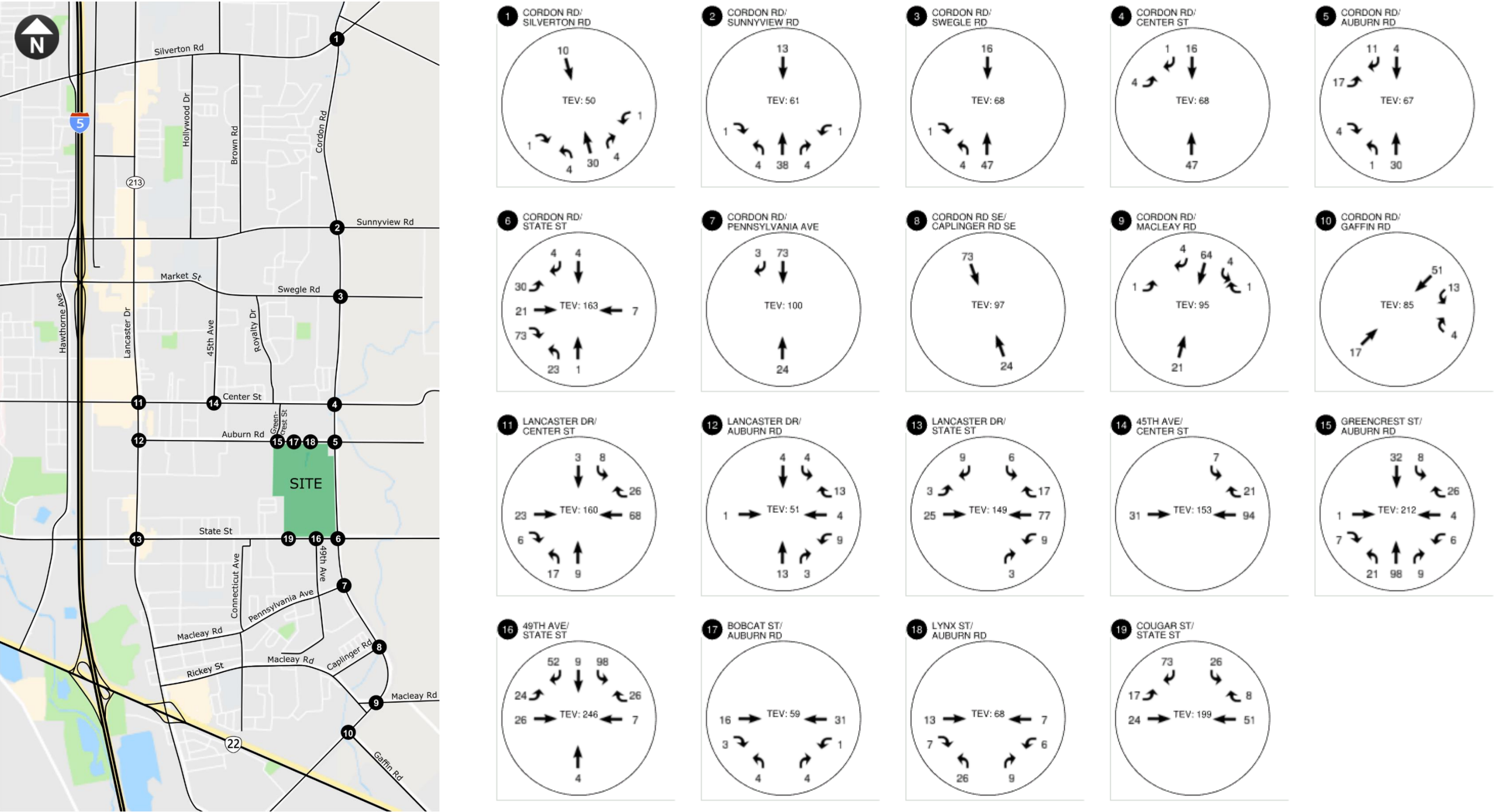


Figure 13. Weekday AM Peak Hour Trip Assignment.

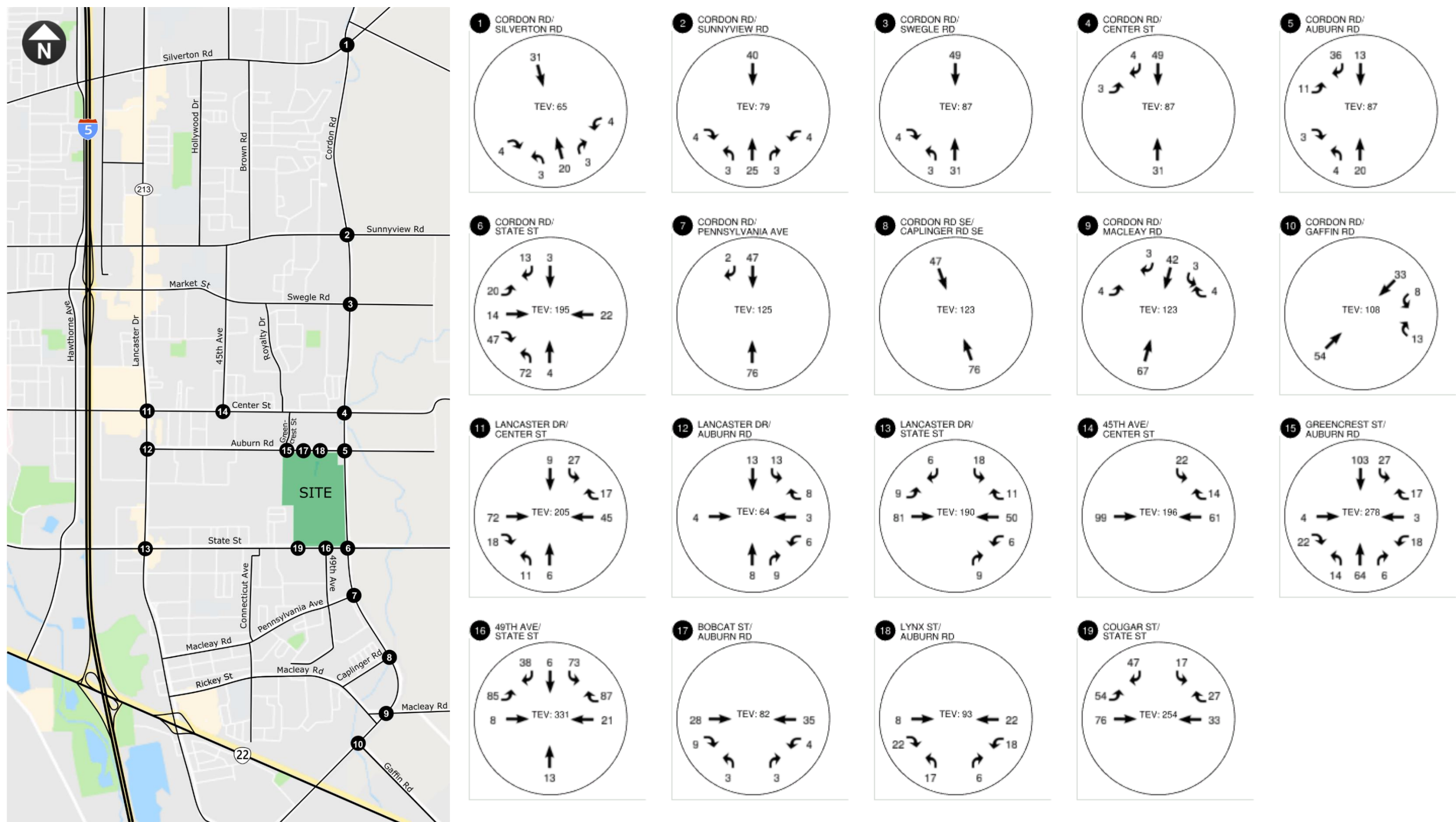


Figure 14. Weekday PM Peak Hour Trip Assignment.

2039 TOTAL TRAFFIC CONDITIONS (FULL BUILDOUT)

The total traffic analysis identifies how the study area's transportation system will operate with the inclusion of the Pictsweet development. It includes the traffic volumes from the background and adds in the site-generated trips. The resulting traffic volumes are shown in Figures 15 and 16. Table 8 summarizes the traffic operations.

As shown in Table 8, the following intersections are expected to continue to exceed operation standards with development of the Pictsweet site in the year 2039:

- Cordon Road/Silverton Road
- Cordon Road/Sunnyview Road
- Cordon Road/Swegle Road
- Cordon Road/Center Street
- Cordon Road/Auburn Road
- Cordon Road/State Street
- Cordon Road/Pennsylvania Avenue
- Cordon Road/Caplinger Road
- Lancaster Drive/Center Street
- Lancaster Drive/Auburn Road
- Lancaster Drive/State Street
- 45th Avenue/Center Street

All other intersections are expected to operate acceptably with the proposed Pictsweet development. A discussion of each intersection is included below.

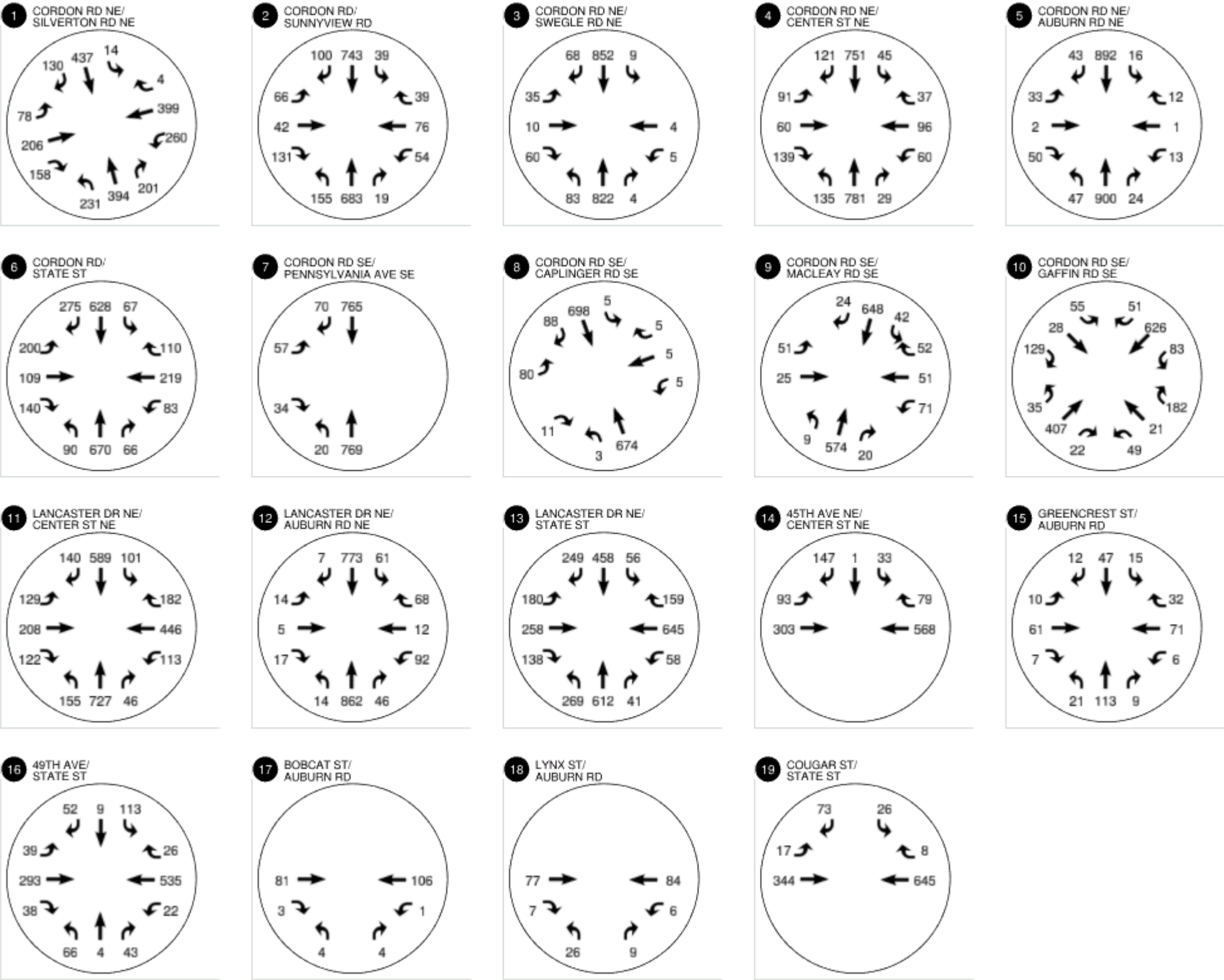
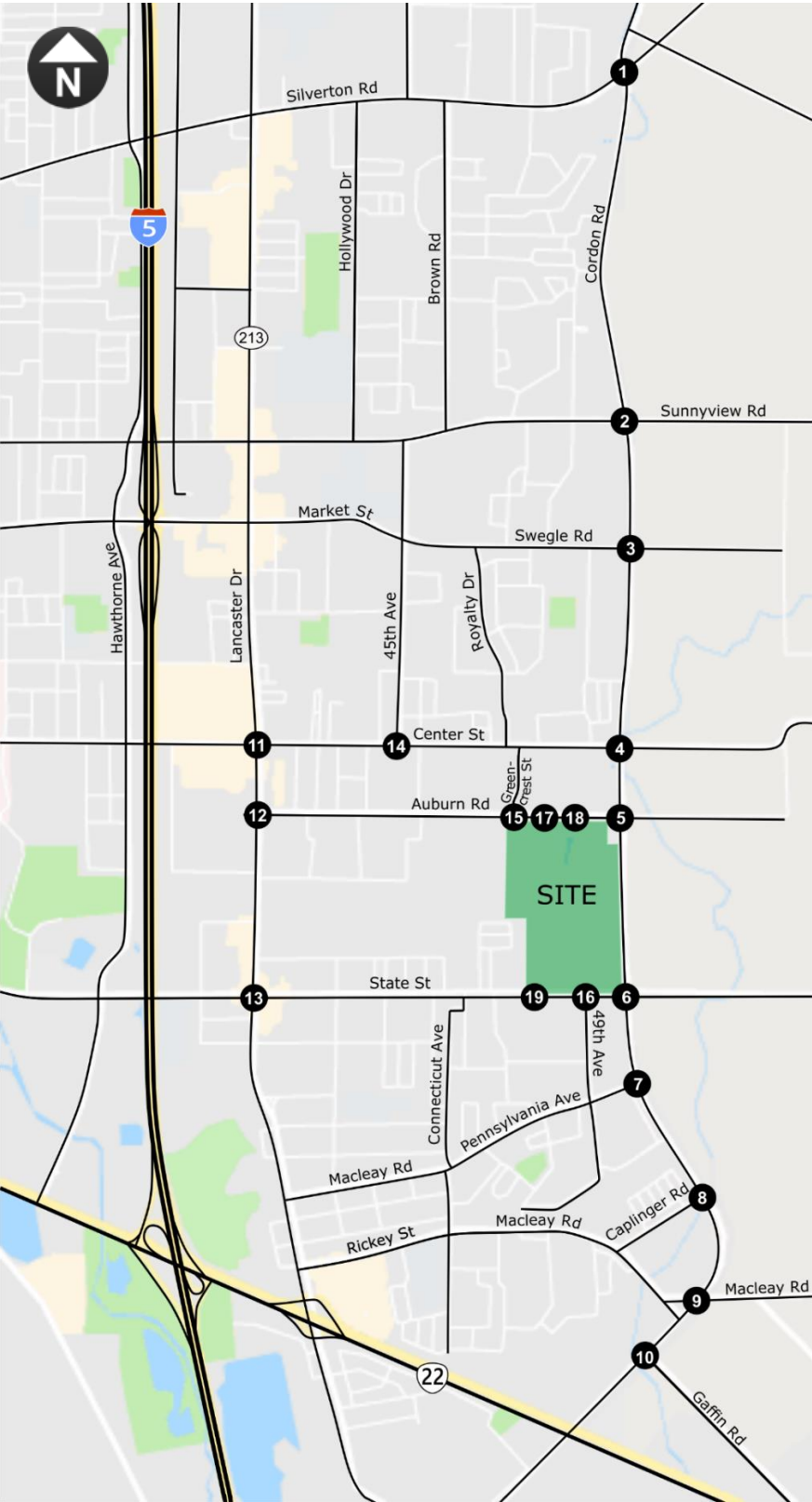


Figure 15. Year 2039 With Project Traffic Volumes, Weekday AM Peak Hour

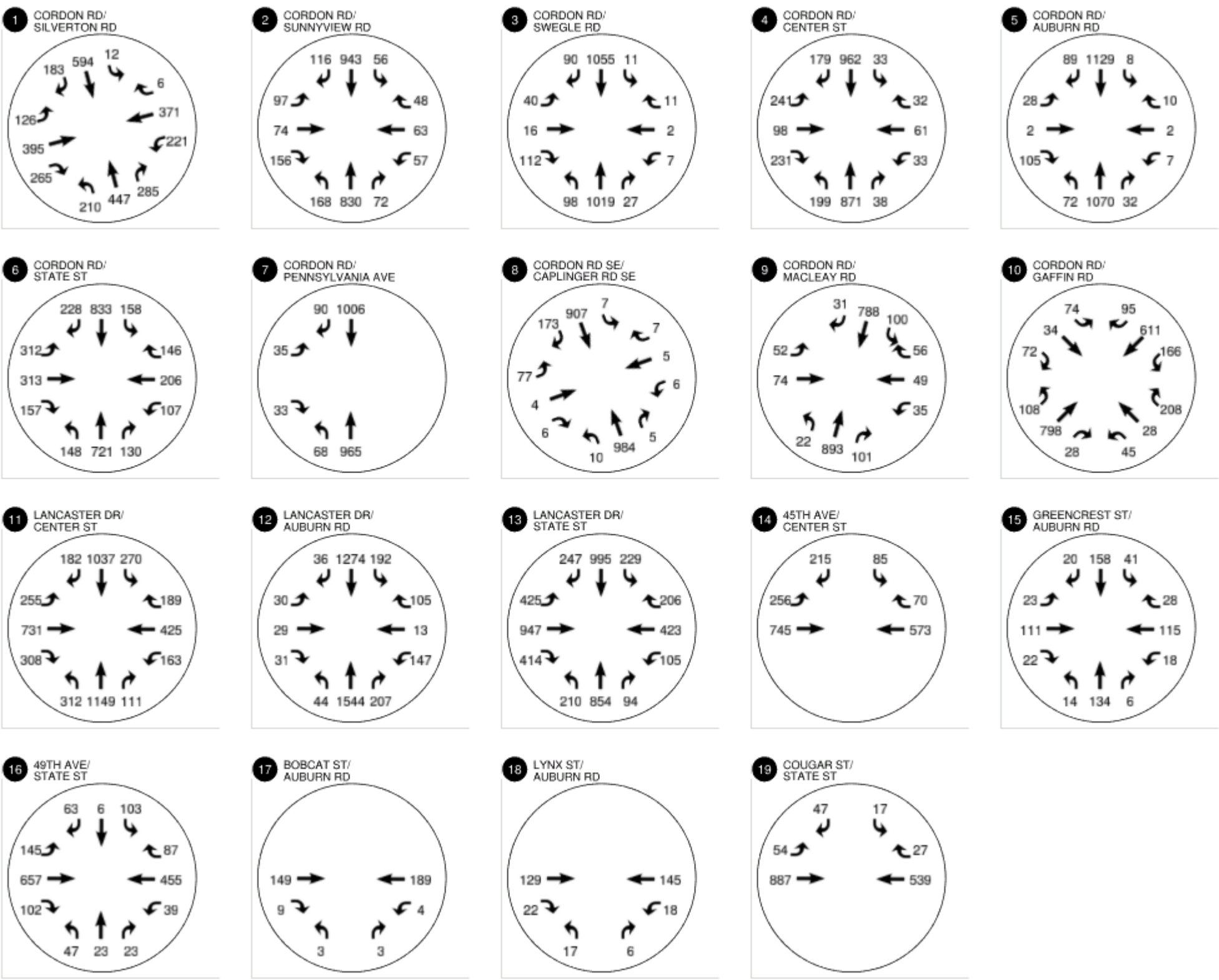
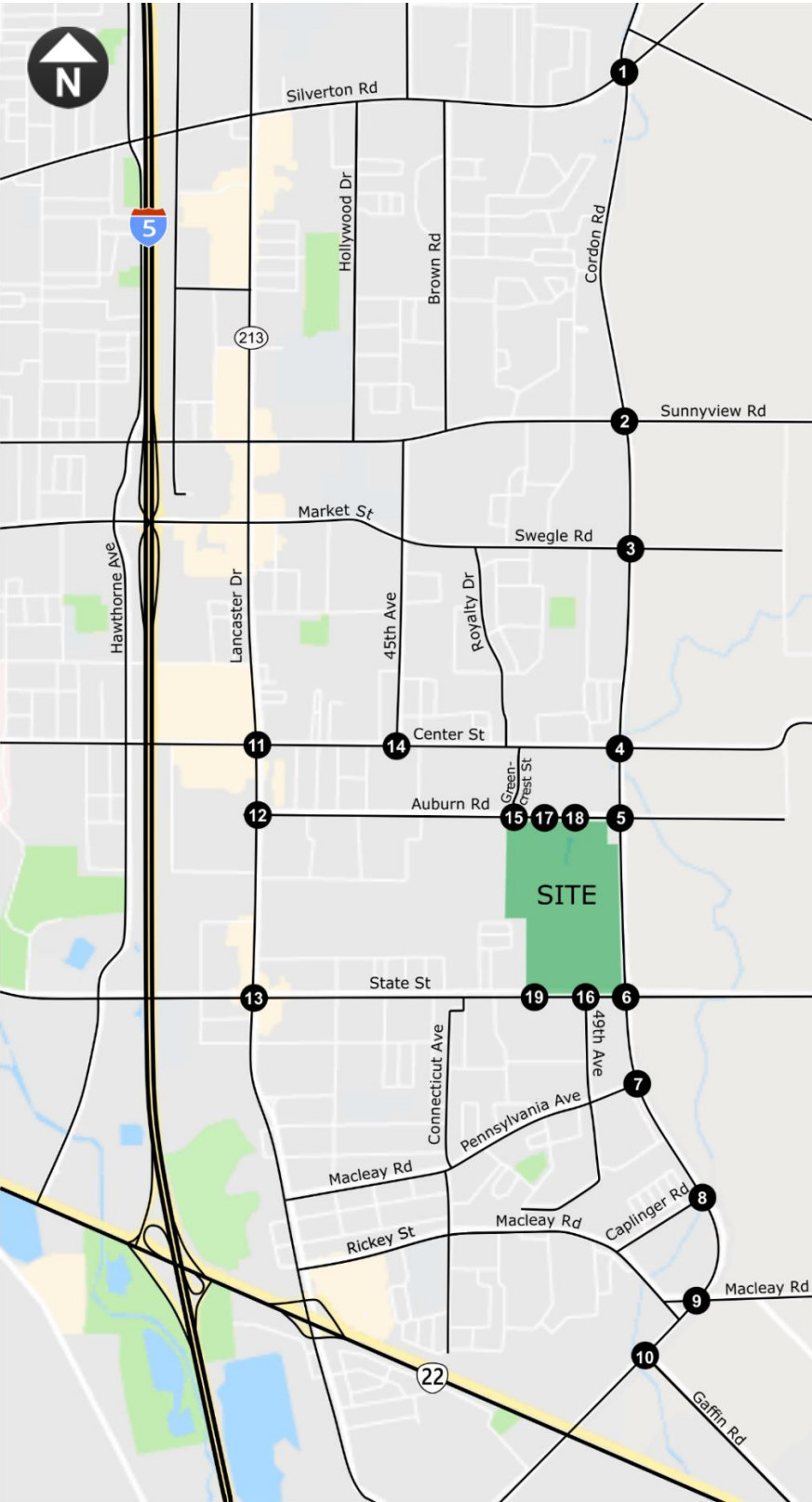


Figure 16. Year 2039 With Project Traffic Volumes, Weekday PM Peak Hour

Table 8. Summary of 2039 Total Traffic Conditions

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: Cordon Rd/ Silverton Rd	Marion County	LOS D v/c≤0.85		F	>80.0	0.94	F	>80.0	1.07
2: Cordon Rd/ Sunnyview Rd	Marion County	LOS D v/c≤0.85		C	32.9	0.84	F	>80.0	1.05
3: Cordon Rd/ Swegle Rd	Marion County	LOS E	EB LTR	F	>50.0	>1.00	F	>50.0	>1.00
4: Cordon Rd/ Center St	Marion County	LOS D v/c≤0.85		C	22.6	0.76	E	69.0	1.05
5: Cordon Rd/ Auburn Rd	Marion County	LOS E	EB LTR WB LTR	F	>50.0	>1.00	F	>50.0	>1.00
6: Cordon Rd/ State St	Marion County	LOS D v/c≤0.85		E	62.7	1.09	F	>50.0	1.28
7: Cordon Rd/ Pennsylvania St	Marion County	LOS E	EB LR	F	>50.0	0.85	F	>50.0	>1.00
8: Cordon Rd/ Caplinger Rd	City of Salem	LOS E		F	>50.0	>1.00	F	>50.0	>1.00
9: Cordon Rd/ Macleay Rd	City of Salem	LOS E v/c≤0.90		B	12.8	0.67	B	16.6	0.93
10: Cordon Rd/ Gaffin Rd	City of Salem	LOS E v/c≤0.90		C	29.6	0.68	D	44.0	0.83
11: Lancaster Dr/ Center St	City of Salem	LOS E v/c≤0.90		D	37.8	0.80	E	79.2	1.05
12: Lancaster Dr/ Auburn Rd	Marion County	LOS D v/c≤0.85		A	6.5	0.45	C	22.2	0.94
13: Lancaster Dr/ State St	Marion County	LOS D v/c≤0.85		E	58.2	0.90	F	>80.0	1.21
14: 45th Ave/ Center St	Marion County	LOS E	SB L	D	34.7	0.24	F	>50.0	>1.00
15: Greencrest St/ Auburn Rd	City of Salem	LOS E	SB LR	B	14.0	0.35	C	19.3	0.51
16: 49th Ave/ State St	City of Salem	LOS E	NB LR	A	8.7	0.57	A	7.4	0.63
17: Bobcat St/ Auburn Rd	City of Salem	LOS E	NB LR	A	9.5	0.02	B	10.1	0.01
18: Lynx St/ Auburn Rd	City of Salem	LOS E	NB LR	B	10.0	0.07	B	10.6	0.04
19: Cougar St/ State St	City of Salem	LOS E	SB LR	C	17.3	0.27	E	43.2	0.45

CORDON ROAD

The intersections along Cordon Road at Silverton Road, Sunnyview Road, Swegle Road, Center Street, Auburn Road, State Street, and Pennsylvania Street are all expected to exceed the County's standards with or without the Pictsweet development with the existing lane configurations under 2039 traffic volumes. The County's 2005 Rural Transportation System Plan, Table 8-16, identifies projects for widening Cordon Road to a four-lane section with turn lanes throughout the County-maintained section of Cordon Road and through the study area. A portion of this table is shown in Figure 17.

Future Widening for Capacity Needs

FACILITY	FROM	TO	NEED
RECOMMENDED PROJECTS			
Cordon Rd	State St	Center St	Widen to four lanes (with turn lanes at intersections as appropriate)
Cordon Rd	Salem UGB (Caplinger Rd)	State St	Widen to four lanes (with turn lanes at intersections as appropriate)
Cordon Rd	Center St	Sunnyview Rd	Widen to four lanes (with turn lanes at intersections as appropriate)
Cordon Rd	Sunnyview Rd	Silverton Rd	Widen to four lanes (with turn lanes at intersections as appropriate)

Figure 17. Marion County's Recommended Projects on Cordon Road. *Source: 2005 Marion County Rural Transportation System Plan.*

Based on Cordon Road's classification as a Parkway, it would be expected to have an 80-foot pavement cross-section within a 120-foot right-of-way, as shown in the standard cross-section in Figure 18. These widening projects would greatly improve operations as discussed below.

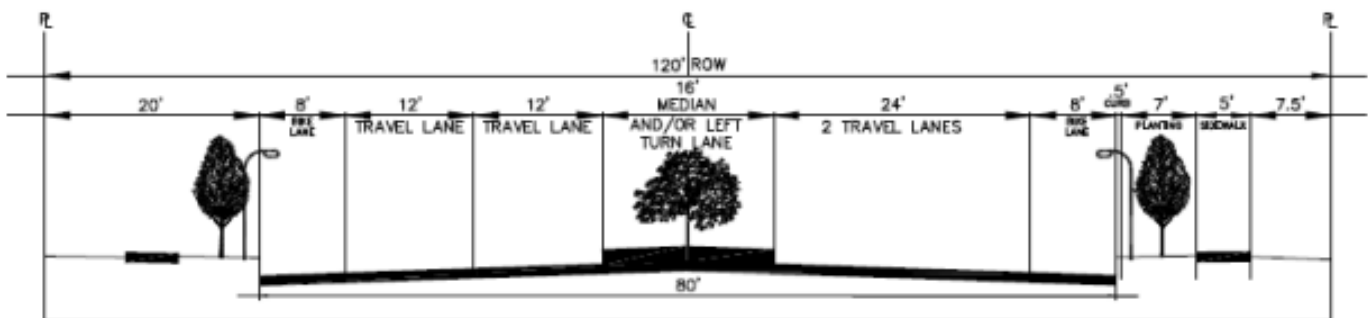


Figure 18. Adopted Cordon Road Parkway Cross Section

Cordon Road/Silverton Road

The Cordon Road/Silverton Road intersection is forecast to exceed the County's operation standards with or without the proposed Pictsweet development with the existing lane configurations. The 2007 TIA for the Pictsweet site identified the need for an eastbound right-turn lane at this intersection under background conditions. This would improve the operations at this intersection in 2039, but the

intersection would not meet County operations standards with or without the site. The widening of Cordon Road to a four-lane section would greatly increase capacity at this intersection and with this widening an eastbound right-turn lane would not be needed to meet the County's required v/c ratio of 0.85.

Cordon Road/Sunnyview Road

The Cordon Road/Sunnyview Road intersection is forecast to exceed the County's operation standards with or without the proposed Pictsweet development with the existing lane configurations. The widening of Cordon Road to a four-lane section with turn lanes as shown in the standard roadway section would improve operations to a v/c ratio of 0.66, meeting Marion County standards.

Cordon Road/Swegle Road

The Cordon Road/Swegle Road currently exceeds the County's operation standards and is expected to continue to exceed standards with the Cordon Road widening project in the future. The County's 2005 Rural Transportation System Plan identified the need for a traffic signal at this location. Swegle Road provides an important link in the transportation network, connecting Cordon Road directly to Market Street and the I-5 interchange.

The 2009 Manual on Uniform Traffic Control Devices (MUTCD) provides factors for justifying the installation of traffic control signals. This includes nine warrants. Three were reviewed based on planning level volumes at this intersection: Warrant 1, Eight Hour Vehicular Volume; Warrant 2, Four-Hour Vehicular Volume; and Warrant 3, Peak Hour. Based on the volumes, Warrants 1, 2 and 3 are met with the future 2039 traffic volumes, and from a system perspective would easily be met as additional traffic would likely route to Swegle Road with signalization.

This intersection is located approximately 2,200 feet south of Sunnyview Road and approximately 3,400 north of Center Street. Operations analysis shows that with signalization that maintains the single-lane eastbound and westbound approaches the intersection would operate well within its carrying capacity with a v/c ratio of 0.55. It should again be noted that if the intersection were signalized additional eastbound and westbound traffic would likely route to this location.

Cordon Road/Center Street

The Cordon Road/Center Street intersection is forecast to exceed the County's operation standards with or without the proposed Pictsweet development with the existing lane configurations. The widening of Cordon Road to a four-lane section with turn lanes would improve operations to a v/c ratio of 0.62, meeting Marion County standards

Cordon Road/Auburn Road

The Cordon Road/Auburn Road intersection is forecast to exceed the County's operation standards with or without the proposed Pictsweet development. The widening of Cordon Road to a four-lane section with turn lanes would improve operations marginally. However, the left-turning and through movements from Auburn Road would still operate with high delays and exceeds the capacity for these movements. Conversations with the County in July 2018 indicated that the County is considering limiting access or closing access from Auburn Road to Cordon Road. A discussion of each option is included below.

Signalized

Assuming the planned widening of Cordon Road to provide a five-lane cross-section and widening of the eastbound approach to provide a three-lane section as part of the project frontage improvements, signalization of the Cordon Road/Auburn Road intersection would operate well within its carrying capacity with a v/c ratio of 0.63.

Right-In/Right-Out/Left-In

Converting the existing full access Cordon Road/Auburn Road intersection to a right-in/right-out/left-in intersection would allow this intersection to meet County standards in the future with the proposed five-lane section on Cordon Road. In the near-term with the existing three-lane section on Cordon Road at Auburn Road and a right-in/right-out/left-in configuration, this intersection could operate acceptably for 10 to 15 years with the Pictsweet development.

Auburn Road is classified as a *Collector* by the City of Salem. According to the City's Transportation System Plan, the function of *Collectors* is to "primarily distribute traffic between neighborhoods, activity centers, and the arterial street system." Auburn Road provides one of these links from neighborhoods to Lancaster Drive and Cordon Road. Converting the Auburn Road/Cordon Road connection to right-in/right-out/left-in would minimally preserve this function but would place higher pressure onto State Street and Center Street to support the left-turn demands.

No Auburn Road Access

Completely closing Auburn Road at Cordon Road would force 3,000 to 4,000 vehicles per day to reroute to Center Street, or to State Street and Greencrest Street, and would negate the benefit of providing a supporting grid network of streets. Closure of the facility at its intersection with Cordon Road would conflict with the *Collector* function of the facility.

Cordon Road/State Street

The Cordon Road/State Street intersection currently operates near capacity and operations are expected to worsen over the next twenty years with or without the Pictsweet development. The County has identified two projects at this intersection to improve operations. The first is the widening of Cordon Road to 5-lanes throughout this section and the second is to construct turn pockets at this intersection, though the specific turn lanes to be added are not specified. Both projects are in the "Included" category in the Regional Transportation System Plan for the Salem-Keizer region. "Included" means that projects listed "have the highest priority to be constructed in the next 20 years, and funding is reasonably anticipated to be available." Both of these projects are described as either being developer funded or partially developer funded.

The widening of Cordon Road to 5-lanes improves the level of service to acceptable levels in 2039 during the weekday p.m. peak hour. However, the volume-to-capacity ratio is still expected to exceed the County's standard of 0.85. Ultimately, dual eastbound left-turn lanes are likely needed on State Street, particularly if the Auburn Road connection to Cordon Road does not support eastbound left-turns.

Cordon Road/Pennsylvania Street

This analysis shows that unsignalized accesses onto the Cordon Road corridors will not be sufficient to meet the projected year 2039 standards. Similar to conditions at Auburn Road, improvement options could include signalization or movement restrictions. While the current eastbound traffic volumes would not meet signal warrants, rerouting of traffic could occur as area access onto Cordon Road is consolidated.

If restricted access is desired at Pennsylvania Avenue this can meet agency performance standards but will place more pressure on State Street to support the relocated demands.

Cordon Road/Caplinger Road

The Cordon Road/Caplinger Road intersection is under the jurisdiction of the City of Salem. Caplinger Road is classified as a *Local* street that connects to a residential neighborhood and an apartment complex, and terminates at Macleay Road. The City has received complaints about the delays at Caplinger Road when turning onto Cordon Road. Under existing conditions, the minor street movement operates with high delays and a LOS F with a v/c ratio of 0.85. This is expected to worsen with background traffic and demand will exceed capacity with or without the Pictsweet development. Even with the planned widening of Cordon Road the demand on the minor street at the Cordon Road/Caplinger Road intersection would exceed capacity in the future.

Future traffic volumes at this intersection were reviewed to see if they would meet signal warrants 1, 2, and 3 from the MUTCD. As shown in the table below, all three warrants are met with future 2039 volumes with a two or four-lane section on Cordon Road. Improvement strategies for this area could include improving connectivity between Pennsylvania Avenue and Caplinger Street, with an improved connection then provided at either location.

Table 9. MUTCD Warrant Summary at Cordon Road/Caplinger Road

Warrant #1 Eight-Hour Vehicular Volume	Warrant #2 Four-Hour Vehicular Volume	Warrant #3 Peak Hour
Meets	Meets	Meets

Cordon Road/Macleay Road

The Cordon Road/Macleay Road intersection is expected to exceed the City's v/c ratio standard with the Pictsweet development in 2039. The City of Salem has identified in their Transportation System Plan a *Medium Priority* project for this section of Cordon Road to improve it to Parkway standards in a 15-year timeframe. This project would widen Cordon Road from Highway 22 to Caplinger Road to include four travel lanes, center turn lane, or left-turn lanes at selected locations, and sidewalks and bicycle lanes. Widening of Cordon Road at this intersection would result in a v/c ratio of 0.55 during the weekday p.m. peak hour in 2039.

LANCASTER DRIVE/CENTER STREET

The Lancaster Drive/Center Street intersection is expected to exceed capacity with or without the Pictsweet development in the future year 2039. Multiple lane additions would be required to bring the v/c to 0.90 to meet City standards. The area around Lancaster Drive is built out and widening or constructing turn lanes would be challenging. The City has identified an access management project from State Street to Silverton Road on Lancaster to improve corridor operations and safety. However, no additional projects were identified for this area in the City's TSP.

The City requires that this TIA "shall identify and propose transportation improvements that will restore the operations to a level of service not exceeding pre-development conditions." A review of the operations at this intersection indicate that the addition of a southbound right-turn lane would restore the v/c ratio to operations expected under the background conditions. Right-of-way is not available to support this improvement.

LANCASTER DRIVE/AUBURN ROAD

The Lancaster Drive/Auburn Road intersection is expected to exceed Marion County's operation standards in year 2039 without the Pictsweet site and operate at capacity with the Pictsweet development. Similar to the Lancaster Drive/Center Street intersection, the area around this intersection is already built out and potential lane additions are constrained by developments and buildings close to the roadway. Other than identification of safety or access management projects, no capacity improvements were identified at this location in City and County Transportation System Plans.

LANCASTER DRIVE/STATE STREET

The Lancaster Drive/State Street intersection is expected to exceed capacity in the future with or without the Pictsweet development. Marion County has identified the need for additional turn lanes at this intersection. This project is included in the Regional Transportation System Plan (RTSP) Project List, though the specific turn lanes are not identified. A review of this intersection indicates that the addition of an eastbound and a southbound right-turn lane would have the greatest impact on the operations at this intersection. This would not restore operations to Marion County standards, but would reduce the v/c ratio to below 1.00.

In order to meet County Standards of a v/c ratio of 0.85 or less, Lancaster Drive would have to be widened to include an additional through lane in the northbound and southbound directions. The Salem Transportation System Plan states that "Widening Lancaster Drive NE to six travel lanes is not considered financially feasible, or desirable, within the time frame [2035] of this plan." Instead, an access management project from State Street to Silverton Road has been included in the TSP to address congestion and safety issues.

45TH AVENUE/CENTER STREET

The 45th Avenue/Center Street intersection is expected to exceed the County's operation standards with or without the proposed Pictsweet development. This three-legged intersection is stop controlled on the 45th Avenue approach, with separate turn lanes for the eastbound left and southbound left and right movements. Center Street is projected to carry 11,300 vehicles per day in 2032 according to the County's Urban Transportation Strategy. There will be high delays for the southbound left-turn at this location (and any other unsignalized intersection along the corridor) unless an improvement is made. As 45th Avenue connects to Shores Street, Mitchell Street, and Wildflower Street this could serve as an ideal location to improve.

OFF-SITE IMPROVEMENTS SUMMARY

A summary of the off-site study intersections, potential improvement needs, and the proportionate impact of the Pictsweet site is provided in Table 10.

Table 10. Summary of Off-Site Improvement Needs

Intersection	Jurisdiction	Added Trips	Total Year 2039 Trips	% Site Impact	Improvement Need
1: Cordon Rd/ Silverton Rd	Marion County	65	3,115	2.1%	Cordon Road Widening
2: Cordon Rd/ Sunnyview Rd	Marion County	79	2,680	3.0%	Cordon Road Widening
3: Cordon Rd/ Swegle Rd	Marion County	87	2,488	3.5%	Cordon Road Widening & Signalization
4: Cordon Rd/ Center St	Marion County	87	2,978	2.9%	Cordon Road Widening
5: Cordon Rd/ Auburn Rd	Marion County	87	2,554	3.4%	Cordon Road Widening & Signalization or Restrictions
6: Cordon Rd/ State St	Marion County	195	3,459	5.6%	Cordon Road Widening & Dual Eastbound Left-Turn Lanes
7: Cordon Rd/ Pennsylvania St	Marion County	125	2,197	5.7%	Cordon Road Widening
8: Cordon Rd/ Caplinger Rd	City of Salem	123	2,191	5.6%	Cordon Road Widening
9: Cordon Rd/ Macleay Rd	City of Salem	123	2,201	5.6%	Cordon Road Widening
10: Cordon Rd/ Gaffin Rd	City of Salem	108	2,267	4.8%	None
11: Lancaster Dr/ Center St	City of Salem	205	5,132	4.0%	Safety Improvements or Access Strategies
12: Lancaster Dr/ Auburn Rd	Marion County	64	3,652	1.8%	Safety Improvements or Access Strategies
13: Lancaster Dr/ State St	Marion County	190	5,149	3.7%	Safety Improvements or Access Strategies
14: 45th Ave/ Center St	Marion County	198	1,944	10.2%	Signalization
15: Greencrest St/ Auburn Rd	City of Salem	278	690	40.3%	None
16: 49th Ave/ State St	City of Salem	331	1,750	18.9%	None
17: Bobcat St/ Auburn Rd	City of Salem	82	357	23.0%	None
18: Lynx St/ Auburn Rd	City of Salem	93	337	27.6%	None
19: Cougar St/ State St	City of Salem	254	1,571	16.2%	None

SITE ACCESS CHARACTERISTICS

Access to the site is provided through public street connections to the north and south along Auburn Street and State Street. The primary site access will be provided from the new collector roadway (Greencrest Street) connections, with secondary accesses provided from minor local street connections. The access plan was developed in collaboration with City and County staff and reflect a desired local street spacing. The new Greencrest Street connection will require signalization at its southern connection to State Street and will operate acceptably long-term with an unsignalized northern connection at Auburn Street.

GREENCREST STREET/STATE STREET INTERSECTION

Traffic Signal Warrants

The Manual on Uniform Traffic Control Devices (MUTCD) identifies the minimum criteria that signalization should be considered. The projected traffic volumes in 2039 at the Greencrest Street/State Street intersection were reviewed to determine whether the volume-based warrants (Warrants 1, 2, and 3) would be met.

Based on the forecast volumes, the southern Greencrest Street connection with State Street will meet all three volume-based signal warrants with site build-out. At least one traffic signal warrant will be met at approximately 55-60% of site buildout.

Location of Greencrest Street Connection at State Street

Initial scoping and alignment discussions were conducted with Marion County and the City of Salem related to the alignment of the Greencrest Street connection with State Street. The adopted Transportation System Plan identifies the future intersection at the approximate location of Cougar Court. Marion County expressed a desire to maintain this western alignment within the site to protect the function of the more critical Cordon Road/State Street intersection. The City would prefer that the alignment provide additional benefit to areas south of State Street, which an alignment near 49th Avenue near the east side of the site would provide. In addition, there are internal site considerations such as supporting the commercial and higher-density residential uses with more convenient access, and a desire to preserve a small grove of white oak trees.

The City's TSP depicts the proposed Greencrest Street extension to State Street across from Cougar Court on the west end of the Pictsweet site, as shown in Figure 19. The alignment of roads within the Transportation System Plan are considered approximate, but could generally be considered to connect in the area ± 600 feet on either side of Cougar Court. A connection in this area does not serve a substantial area south of State Street. Purely from a system connectivity perspective, a direct alignment with 49th Avenue toward the east would provide a more ideal connection for the area, as

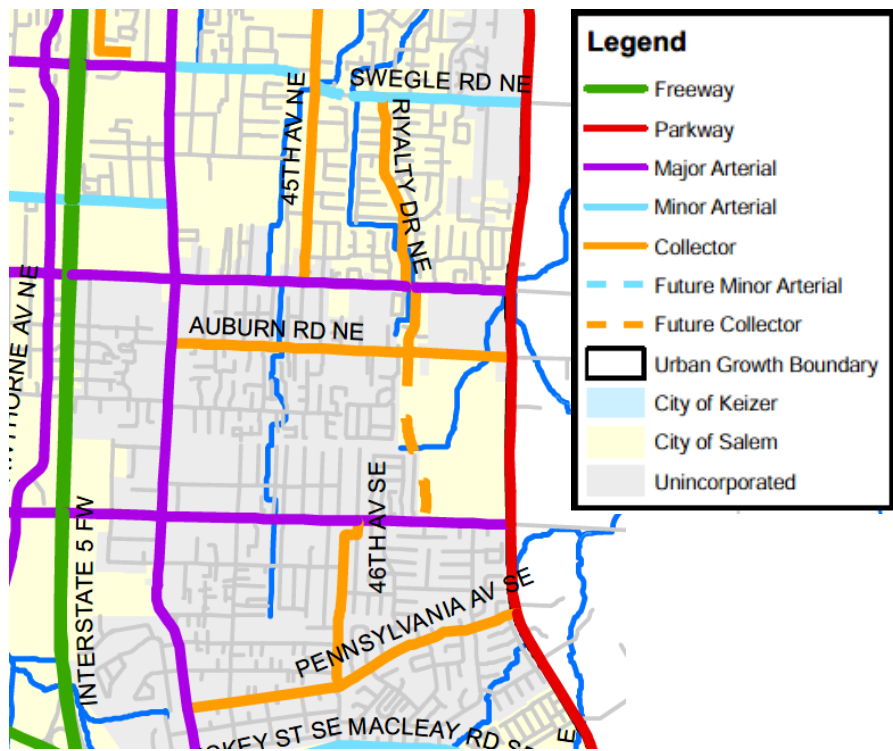


Figure 19. City of Salem Functional Classification Map.

Source: 2013 Salem Transportation System Plan "Street Plan" Map 3-1.

this alignment could serve a substantial residential area south of State Street. However, 49th Avenue is classified as a *local street*, and is not intended to serve the volume and types of traffic that an alignment with a *Collector* such as Greencrest Street would provide.

Review of the long-term queuing was conducted to identify where the future connection could occur. Cordon Road and 49th Avenue are approximately 675 feet apart measured from centerline. The spacing between Cordon Road and Cougar Court is approximately 1,560 feet, and the spacing to Oakmont Court is approximately 925 feet. The 95th percentile queuing results from the year 2039 "with project" analysis are provided in Table 11. To assess the feasibility of the easternmost connection, this queuing analysis was premised on a four-way intersection with 49th Avenue assuming limited widening along State Street to accommodate a three-lane cross section.

Table 11. State Street Queuing Summary

Intersection	Movement	95 th Percentile Queue	Available Storage	Adequate?
Cordon Rd/ State St	EB L	286 feet	305 feet	Yes
	EB TR	585 feet	608 feet	Yes
49 th Ave/ State St	WB L	25 feet	125 feet	Yes
	WB TR	122 feet	608 feet	Yes

The queuing analysis shows that an alignment with 49th Avenue would be adequate long-term even with the three-lane cross section. However, this shows that the eastbound queues extend from Cordon Road nearly to the 49th Avenue intersection. If State Street were widened to a five-lane section this queue would be reduced in half, but the timing and likelihood for this future improvement is not known.

With the alignment of Greencrest Street shown at Oakmont Court there would only be limited residences south of State Street that would benefit from a connection to the signalized access, but the spacing would better support the long-term intersection needs. Accordingly, this alignment was included within the site plan and is the recommended location for this future connection. As shown in the site layout, this also allows the Collector roadway to serve as a western border for the multifamily component, and provides reasonable access to the commercial lands both to the Pictsweet property and as a neighborhood node. An amendment of the Transportation System Plan will be required to support the access at this location, although since no additional lands are served south of State Street with the alignment shown there is no effective impact of this change.

ROADWAY SECTIONS

GREENCREST STREET EXTENSION

The proposed extension of Greencrest Street and construction of its complete section through the site will be the responsibility of the development. Per direction from City staff, the design of the collector can either take the form of “Collector A” or “Collector B” (see Figures 20 and 21) depending on whether on-street parking is needed to serve the adjacent lands. This roadway will require a 60-foot right-of-way section with a 34- to 40-foot pavement section. No changes to the City standards are requested.

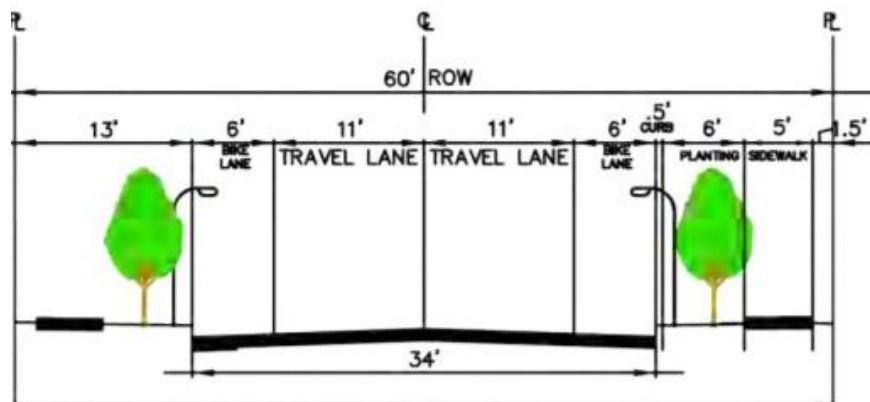


Figure 20. Collector “A” Street Design Cross Section. *City of Salem TSP.*

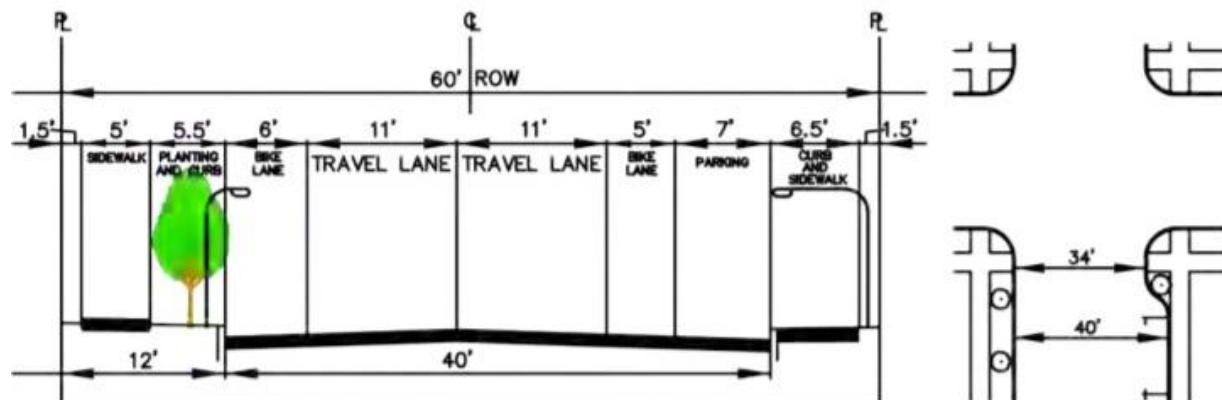


Figure 21. Collector “B” Street Design Cross Section. *City of Salem TSP.*

It is expected that capacity improvements will be required at the State Street/Greencrest intersection at approximately 55 to 60 percent build-out likely to support the development of the commercial component. To support this improvement all nearby private accesses have been removed. Access from the nearby residences on the west side of the roadway are provided from an alley, and the access into the multifamily area is set back to the future Russet Avenue connection as shown in Figure 22.

The development of Greencrest Street will need to maintain a three-lane section as it approaches the traffic signal to separate right- and left-turning vehicles. No on-street parking will be allowed within 200-feet of the traffic signal to support the future queue storage needs. For purposes of this analysis it was assumed that no widening would occur along Oakmont Street, requiring that the new traffic signal operate with permissive-only north-south signal phasing.



Figure 22. Future State Street/Greencrest Street Traffic Signal Accommodations.

STATE STREET CROSS-SECTION

State Street adjacent to the development is within the jurisdiction of the City of Salem and is designated as a *Major Arterial* within the City's Transportation System Plan. The City's standard cross-section includes a 96-foot right-of-way section to accommodate future widening to a five-lane roadway, as illustrated in Figure 23.

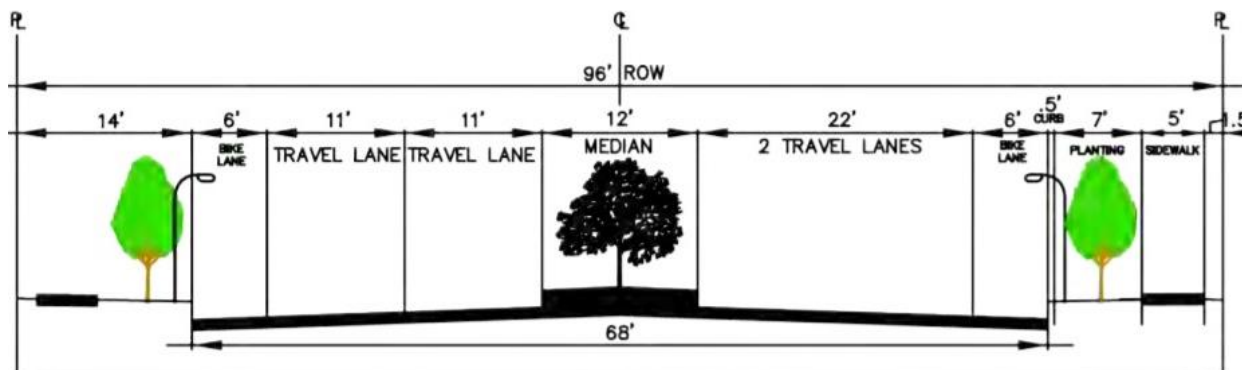


Figure 23. City of Salem Major Arterial Street Design Cross Section. *City of Salem TSP.*

A three-lane cross-section along State Street can continue to serve as an interim step toward completion of the five-lane roadway. The specific improvements along State Street will depend on the timing of improvements to Cordon Road, which is the more critical improvement need given the current travel patterns. To maintain the location of the roadway centerline and accommodate the 96-foot ROW needs, the following elements are proposed:

- 6-foot bicycle lanes on both sides of State Street
- 12-foot travel lanes and a 14-foot center left-turn lane
- Curbing on both sides of State Street
- City standards identify a seven-foot landscape strip, 0.5-foot curb, 5-foot sidewalks, and a 1.5-foot buffer space along the property frontage. In lieu of this, a 40-foot landscaped buffer is proposed along State Street. While the width of this buffer may vary to accommodate additional intersection improvements at the signalized intersections, it is instead proposed that a meandering 10-foot wide multi-use pathway be provided along the property frontage. Where this multiuse pathway extends outside of the right-of-way a public access easement will be provided.

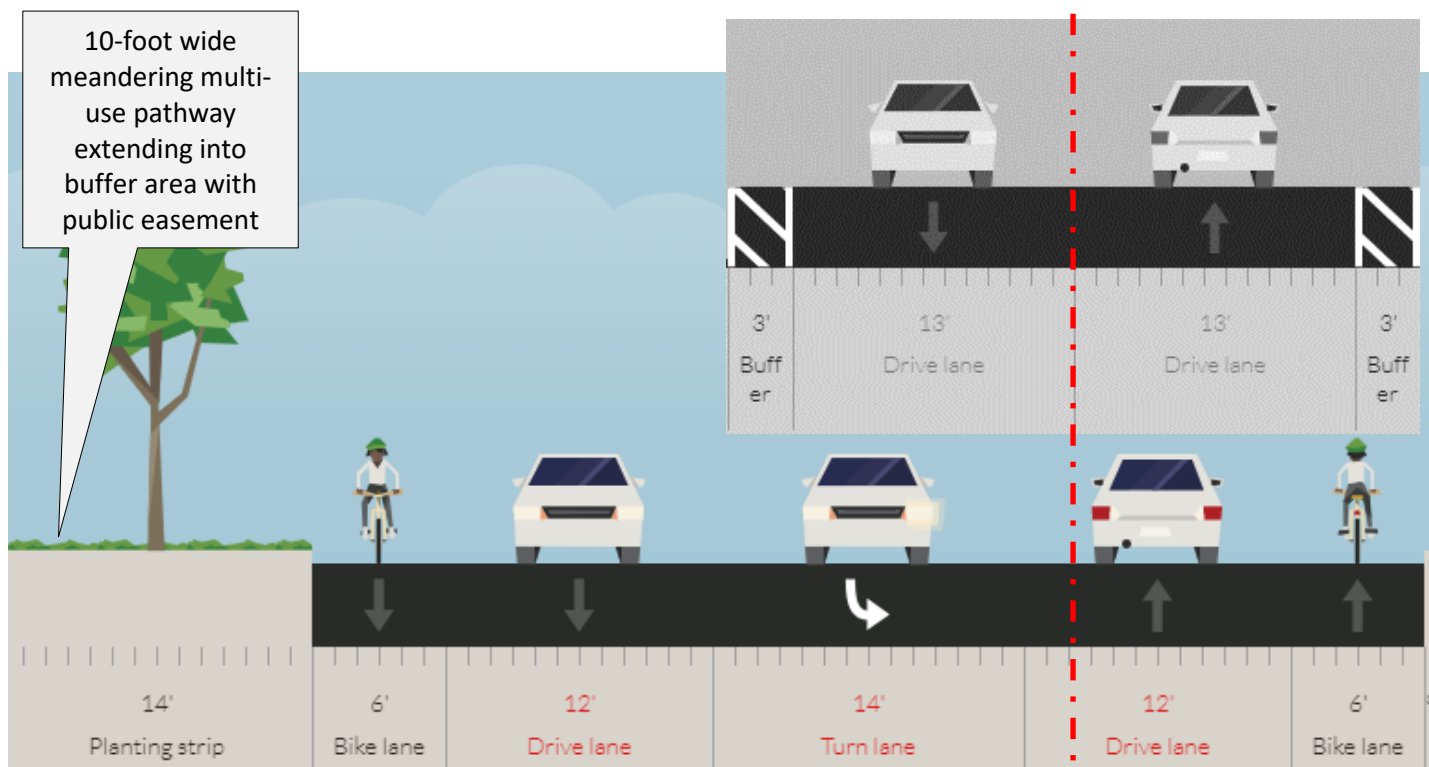


Figure 24. Proposed State Street Improvements and Alignment with Existing Section.

This design for State Street would require approximately 18-feet of roadway pavement widening. Review of Salem Development Code Section 803.040 shows that this plan would generally meet the City's *Boundary Streets* improvement requirements.

AUBURN ROAD

Auburn Road is designated as a *Collector* within the City of Salem Transportation System Plan. As discussed with the City, the decision to construct "Collector A" versus "Collector B" is entirely up to the discretion of whether the development has a need for on-street parking along the frontage. Plans for the property identify a landscape area buffering the adjacent residential uses from the street front, with no uses that

would rely on direct access or parking along this roadway. Accordingly, it is recommended that “Collector A” be constructed along this roadway. The recommended cross-section and alignment with the current roadway centerline are shown in Figure 25.

The Auburn Road improvements are effectively a ¾ street improvement, leaving only sidewalks and planter strip remaining to complete the full street cross-section.

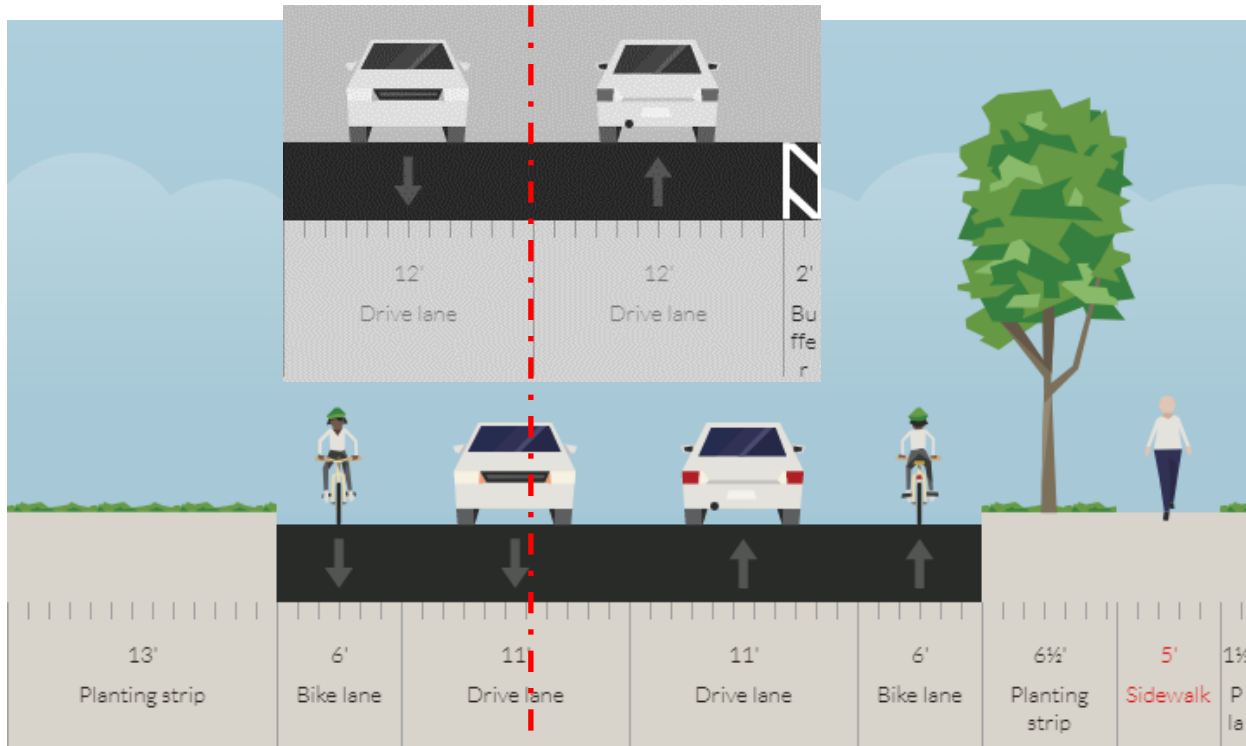


Figure 25. Proposed Auburn Street Improvements and Alignment with Existing Section

CORDON ROAD

Marion County has designated Cordon Road as a Parkway within its Transportation System Plan. The Parkway facility is defined as a high-capacity, high-speed roadway. This is identified as a high priority project (within 10 years) in the TSP. The original project agreements state that the Pictsweet project will be required to enter a development agreement with Marion County for improvements and ROW that are proportionate to the project impacts. The standard cross-section for Cordon Road is shown in Figure 26.

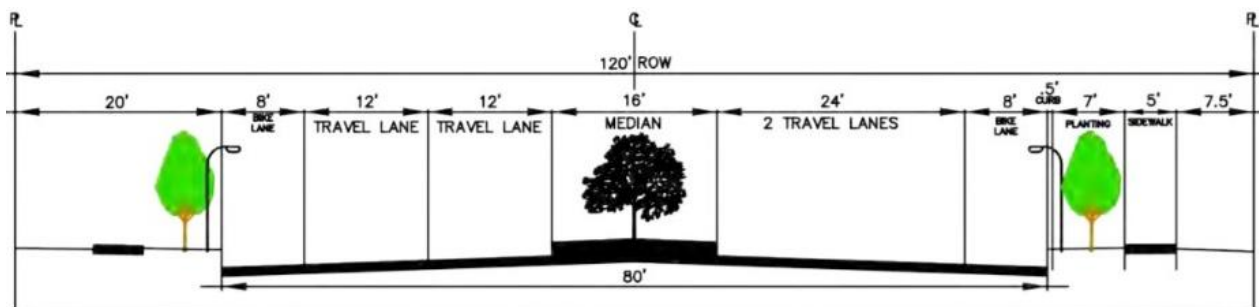


Figure 26. Parkway Street Design Cross Section. *City of Salem TSP.*

As discussed at the July 19th, 2018 meeting with agencies, modifications to the standard Cordon Road cross-section are recommended. The development of a multi-use pathway along the property frontage can allow a narrower on-street bicycle lane design and better overall experience for cyclists within a *low-stress* facility. Further, with long-term plans to limit access onto Cordon Road to public intersections the need for a 16-foot wide raised median could be substantially reduced. On an interim basis, a minimum center turn lane median area of 14-feet is recommended so that continued access to properties along the east side of Cordon Road can occur with minimal delays to through motorists.

It is recommended that Marion County and the City of Salem consider a narrower Parkway section that incorporates 10-foot wide multi-use trails along one or both sides of the roadway, providing cyclists better separation from the anticipated high-volume and high-speed passenger car and freight traffic along Cordon Road. Six-foot shoulders can be maintained within this cross-section for shy distance and to accommodate more experienced road cyclists that may choose to remain on the travel way. The twelve-foot wide landscaped median shown could be constructed as access is consolidated onto the public intersections, and the center turn lane can transition into a median. The revised cross-section would reduce the overall ROW needs to 114-feet.

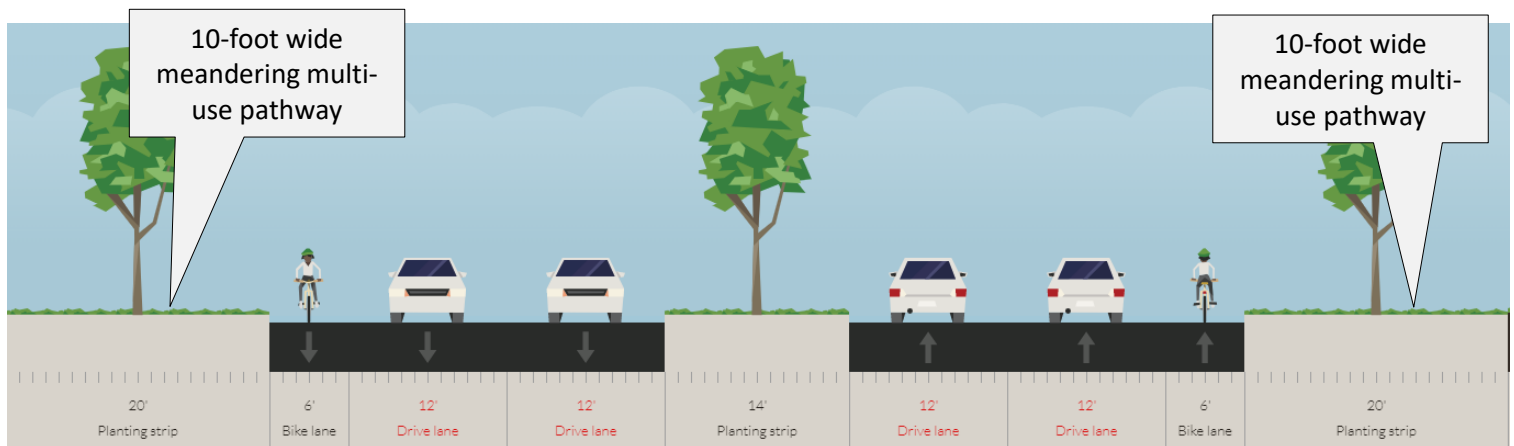


Figure 27. Proposed Modification to the *Parkway* cross-section (114-foot cross-section).

Standard frontage improvements are typically required as part of adjacent development. However, the Parkway standards far exceed typical improvement requirements, and the lack of allowed property access to this new facility highlights the regional needs that are served by the roadway rather than the more typical benefit provided to nearby properties. The identification of this improvement within the RTSP further indicates the regional benefit this roadway serves.

Proposed improvements to Cordon Road along the property frontage are proposed as follows:

- Half-street ROW dedications (60-feet from centerline unless the revised section is approved, in which case 56-feet from centerline would be dedicated).
- Construction of a meandering asphalt multi-use pathway along the west side of Cordon Road in its ultimate alignment.
- Widening of Cordon Road throughout the property frontage to provide a minimum section as shown in Figure 28 (14-foot median likely to remain as a turn lane until access consolidation can occur and it can be converted to a raised/landscaped median). Additional widening may be required to support intersection capacity improvements at Auburn Road and State Street.

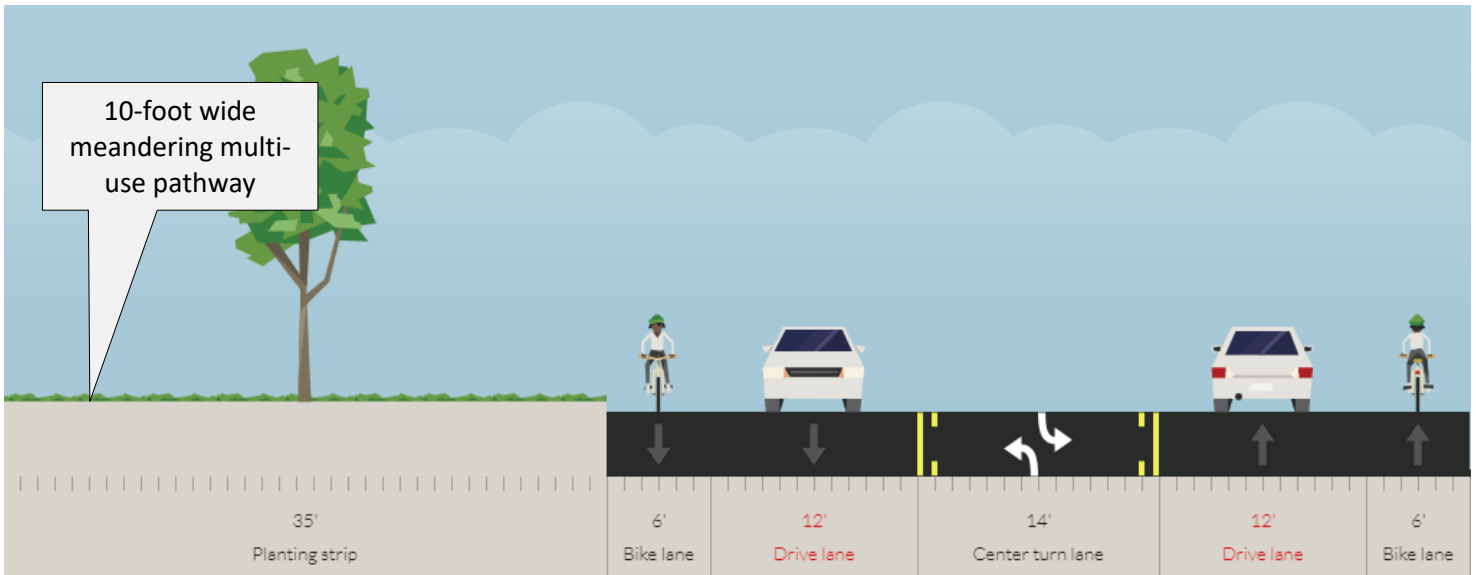


Figure 28. Cordon Road recommended interim cross-section (60-foot dedication from centerline).

PROJECT FINDINGS AND RECOMMENDATIONS

The analysis of the Pictsweet site follows prior planning efforts that were conducted in 2006 for the annexation and zone change of the property. The proposed development plan included within this application remains within the previously assumed density assumptions for the property, and thereby continues to remain in compliance with the Transportation Planning Rule.

The analysis for the Pictsweet site contained within this report assesses conditions in the year 2039 in order to comply with Marion County requirements for a 20-year analysis. This timeframe extends beyond the adopted City of Salem and Marion County planning horizon and shows conditions beyond what has been planned on the surrounding transportation network. Despite this extended horizon period, the analysis results are generally consistent with the adopted agency plans. Namely, Cordon Road needs to be widened to a five-lane cross-section to serve in its *Parkway* designation, and improvements are needed along State Street and Center Street as these roads connect the neighborhoods and services located east and west of the I-5 corridor.

Development plans within the Pictsweet property include over 1,100 new housing units and provides a mix of detached and two- to three-story multifamily products. Plans also identify 10,000 square-feet of neighborhood commercial building space and a 7.5-acre park. When fully developed, this plan provides a mix of residential products and supporting recreational and retail services within this mixed-use neighborhood.

The proposed project enables the Cordon Road widening by supporting the right-of-way needs for the *Parkway* plans and recommends improvements along State Street to address current and projected capacity needs. With the proposed development improvements will be provided along Auburn Road and the project will extend Greencrest Street from its terminus at Auburn Road south to State Street. These roadway improvements will reduce reliance on Lancaster Avenue, State Street, and Cordon for localized circulation, benefitting the proposed development

The provision of a new north-south *Collector* roadway (Greencrest Street extension) through the site will provide a new connection between State Street and Center Avenue that reduces the current reliance on either Lancaster Avenue or Cordon Road for neighborhood connections and will provide access to the commercial services included within the development.

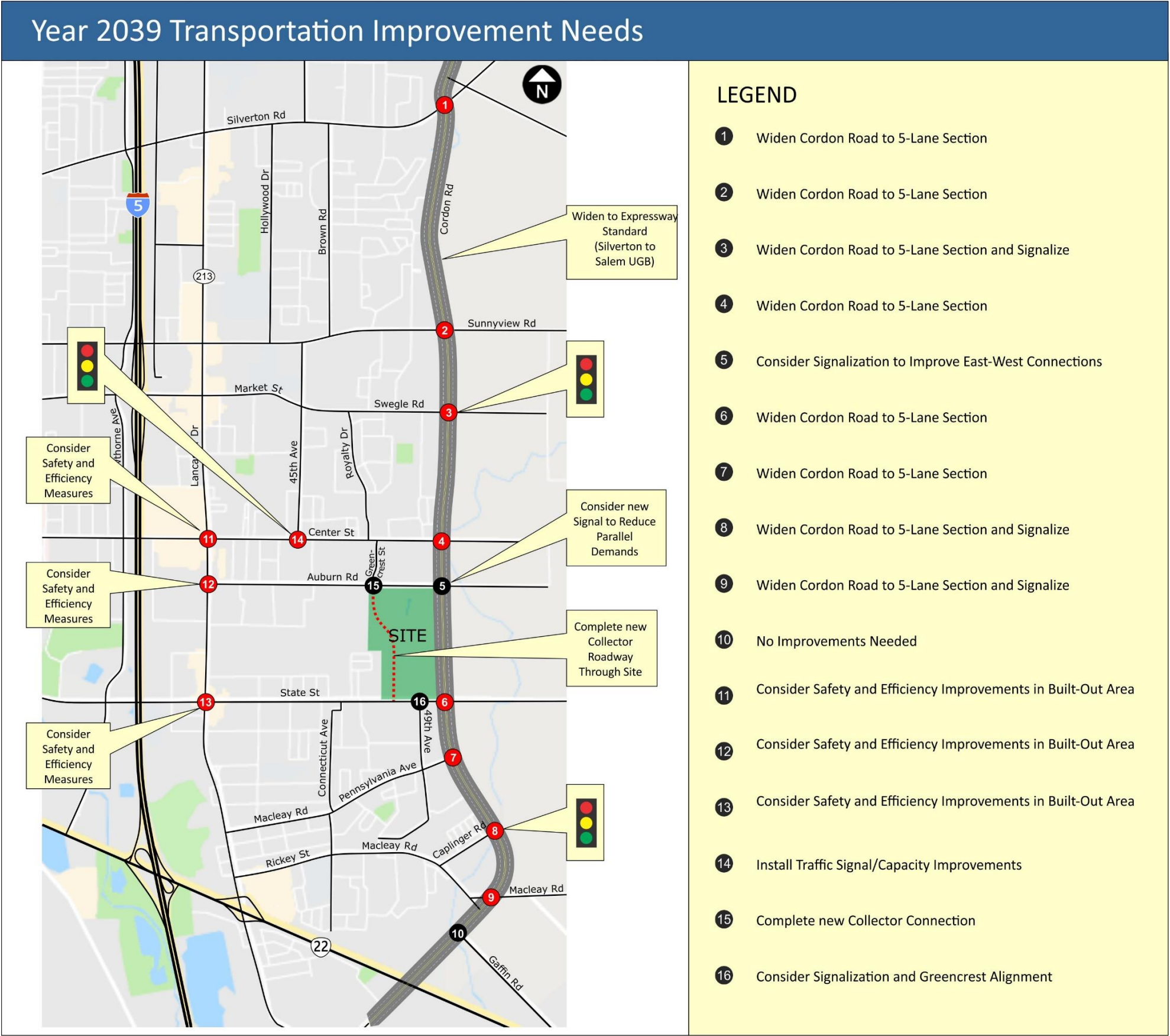
The illustration highlights the surrounding transportation needs to support the Pictsweet property development. Most of the transportation improvements are needed regardless of whether the project is built. The benefit of the new Greencrest Street and Auburn Road improvements in relieving area transportation congestion will depend on the type of movements and specific intersection treatments that are allowed onto the major roads that surround the project site.

To support the phased development of the Pictsweet project the following is recommended:

- The southern alignment of the new Greencrest Street extension as a *Collector* occur at Oakmont Street (or a location farther west).
- Signalization of the State Street/Greencrest Street intersection will be warranted with approximately 55% site build-out. MUTCD signal warrants should be monitored with each development phase following connection of the road to State Street to determine the appropriate timing of this improvement.
- The City and County should consider the connection needs at the Auburn Road intersection with Cordon Road. It is recommended that this intersection be signalized to help reduce pressure on Center Avenue and State Street.
- Right-of-way dedications and frontage improvements should be provided as outlined within this report to support the ultimate roadway cross-sections. With the location of the site along a Parkway, Arterial, and Collector (and bisected with a new collector) the improvements should be equitable and follow the requirements within Salem Development Code for Boundary Streets.
- Widening of Cordon Road to the five-lane Parkway section will be required to support area growth with or without the Pictsweet site, consistent with adopted agency plans. Any required pro-rata payments for improvements along Cordon Road should be pooled and applied to the Cordon Road/State Street intersection, which serves as the most critical location within the study area.
- A specific site plan will be required for each subsequent development phase to ensure consistency with this master plan and to ensure safe and functional access and roadway connections are provided.

NEXT STEPS

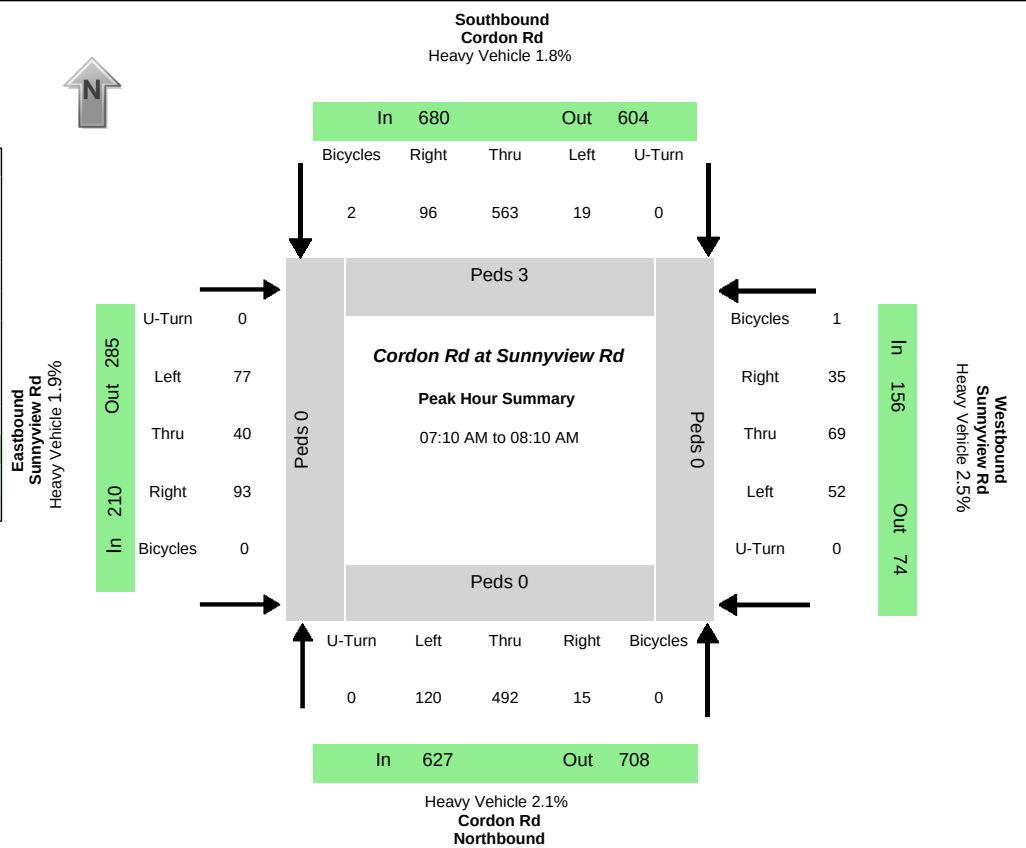
We trust that this Transportation Impact Analysis provides affected transportation service providers with the required submittal information to review the transportation impacts of the proposed Pictsweet Master Plan. We understand that additional discussions will need to occur to finalize the specific development conditions and mitigation measures, appropriately balancing City and County facility management goals and policies. Please contact me with any questions or comments at (503) 997-4473 or via email at joe@transightconsulting.com.



Appendix A

Traffic Count Data

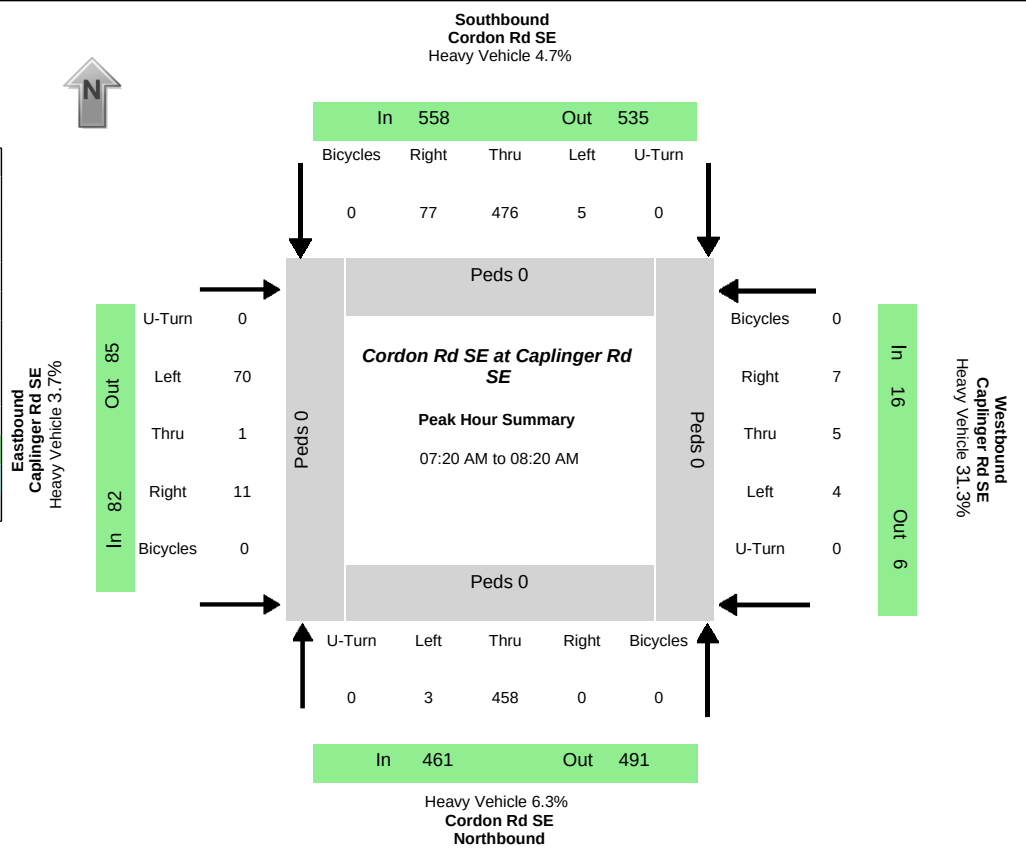
Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd
E/W street	Sunnyview Rd
City, State	Salem OR
Site Notes	
Location	44.954898 - -122.958893
Start Date	Tuesday, September 25, 2018
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.94



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
120	492	15	0	19	563	96	0	77	40	93	0	52	69	35	0	627	678	210	156	708	604	285	74
Percent Heavy Vehicles																							
3.3%	1.8%	0.0%	0.0%	0.0%	1.8%	2.1%	0.0%	3.9%	2.5%	0.0%	0.0%	1.9%	2.9%	2.9%	0.0%	2.1%	1.8%	1.9%	2.6%	1.6%	2.2%	2.8%	1.4%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3	0	3	0	0	3		
All Vehicle Volumes																							
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound Sunnyview Rd				Westbound Sunnyview Rd				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	2	18	1	0	0	19	1	0	1	4	3	0	1	2	3	0							
06:05:00 AM	0	20	0	0	0	25	1	0	1	3	2	0	1	1	0	0							
06:10:00 AM	3	18	2	0	0	26	1	0	6	2	4	0	4	0	0	0	175						
06:15:00 AM	5	24	2	0	1	17	2	0	2	1	6	0	1	1	1	0	183						
06:20:00 AM	1	26	2	0	3	25	2	0	0	3	5	0	3	4	2	0	205						
06:25:00 AM	4	27	1	0	0	21	2	0	3	3	3	0	2	1	1	0	207						
06:30:00 AM	4	39	0	0	0	33	1	0	6	4	6	0	0	5	2	0	244						
06:35:00 AM	2	29	2	0	2	29	2	0	8	3	12	0	4	3	2	0	266						
06:40:00 AM	3	44	2	0	3	40	2	0	7	3	10	0	4	6	1	0	323						
06:45:00 AM	5	43	0	0	2	40	4	0	5	6	8	0	6	5	1	0	348						
06:50:00 AM	3	46	6	0	2	43	3	0	8	5	7	0	2	7	3	0	385						
06:55:00 AM	6	39	0	0	2	28	3	0	4	2	7	0	3	5	4	0	363	1068					
07:00:00 AM	4	32	2	0	0	30	7	0	2	4	6	0	1	3	5	0	334	1109					
07:05:00 AM	3	25	2	0	2	40	3	0	12	5	8	0	2	1	0	0	302	1158					
07:10:00 AM	9	42	2	0	2	39	11	0	7	3	7	0	5	3	4	0	333	1226					
07:15:00 AM	7	39	3	0	2	59	1	0	4	4	8	0	3	4	3	0	374	1300					
07:20:00 AM	9	43	2	0	0	48	9	0	11	2	4	0	3	4	5	0	411	1364					
07:25:00 AM	12	46	2	0	2	46	13	0	13	7	4	0	5	15	1	0	443	1462					
07:30:00 AM	13	45	2	0	1	41	9	0	7	5	4	0	1	8	3	0	445	1501					
07:35:00 AM	11	34	1	0	2	45	5	0	5	2	14	0	5	8	3	0	440	1538					
07:40:00 AM	9	44	0	0	3	67	6	0	6	2	9	0	6	4	2	0	432	1571					
07:45:00 AM	12	40	0	0	0	45	4	0	5	4	10	0	9	5	5	0	432	1585					
07:50:00 AM	10	42	0	0	3	49	5	0	4	4	7	0	2	6	2	0	431	1584					
07:55:00 AM	12	41	0	0	2	40	8	0	3	0	9	0	5	3	1	0	397	1605					

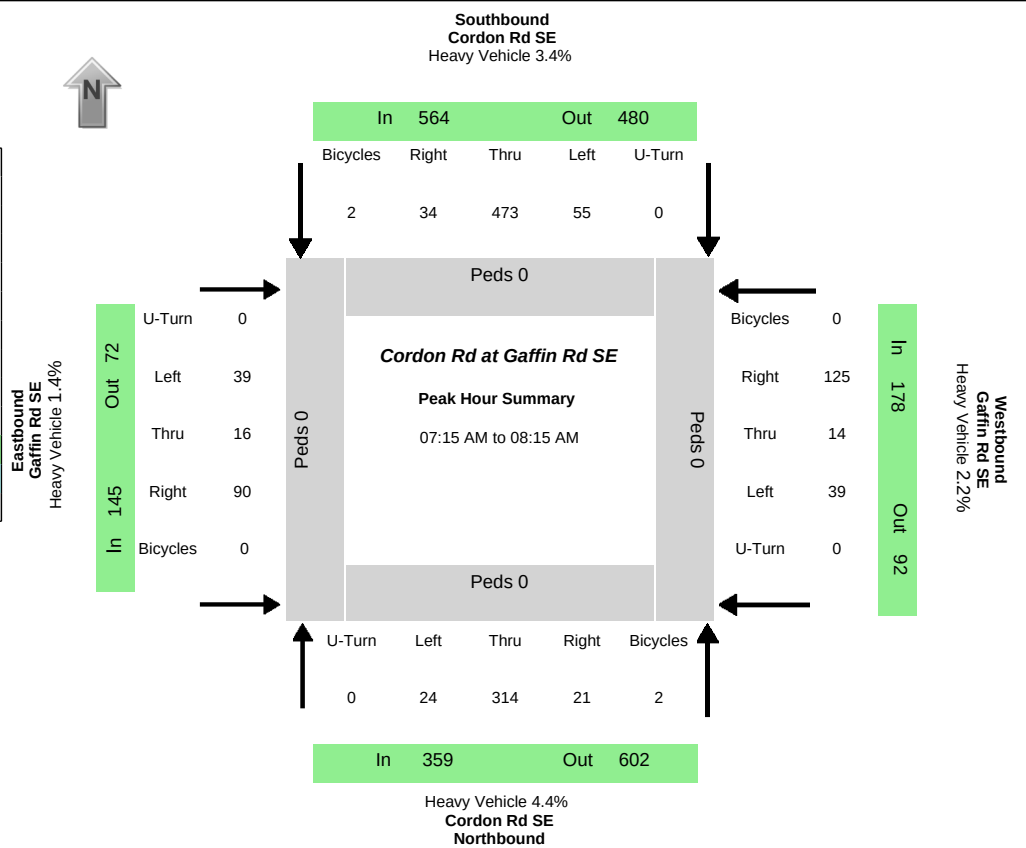
08:00:00 AM	9	41	1	0	1	42	14	0	5	4	10	0	6	5	1	0	397	1648
08:05:00 AM	7	35	2	0	1	42	11	0	7	3	7	0	2	4	5	0	389	1671
08:10:00 AM	10	49	1	0	3	30	3	0	4	2	5	0	0	4	1	0	377	1649
08:15:00 AM	3	41	0	0	6	32	3	0	4	5	7	0	1	10	1	0	351	1625
08:20:00 AM	9	38	4	0	4	30	3	0	6	4	7	0	2	7	6	0	345	1605
08:25:00 AM	9	27	0	0	4	45	6	0	4	3	9	0	5	5	5	0	355	1561
08:30:00 AM	7	50	1	0	1	33	7	0	4	3	5	0	4	5	5	0	367	1547
08:35:00 AM	12	32	0	0	0	41	2	0	6	1	3	0	0	0	1	0	345	1510
08:40:00 AM	8	16	2	0	2	48	10	0	5	3	7	0	3	4	5	0	336	1465
08:45:00 AM	11	31	2	0	1	46	4	0	1	2	5	0	2	6	2	0	324	1439
08:50:00 AM	11	37	2	0	1	35	4	0	4	4	12	0	2	8	1	0	347	1426
08:55:00 AM	9	34	1	0	1	27	5	0	5	6	8	0	1	4	0	0	335	1403

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	Caplinger Rd SE
City, State	Salem OR
Site Notes	
Location	44.918545 - -122.953738
Start Date	Wednesday, January 23, 2019
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.90



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
3	458	0	0	5	476	77	0	70	1	11	0	4	5	7	0	461	558	82	16	491	535	85	6
Percent Heavy Vehicles																							
0.0%	6.3%	0.0%	0.0%	0.0%	4.6%	5.2%	0.0%	2.9%	0.0%	9.1%	0.0%	0.0%	40.0%	42.9%	0.0%	6.3%	4.7%	3.7%	31.3%	4.7%	6.4%	7.1%	0.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Caplinger Rd SE				Westbound Caplinger Rd SE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
07:00:00 AM	0	28	2	0	3	30	4	0	4	0	0	0	0	0	0	0							
07:05:00 AM	1	34	1	0	1	37	3	0	4	0	1	0	0	0	0	0							
07:10:00 AM	0	33	0	0	2	28	6	0	7	1	1	0	1	0	0	0	232						
07:15:00 AM	0	29	1	0	0	33	3	0	8	0	0	0	1	0	1	0	237						
07:20:00 AM	2	36	0	0	1	38	4	0	5	1	2	0	0	0	2	0	246						
07:25:00 AM	0	33	0	0	0	45	8	0	6	0	0	0	0	1	1	0	261						
07:30:00 AM	0	30	0	0	2	41	9	0	6	0	2	0	0	0	2	0	277						
07:35:00 AM	0	33	0	0	0	43	8	0	8	0	1	0	1	0	0	0	280						
07:40:00 AM	0	45	0	0	1	43	2	0	4	0	2	0	0	0	0	0	283						
07:45:00 AM	0	43	0	0	0	54	6	0	6	0	1	0	1	1	1	0	304						
07:50:00 AM	0	50	0	0	0	36	6	0	6	0	1	0	0	2	0	0	311						
07:55:00 AM	1	49	0	0	0	34	8	0	4	0	1	0	0	0	0	0	311	1087					
08:00:00 AM	0	39	0	0	0	28	6	0	8	0	0	0	0	0	1	0	280	1098					
08:05:00 AM	0	36	0	0	0	41	6	0	5	0	0	0	1	0	0	0	268	1105					
08:10:00 AM	0	39	0	0	1	37	2	0	7	0	0	0	1	0	0	0	258	1113					
08:15:00 AM	0	25	0	0	0	36	12	0	5	0	1	0	0	1	0	0	256	1117					
08:20:00 AM	1	45	0	0	0	25	1	0	4	0	0	0	0	0	0	0	243	1102					
08:25:00 AM	0	31	0	0	0	29	2	0	4	0	0	0	0	0	0	0	222	1074					
08:30:00 AM	0	27	0	0	0	35	5	0	4	0	2	0	0	0	0	0	215	1055					
08:35:00 AM	3	17	0	0	0	34	8	0	4	0	0	0	0	0	0	0	205	1027					
08:40:00 AM	0	30	0	0	0	30	10	0	0	0	2	0	1	0	0	0	212	1003					
08:45:00 AM	0	25	0	0	0	31	6	0	3	0	0	0	1	0	0	0	205	956					
08:50:00 AM	2	28	0	0	0	32	8	0	5	0	2	0	0	0	0	0	216	932					
08:55:00 AM	1	32	0	0	0	40	7	0	7	0	0	0	0	0	1	0	231	923					

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	Gaffin Rd SE
City, State	Salem OR
Site Notes	
Location	44.911069 - -122.957407
Start Date	Wednesday, September 26, 2018
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:15:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.85

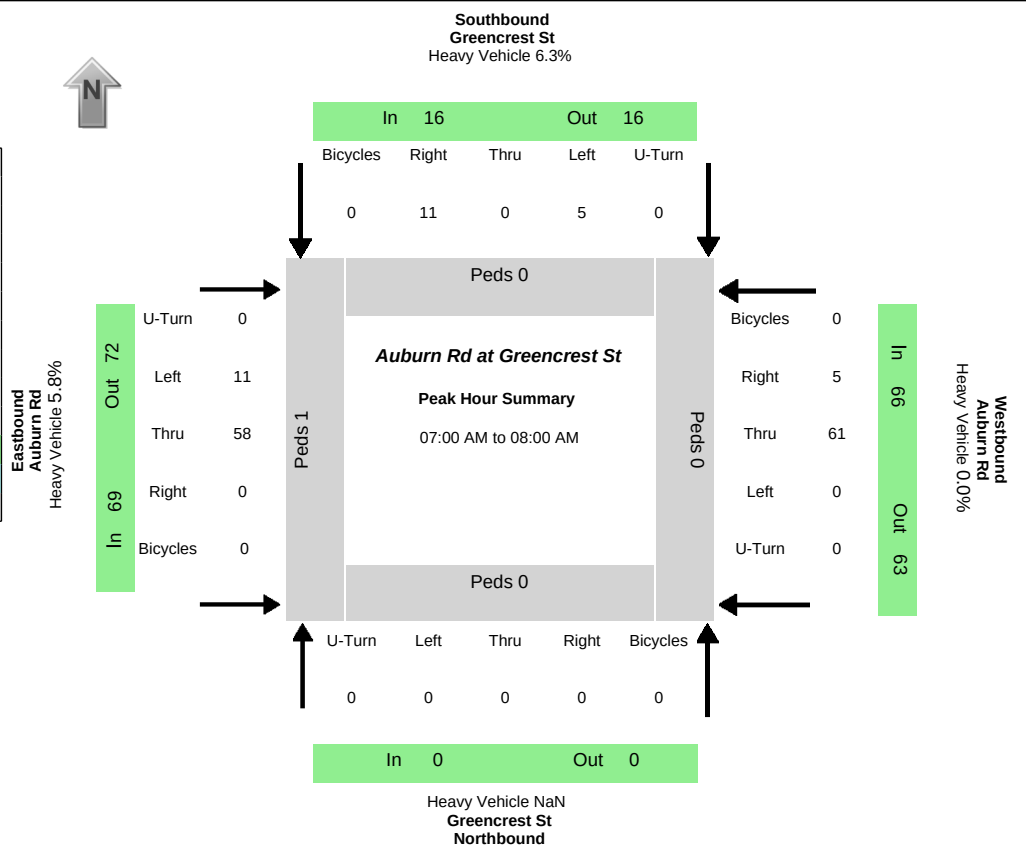


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
24	314	21	0	55	473	34	0	39	16	90	0	39	14	125	0	359	562	145	178	602	478	72	92
Percent Heavy Vehicles																							
8.3%	4.5%	0.0%	0.0%	1.8%	3.6%	2.9%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	3.2%	0.0%	4.5%	3.4%	1.4%	2.2%	3.2%	3.8%	4.2%	1.1%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Gaffin Rd SE				Westbound Gaffin Rd SE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
07:00:00 AM	4	17	0	0	3	35	4	0	2	0	2	0	1	1	7	0							
07:05:00 AM	0	14	1	0	4	24	3	0	3	4	4	0	3	0	6	0							
07:10:00 AM	3	15	3	0	11	31	2	0	2	2	6	0	7	1	7	0	232						
07:15:00 AM	1	28	2	0	7	38	2	0	4	3	3	0	2	1	9	0	256						
07:20:00 AM	1	29	2	0	6	40	2	0	2	2	8	0	4	0	9	0	295						
07:25:00 AM	1	26	4	0	7	35	2	0	4	1	5	0	4	1	8	0	303						
07:30:00 AM	2	27	2	0	2	32	0	0	6	0	6	0	2	2	8	0	292						
07:35:00 AM	4	22	1	0	3	48	3	0	3	2	4	0	3	1	7	0	288						
07:40:00 AM	0	30	2	0	5	51	2	0	4	3	12	0	2	2	13	0	316						
07:45:00 AM	1	34	1	0	6	58	2	0	2	0	7	0	6	2	17	0	363						
07:50:00 AM	5	22	4	0	2	35	2	0	2	2	15	0	4	0	13	0	368						
07:55:00 AM	2	30	2	0	5	25	4	0	4	1	7	0	3	1	12	0	338	1189					
08:00:00 AM	3	20	1	0	3	36	4	0	4	1	10	0	3	1	12	0	300	1211					
08:05:00 AM	2	26	0	0	5	29	3	0	3	0	6	0	6	2	8	0	284	1235					
08:10:00 AM	2	20	0	0	4	46	8	0	1	1	7	0	0	1	9	0	287	1244					
08:15:00 AM	2	24	0	0	6	26	4	0	5	4	7	0	2	1	12	0	282	1237					
08:20:00 AM	2	26	2	0	4	17	3	0	3	3	5	0	2	2	8	0	269	1209					
08:25:00 AM	2	19	2	0	9	39	4	0	2	3	6	0	2	0	8	0	266	1207					
08:30:00 AM	2	19	0	0	2	32	4	0	3	1	3	0	3	0	9	0	251	1196					
08:35:00 AM	3	21	1	0	3	35	2	0	3	0	11	0	5	3	11	0	272	1193					
08:40:00 AM	2	13	2	0	6	39	4	0	2	4	5	0	4	1	6	0	264	1155					
08:45:00 AM	1	24	0	0	3	40	5	0	3	2	8	0	3	1	9	0	285	1118					
08:50:00 AM	2	22	0	0	3	31	3	0	3	1	6	0	3	0	4	0	265	1090					
08:55:00 AM	6	21	4	0	5	24	3	0	5	0	6	0	3	1	12	0	267	1084					

K-D-N

KEY DATA NETWORK

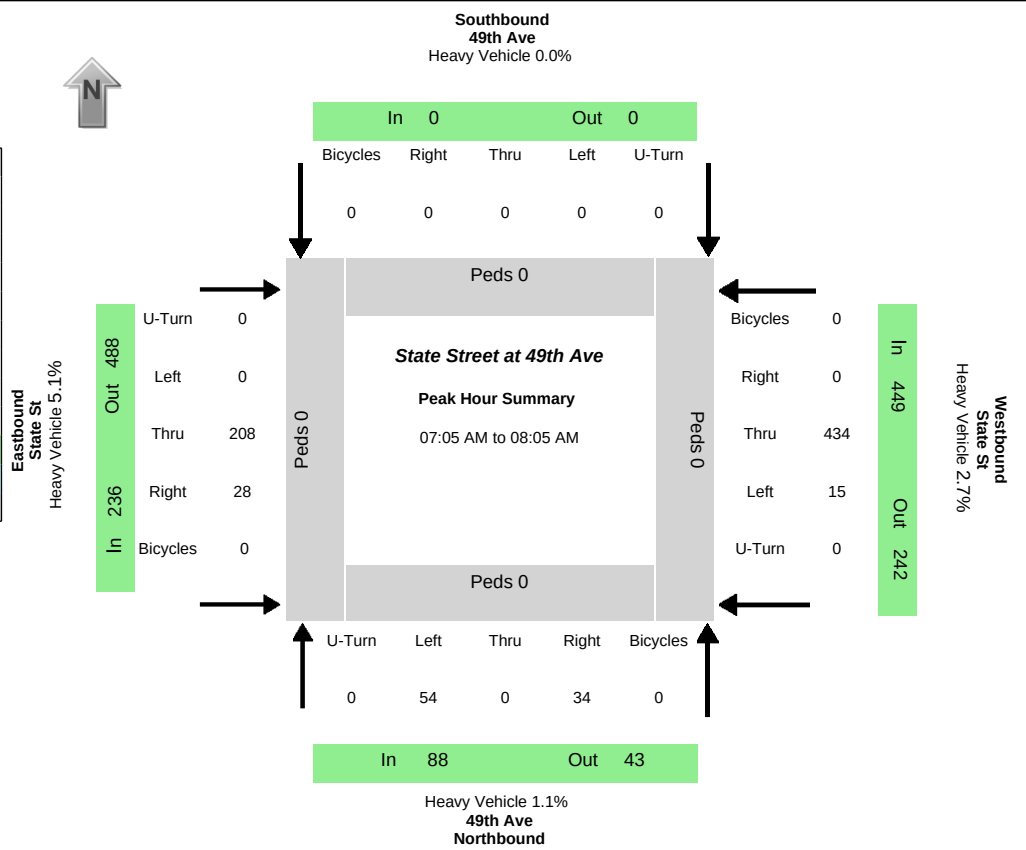
Data Provided by K-D-N.com 503-594-4224	
N/S street	Greencrest St
E/W street	Auburn Rd
City, State	Salem OR
Site Notes	
Location	44.936418 - -122.966336
Start Date	Tuesday, September 25, 2018
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.70



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	5	0	11	0	11	58	0	0	0	61	5	0	0	16	69	66	0	16	72	63
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	18.2%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	NaN	6.3%	5.8%	0.0%	NaN	12.5%	0.0%	4.8%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1		
All Vehicle Volumes																							
Time	Northbound Greencrest St				Southbound Greencrest St				Eastbound Auburn Rd				Westbound Auburn Rd				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	0	0	0	1	0	0	0	1	2	0	0	0	1	0	0							
06:05:00 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	0	0						
06:10:00 AM	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	16						
06:15:00 AM	0	0	0	0	0	0	0	0	3	5	0	0	0	2	1	0	22						
06:20:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	17						
06:25:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	3	0	0	20						
06:30:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	0	16						
06:35:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	0	21						
06:40:00 AM	0	0	0	0	0	0	1	0	0	6	0	0	0	2	1	0	24						
06:45:00 AM	0	0	0	0	2	0	1	0	1	3	0	0	0	5	1	0	30						
06:50:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	27						
06:55:00 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	3	0	0	23	83					
07:00:00 AM	0	0	0	0	1	0	1	0	0	7	0	0	0	4	0	0	23	91					
07:05:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	6	0	0	30	95					
07:10:00 AM	0	0	0	0	1	0	0	0	2	6	0	0	0	3	0	0	36	103					
07:15:00 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	3	0	0	32	101					
07:20:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	26	104					
07:25:00 AM	0	0	0	0	0	0	2	0	1	2	0	0	0	2	0	0	21	104					
07:30:00 AM	0	0	0	0	0	0	1	0	1	8	0	0	0	3	0	0	25	110					
07:35:00 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	6	3	0	36	119					
07:40:00 AM	0	0	0	0	2	0	2	0	0	10	0	0	0	8	1	0	52	132					
07:45:00 AM	0	0	0	0	1	0	3	0	0	3	0	0	0	8	0	0	54	134					
07:50:00 AM	0	0	0	0	0	0	0	0	1	5	0	0	0	8	0	0	52	144					
07:55:00 AM	0	0	0	0	0	0	1	0	3	1	0	0	0	7	1	0	42	151					

08:00:00 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	5	0	0	35	146
08:05:00 AM	0	0	0	0	1	0	0	0	0	4	0	0	0	5	0	0	31	145
08:10:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	26	141
08:15:00 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	2	0	0	25	139
08:20:00 AM	0	0	0	0	1	0	1	0	1	4	0	0	0	4	1	0	27	146
08:25:00 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	24	144
08:30:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	4	0	0	25	139
08:35:00 AM	0	0	0	0	0	0	1	0	0	3	0	0	0	4	3	0	24	134
08:40:00 AM	0	0	0	0	1	0	3	0	0	1	0	0	0	4	1	0	29	121
08:45:00 AM	0	0	0	0	0	0	3	0	3	7	0	0	0	6	0	0	40	125
08:50:00 AM	0	0	0	0	0	0	7	0	0	6	0	0	0	6	0	0	48	130
08:55:00 AM	0	0	0	0	0	0	6	0	5	4	0	0	0	10	0	0	63	142

Data Provided by K-D-N.com 503-594-4224	
N/S street	49th Ave
E/W street	State St
City, State	Salem OR
Site Notes	
Location	44.92804 - -122.961423
Start Date	Tuesday, September 25, 2018
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:05:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.94



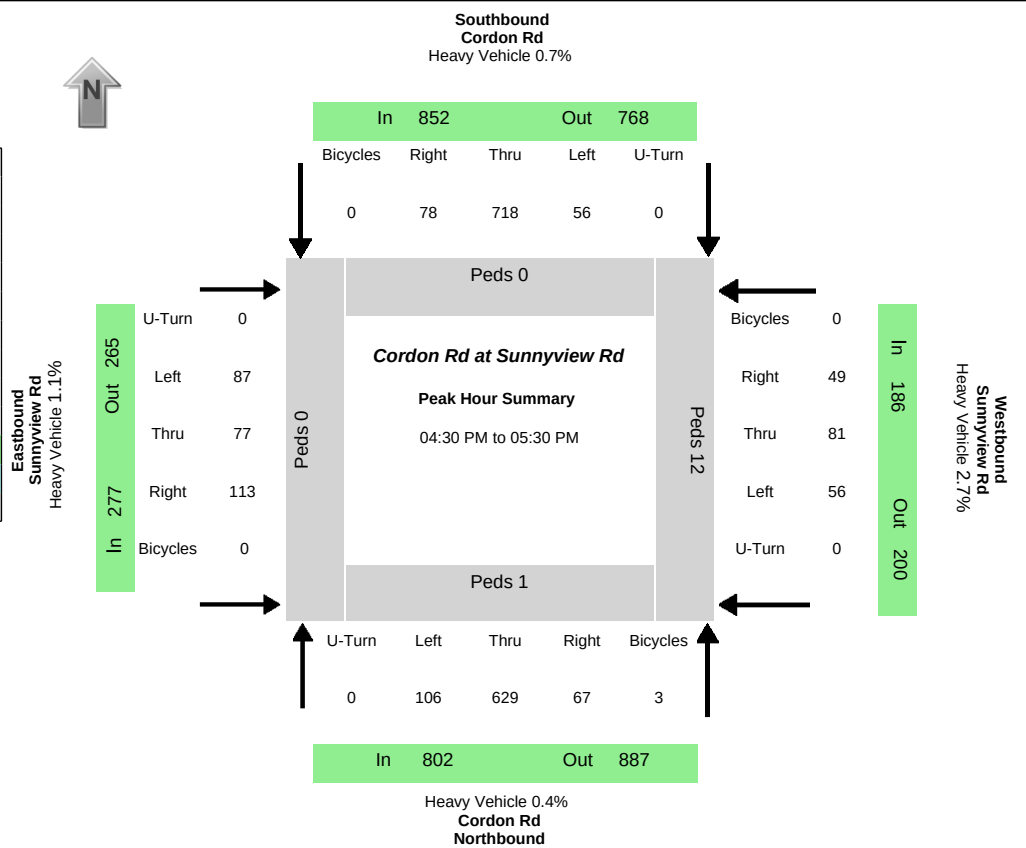
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
54	0	34	0	0	0	0	0	0	208	28	0	15	434	0	0	88	0	236	449	43	0	488	242
Percent Heavy Vehicles																							
0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	1.1%	0.0%	5.1%	2.7%	0.0%	0.0%	2.5%	5.4%

PHV- Bicycles												PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

All Vehicle Volumes																	
Time	Northbound 49th Ave				Southbound 49th Ave				Eastbound State St				Westbound State St				15 Min Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
06:00:00 AM	2	0	0	0	0	0	0	0	0	9	0	0	1	16	0	0	
06:05:00 AM	4	0	1	0	0	0	0	0	0	12	1	0	0	15	0	0	
06:10:00 AM	6	0	0	0	0	0	0	0	0	14	0	0	1	9	0	0	91
06:15:00 AM	0	0	5	0	0	0	0	0	0	17	0	0	0	14	0	0	99
06:20:00 AM	1	0	3	0	0	0	0	0	0	9	2	0	1	20	0	0	102
06:25:00 AM	3	0	2	0	0	0	0	0	0	19	0	0	0	15	0	0	111
06:30:00 AM	1	0	1	0	0	0	0	0	0	17	1	0	0	14	0	0	109
06:35:00 AM	1	0	2	0	0	0	0	0	0	22	1	0	0	22	0	0	121
06:40:00 AM	2	0	2	0	0	0	0	0	0	13	1	0	2	24	0	0	126
06:45:00 AM	6	0	1	0	0	0	0	0	0	20	2	0	0	38	0	0	159
06:50:00 AM	5	0	3	0	0	0	0	0	0	15	0	0	0	35	0	0	169
06:55:00 AM	5	0	1	0	0	0	0	0	0	22	2	0	2	27	0	0	184
07:00:00 AM	2	0	1	0	0	0	0	0	0	14	1	0	1	32	0	0	168
07:05:00 AM	8	0	2	0	0	0	0	0	0	9	1	0	0	38	0	0	560
07:10:00 AM	4	0	4	0	0	0	0	0	0	15	0	0	0	30	0	0	583
07:15:00 AM	4	0	1	0	0	0	0	0	0	19	2	0	0	28	0	0	601
07:20:00 AM	3	0	2	0	0	0	0	0	0	23	2	0	2	41	0	0	638
07:25:00 AM	3	0	5	0	0	0	0	0	0	15	3	0	2	43	0	0	670
07:30:00 AM	7	0	2	0	0	0	0	0	0	15	3	0	1	34	0	0	698
07:35:00 AM	7	0	0	0	0	0	0	0	0	17	4	0	1	38	0	0	717
07:40:00 AM	9	0	6	0	0	0	0	0	0	18	3	0	2	39	0	0	750
07:45:00 AM	1	0	3	0	0	0	0	0	0	16	1	0	1	34	0	0	739
07:50:00 AM	2	0	3	0	0	0	0	0	0	26	5	0	1	34	0	0	752
07:55:00 AM	4	0	4	0	0	0	0	0	0	17	1	0	1	52	0	0	772

08:00:00 AM	2	0	2	0	0	0	0	0	0	18	3	0	4	23	0	0	202	773
08:05:00 AM	9	0	4	0	0	0	0	0	0	11	4	0	1	26	0	0	186	770
08:10:00 AM	2	0	2	0	0	0	0	0	0	13	1	0	1	27	0	0	153	763
08:15:00 AM	3	0	1	0	0	0	0	0	0	17	0	0	1	31	0	0	154	762
08:20:00 AM	4	0	3	0	0	0	0	0	0	13	0	0	1	26	0	0	146	736
08:25:00 AM	1	0	2	0	0	0	0	0	0	28	4	0	2	42	0	0	179	744
08:30:00 AM	1	0	0	0	0	0	0	0	0	18	4	0	0	27	0	0	176	732
08:35:00 AM	2	0	3	0	0	0	0	0	0	8	1	0	1	24	0	0	168	704
08:40:00 AM	5	0	3	0	0	0	0	0	0	8	4	0	4	15	0	0	128	666
08:45:00 AM	1	0	4	0	0	0	0	0	0	20	1	0	2	28	0	0	134	666
08:50:00 AM	1	0	4	0	0	0	0	0	0	19	5	0	0	29	0	0	153	653
08:55:00 AM	5	0	3	0	0	0	0	0	0	16	5	0	1	21	0	0	165	625

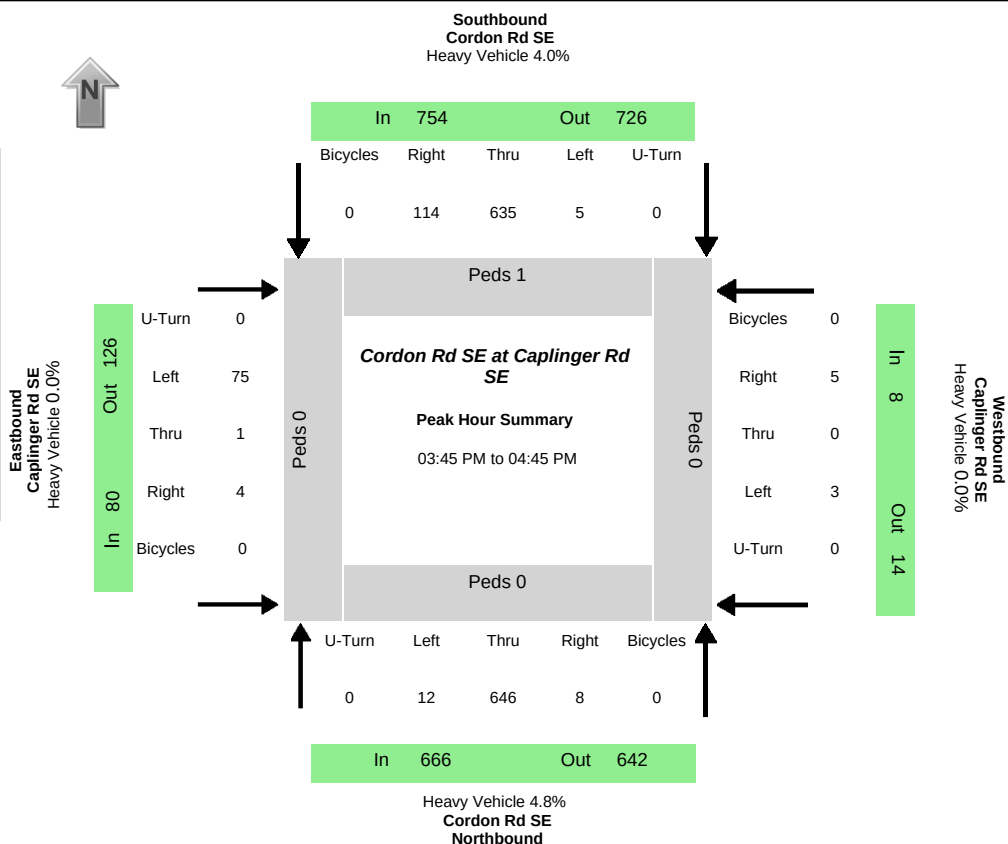
Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd
E/W street	Sunnyview Rd
City, State	Salem OR
Site Notes	
Location	44.954898 - -122.958893
Start Date	Tuesday, September 25, 2018
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	05:15:00 PM
PHF (15-Min Int)	0.93



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
106	629	67	0	56	718	78	0	87	77	113	0	56	81	49	0	802	852	277	186	887	765	265	200
Percent Heavy Vehicles																							
0.0%	0.3%	1.5%	0.0%	0.0%	0.6%	2.6%	0.0%	1.1%	0.0%	1.8%	0.0%	1.8%	2.5%	4.1%	0.0%	0.4%	0.7%	1.1%	2.7%	0.8%	0.7%	1.5%	0.5%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	12	13		
All Vehicle Volumes																							
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound Sunnyview Rd				Westbound Sunnyview Rd				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
03:00:00 PM	7	39	4	0	1	64	6	0	5	3	6	0	2	5	3	0							
03:05:00 PM	14	32	2	0	7	40	1	0	4	0	13	0	4	2	1	0							
03:10:00 PM	16	30	4	0	2	59	3	0	8	3	5	0	0	1	1	0	397						
03:15:00 PM	14	36	1	0	6	51	3	0	13	7	14	0	4	6	6	0	413						
03:20:00 PM	12	52	2	0	4	69	5	0	5	4	13	0	1	7	3	0	470						
03:25:00 PM	7	40	5	0	2	41	1	0	21	5	10	0	3	4	3	0	480						
03:30:00 PM	12	41	3	0	0	58	9	0	7	6	12	0	3	4	4	0	478						
03:35:00 PM	6	33	0	0	4	56	3	0	10	9	8	0	8	6	1	0	445						
03:40:00 PM	7	45	3	0	3	52	10	0	10	4	14	0	7	8	3	0	469						
03:45:00 PM	17	46	2	0	3	52	12	0	6	6	9	0	2	2	2	0	469						
03:50:00 PM	9	36	3	0	2	65	5	0	9	10	16	0	2	4	1	0	487						
03:55:00 PM	11	41	1	0	6	70	9	0	12	7	7	0	2	2	1	0	490	1836					
04:00:00 PM	9	39	5	0	3	47	6	0	9	6	15	0	5	5	1	0	481	1841					
04:05:00 PM	5	46	5	0	3	64	8	0	6	3	20	0	4	8	6	0	497	1899					
04:10:00 PM	14	52	1	0	4	61	5	0	1	4	14	0	1	6	2	0	493	1932					
04:15:00 PM	5	58	0	0	6	62	9	0	8	5	9	0	2	3	1	0	511	1939					
04:20:00 PM	13	50	2	0	7	55	3	0	8	12	11	0	2	4	3	0	503	1932					
04:25:00 PM	11	43	3	0	2	61	7	0	10	11	4	0	3	10	2	0	505	1957					
04:30:00 PM	12	61	5	0	7	50	6	0	7	6	5	0	4	9	3	0	512	1973					
04:35:00 PM	1	44	5	0	8	60	12	0	6	7	6	0	2	6	2	0	501	1988					
04:40:00 PM	9	50	6	0	3	52	1	0	10	12	14	0	4	15	2	0	512	2000					
04:45:00 PM	6	44	7	0	5	60	5	0	11	6	6	0	5	9	9	0	510	2014					
04:50:00 PM	15	48	5	0	3	55	4	0	8	3	8	0	9	9	3	0	521	2022					
04:55:00 PM	7	52	6	0	6	57	7	0	4	8	11	0	9	6	10	0	526	2036					

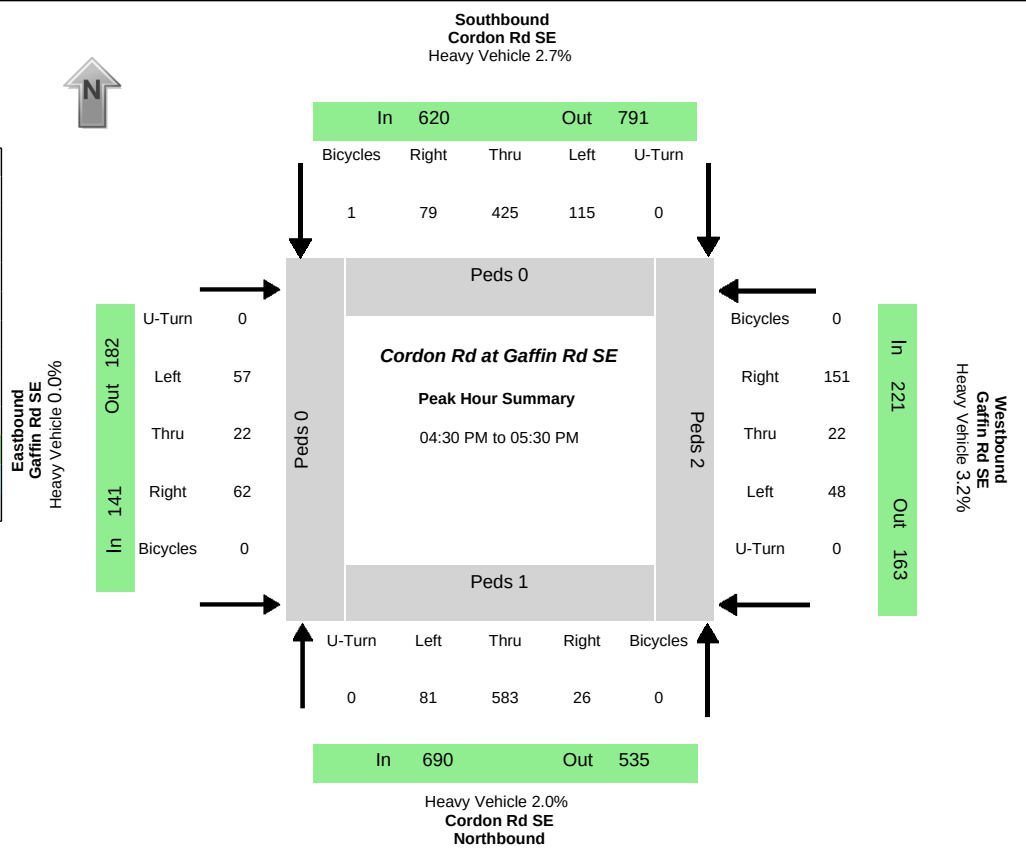
05:00:00 PM	5	57	1	0	4	68	8	0	4	7	5	0	5	5	0	0	522	2055
05:05:00 PM	10	48	3	0	1	56	6	0	5	7	13	0	7	8	6	0	522	2047
05:10:00 PM	9	50	4	0	4	58	10	0	10	4	11	0	5	2	6	0	512	2055
05:15:00 PM	11	61	8	0	4	66	7	0	9	10	10	0	1	5	4	0	539	2083
05:20:00 PM	7	58	7	0	6	65	5	0	8	3	12	0	5	2	2	0	549	2093
05:25:00 PM	14	56	10	0	5	71	7	0	5	4	12	0	0	5	2	0	567	2117
05:30:00 PM	11	33	3	0	6	52	14	0	10	6	13	0	1	5	5	0	530	2101
05:35:00 PM	16	55	3	0	1	55	7	0	8	6	10	0	2	4	1	0	518	2110
05:40:00 PM	12	56	2	0	1	64	9	0	5	2	16	0	3	4	1	0	502	2107
05:45:00 PM	11	55	3	0	2	34	4	0	11	7	17	0	2	2	3	0	494	2085
05:50:00 PM	8	43	5	0	8	63	2	0	3	7	16	0	2	1	3	0	487	2076
05:55:00 PM	9	50	1	0	4	55	8	0	6	5	13	0	7	3	4	0	477	2058

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	Caplinger Rd SE
City, State	Salem OR
Site Notes	
Location	44.918545 - -122.953738
Start Date	Wednesday, January 23, 2019
Start Time	03:30:00 PM
Weather	
Study ID #	
Peak Hour Start	03:45:00 PM
Peak 15 Min Start	03:50:00 PM
PHF (15-Min Int)	0.94



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
12	646	8	0	5	635	114	0	75	1	4	0	3	0	5	0	666	754	80	8	642	726	126	14
Percent Heavy Vehicles																							
0.0%	4.6%	25.0%	0.0%	20.0%	4.3%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	4.0%	0.0%	0.0%	4.2%	4.1%	1.6%	21.4%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound					in Crosswalk						
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1		
All Vehicle Volumes																							
	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Caplinger Rd SE				Westbound Caplinger Rd SE				15 Min	1 HR					
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum						
03:30:00 PM	0	57	0	0	0	48	6	0	4	0	1	0	0	0	1	0							
03:35:00 PM	1	54	0	0	1	51	9	0	12	0	1	0	0	0	0	0							
03:40:00 PM	0	41	0	0	0	59	9	0	4	0	2	0	0	0	0	0	361						
03:45:00 PM	1	49	0	0	0	50	11	0	9	0	0	0	0	0	0	0	364						
03:50:00 PM	1	61	0	0	0	55	5	0	6	0	0	0	0	0	2	0	365						
03:55:00 PM	3	60	1	0	0	44	12	0	6	0	0	0	1	0	0	0	377						
04:00:00 PM	1	68	0	0	1	54	10	0	6	0	2	0	0	0	1	0	400						
04:05:00 PM	1	50	0	0	0	52	7	0	6	0	0	0	0	0	0	0	386						
04:10:00 PM	1	44	0	0	0	52	11	0	5	1	0	0	0	0	0	0	373						
04:15:00 PM	1	60	0	0	0	54	17	0	5	0	0	0	1	0	0	0	368						
04:20:00 PM	1	63	0	0	1	53	9	0	5	0	1	0	0	0	0	0	385						
04:25:00 PM	1	37	0	0	2	53	7	0	8	0	0	0	0	0	0	0	379	1490					
04:30:00 PM	1	54	4	0	0	54	7	0	11	0	0	0	1	0	0	0	373	1505					
04:35:00 PM	0	46	1	0	1	54	10	0	3	0	1	0	0	0	2	0	358	1494					
04:40:00 PM	0	54	2	0	0	60	8	0	5	0	0	0	0	0	0	0	379	1508					
04:45:00 PM	0	57	0	0	1	44	12	0	3	1	0	0	0	0	0	0	365	1506					
04:50:00 PM	1	52	0	0	3	53	10	0	6	1	0	0	1	0	0	0	374	1503					
04:55:00 PM	0	52	0	0	1	47	12	0	7	0	0	0	0	0	2	0	366	1497					
05:00:00 PM	1	52	1	0	0	51	12	0	4	0	0	0	2	1	2	0	374	1480					
05:05:00 PM	0	56	1	0	0	38	7	0	7	0	0	0	0	1	1	0	358	1475					
05:10:00 PM	1	55	1	0	0	40	12	0	5	1	0	0	1	1	0	0	354	1478					
05:15:00 PM	1	63	0	0	0	40	7	0	3	0	0	0	0	1	1	0	344	1456					
05:20:00 PM	0	45	0	0	1	54	17	0	2	0	1	0	0	0	0	0	353	1443					
05:25:00 PM	0	69	1	0	0	42	10	0	6	0	0	0	0	0	0	0	364	1463					

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	Gaffin Rd SE
City, State	Salem OR
Site Notes	
Location	44.911069 - -122.957407
Start Date	Wednesday, September 26, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	04:40:00 PM
PHF (15-Min Int)	0.92

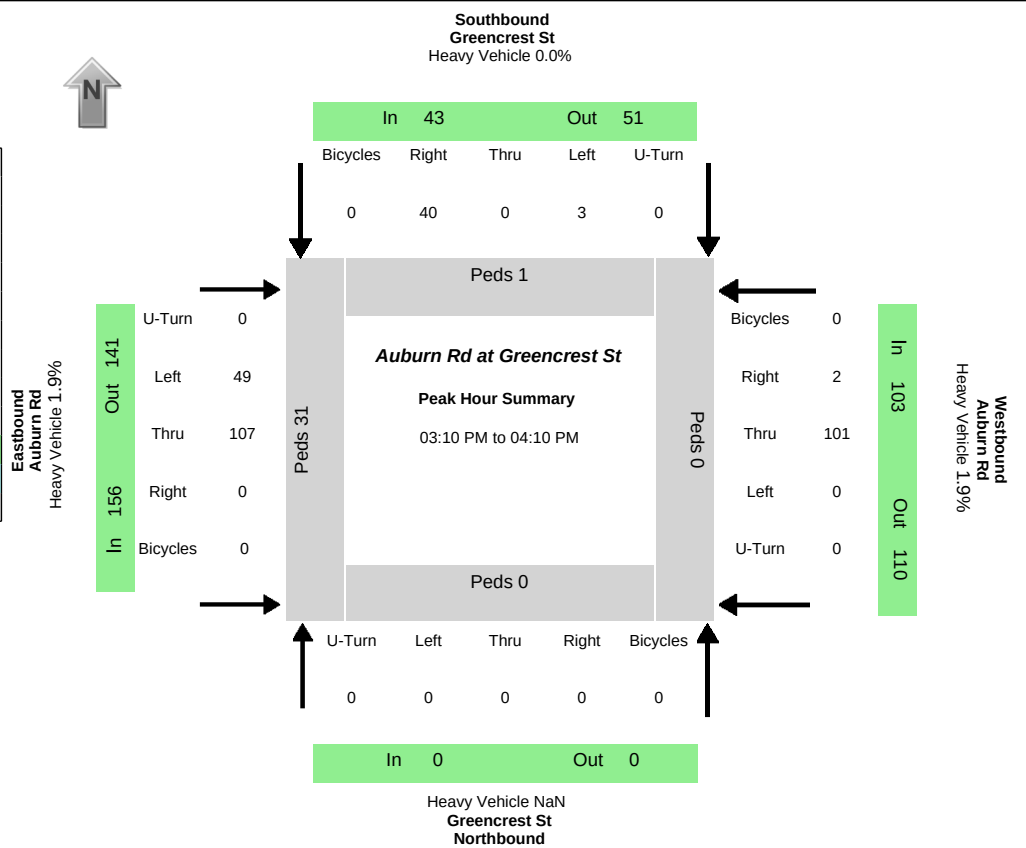


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
81	583	26	0	115	425	79	0	57	22	62	0	48	22	151	0	690	619	141	221	535	791	182	163
Percent Heavy Vehicles																							
0.0%	2.1%	7.7%	0.0%	5.2%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	4.0%	0.0%	2.0%	2.7%	0.0%	3.2%	2.2%	2.3%	0.0%	4.9%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2		3	
All Vehicle Volumes																							
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Gaffin Rd SE				Westbound Gaffin Rd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
04:00:00 PM	4	33	4	0	8	35	5	0	5	4	7	0	6	3	14	0							
04:05:00 PM	9	42	3	0	10	31	7	0	2	4	2	0	6	1	8	0							
04:10:00 PM	2	43	3	0	6	40	6	0	3	1	7	0	3	2	12	0	381						
04:15:00 PM	4	51	1	0	16	30	6	0	2	0	3	0	5	4	17	0	392						
04:20:00 PM	7	50	6	0	20	32	8	0	3	0	5	0	1	1	11	0	411						
04:25:00 PM	5	34	2	0	12	30	11	0	3	0	5	0	2	1	9	0	397						
04:30:00 PM	8	36	1	0	10	31	7	0	6	3	5	0	9	0	6	0	380						
04:35:00 PM	5	42	2	0	7	37	3	0	5	3	6	0	5	3	10	0	364						
04:40:00 PM	7	52	3	0	10	39	6	0	6	0	4	0	5	2	15	0	399						
04:45:00 PM	6	53	3	0	8	37	6	0	3	2	6	0	5	2	17	0	425						
04:50:00 PM	4	69	2	0	8	36	7	0	4	3	4	0	2	3	14	0	453						
04:55:00 PM	6	62	0	0	9	35	8	0	7	2	4	0	4	3	8	0	452	1629					
05:00:00 PM	3	43	3	0	13	36	7	0	4	4	5	0	2	1	13	0	438	1635					
05:05:00 PM	11	52	2	0	12	35	4	0	2	0	3	0	2	3	12	0	420	1648					
05:10:00 PM	12	37	2	0	10	33	5	0	2	1	6	0	4	1	15	0	400	1648					
05:15:00 PM	6	43	3	0	11	30	7	0	13	2	4	0	4	2	16	0	407	1650					
05:20:00 PM	8	46	4	0	9	42	8	0	4	0	10	0	3	2	16	0	421	1658					
05:25:00 PM	5	48	1	0	8	34	11	0	1	2	5	0	3	0	9	0	420	1671					
05:30:00 PM	5	33	2	0	7	35	3	0	3	3	2	0	2	1	10	0	385	1655					
05:35:00 PM	9	49	0	0	13	43	1	0	2	3	1	0	2	0	13	0	369	1663					
05:40:00 PM	7	51	1	0	5	47	5	0	4	3	4	0	2	4	7	0	382	1654					
05:45:00 PM	6	34	1	0	15	34	6	0	6	1	3	0	2	0	16	0	400	1630					
05:50:00 PM	4	29	1	0	4	31	3	0	2	1	10	0	1	2	9	0	361	1571					
05:55:00 PM	2	56	1	0	9	35	7	0	3	1	4	0	2	2	4	0	347	1549					

K-D-N

KEY DATA NETWORK

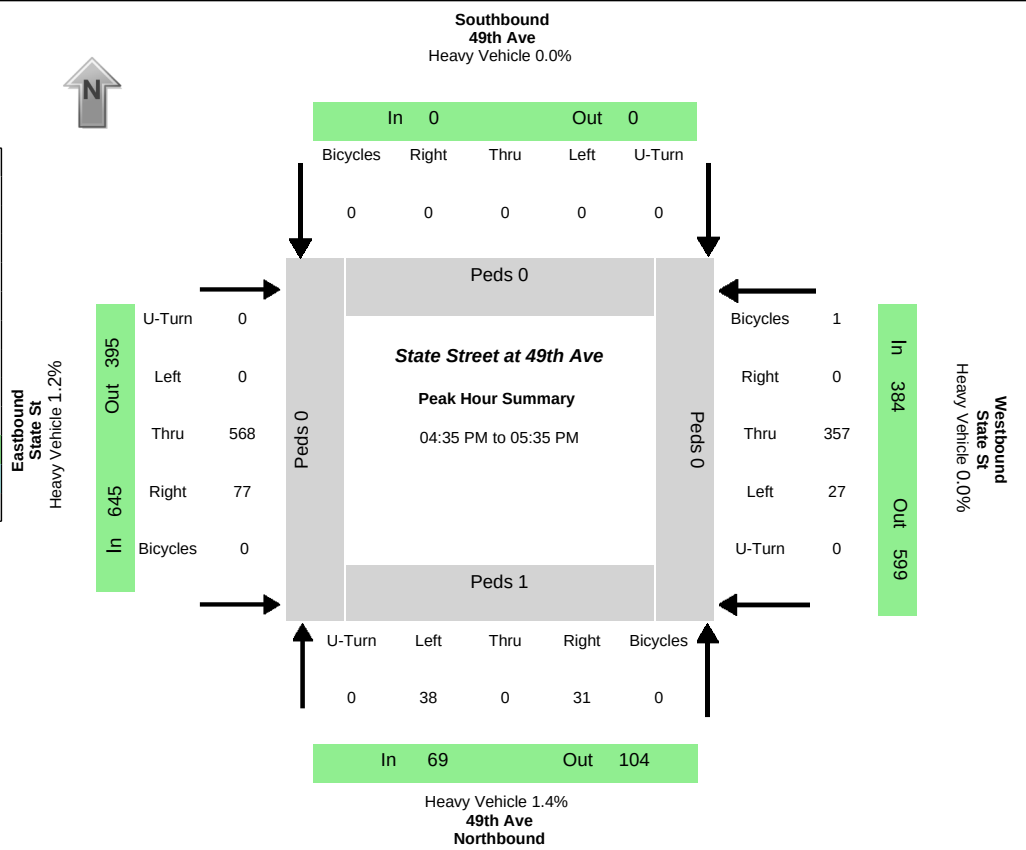
Data Provided by K-D-N.com 503-594-4224	
N/S street	Greencrest St
E/W street	Auburn Rd
City, State	Salem OR
Site Notes	
Location	44.936418 - -122.966336
Start Date	Tuesday, September 25, 2018
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	03:10:00 PM
Peak 15 Min Start	03:30:00 PM
PHF (15-Min Int)	0.73



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	3	0	40	0	49	107	0	0	0	101	2	0	0	43	156	103	0	51	141	110
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%	0.9%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	NaN	0.0%	1.9%	1.9%	NaN	3.9%	1.4%	0.9%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	31	0	32			
All Vehicle Volumes																							
Time	Northbound Greencrest St				Southbound Greencrest St				Eastbound Auburn Rd				Westbound Auburn Rd				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
03:00:00 PM	0	0	0	0	0	0	2	0	0	3	0	0	0	5	0	0							
03:05:00 PM	0	0	0	0	3	0	2	0	1	9	0	0	0	3	1	0							
03:10:00 PM	0	0	0	0	0	0	4	0	1	8	0	0	0	8	0	0	50						
03:15:00 PM	0	0	0	0	0	0	5	0	2	8	0	0	0	11	0	0	66						
03:20:00 PM	0	0	0	0	0	0	3	0	2	4	0	0	0	7	0	0	63						
03:25:00 PM	0	0	0	0	0	0	5	0	3	10	0	0	0	9	1	0	70						
03:30:00 PM	0	0	0	0	0	0	2	0	1	4	0	0	0	16	0	0	67						
03:35:00 PM	0	0	0	0	0	0	6	0	9	13	0	0	0	6	0	0	85						
03:40:00 PM	0	0	0	0	0	0	4	0	16	15	0	0	0	12	0	0	104						
03:45:00 PM	0	0	0	0	1	0	3	0	4	9	0	0	0	6	0	0	104						
03:50:00 PM	0	0	0	0	0	0	0	0	5	6	0	0	0	6	0	0	87						
03:55:00 PM	0	0	0	0	0	0	6	0	3	9	0	0	0	2	1	0	61	285					
04:00:00 PM	0	0	0	0	1	0	1	0	2	9	0	0	0	13	0	0	64	301					
04:05:00 PM	0	0	0	0	1	0	1	0	1	12	0	0	0	5	0	0	67	302					
04:10:00 PM	0	0	0	0	0	0	1	0	1	7	0	0	0	5	1	0	61	296					
04:15:00 PM	0	0	0	0	0	0	3	0	1	9	0	0	0	13	0	0	61	296					
04:20:00 PM	0	0	0	0	0	0	1	0	4	8	0	0	0	6	2	0	62	301					
04:25:00 PM	0	0	0	0	0	0	0	0	2	6	0	0	0	13	1	0	69	295					
04:30:00 PM	0	0	0	0	1	0	1	0	1	3	0	0	0	7	0	0	56	285					
04:35:00 PM	0	0	0	0	0	0	1	0	2	13	0	0	0	8	1	0	60	276					
04:40:00 PM	0	0	0	0	1	0	2	0	3	7	0	0	0	5	2	0	58	249					
04:45:00 PM	0	0	0	0	1	0	0	0	1	7	0	0	0	7	0	0	61	242					
04:50:00 PM	0	0	0	0	2	0	4	0	1	6	0	0	0	10	0	0	59	248					
04:55:00 PM	0	0	0	0	1	0	4	0	1	5	0	0	0	6	0	0	56	244					

05:00:00 PM	0	0	0	0	0	0	2	0	1	4	0	0	0	8	1	0	56	234
05:05:00 PM	0	0	0	0	1	0	0	0	3	8	0	0	0	5	2	0	52	233
05:10:00 PM	0	0	0	0	0	0	1	0	4	6	0	0	0	3	2	0	51	234
05:15:00 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	8	2	0	50	223
05:20:00 PM	0	0	0	0	1	0	1	0	0	4	0	0	0	4	0	0	41	212
05:25:00 PM	0	0	0	0	1	0	0	0	0	7	0	0	0	7	0	0	40	205
05:30:00 PM	0	0	0	0	0	0	0	0	1	6	0	0	0	5	0	0	37	204
05:35:00 PM	0	0	0	0	2	0	0	0	3	4	0	0	0	6	0	0	42	194
05:40:00 PM	0	0	0	0	0	0	0	0	2	7	0	0	0	13	1	0	50	197
05:45:00 PM	0	0	0	0	0	0	3	0	4	10	0	0	0	4	0	0	59	202
05:50:00 PM	0	0	0	0	0	0	2	0	0	7	0	0	0	5	0	0	58	193
05:55:00 PM	0	0	0	0	0	0	2	0	3	4	0	0	0	7	0	0	51	192

Data Provided by K-D-N.com 503-594-4224	
N/S street	49th Ave
E/W street	State St
City, State	Salem OR
Site Notes	
Location	44.92804 - -122.961423
Start Date	Tuesday, September 25, 2018
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:35:00 PM
Peak 15 Min Start	04:35:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
38	0	31	0	0	0	0	0	0	568	77	0	27	357	0	0	69	0	645	384	104	0	395	599
Percent Heavy Vehicles																							
2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.2%	0.0%	0.0%	0.0%	0.3%	1.3%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	
All Vehicle Volumes																							
Time	Northbound 49th Ave				Southbound 49th Ave				Eastbound State St				Westbound State St				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
03:00:00 PM	2	0	7	0	0	0	0	0	0	21	4	0	1	27	0	0							
03:05:00 PM	4	0	1	0	0	0	0	0	0	25	6	0	2	36	0	0							
03:10:00 PM	2	0	0	0	0	0	0	0	0	21	2	0	0	37	0	0	198						
03:15:00 PM	1	0	3	0	0	0	0	0	0	32	6	0	3	18	0	0	199						
03:20:00 PM	4	0	5	0	0	0	0	0	0	44	4	0	2	36	0	0	220						
03:25:00 PM	3	0	8	0	0	0	0	0	0	39	5	0	8	26	0	0	247						
03:30:00 PM	2	0	2	0	0	0	0	0	0	35	3	0	5	29	0	0	260						
03:35:00 PM	7	0	3	0	0	0	0	0	0	45	4	0	4	30	0	0	258						
03:40:00 PM	7	0	4	0	0	0	0	0	0	39	7	0	3	35	0	0	264						
03:45:00 PM	3	0	2	0	0	0	0	0	0	37	3	0	1	29	0	0	263						
03:50:00 PM	4	0	2	0	0	0	0	0	0	39	7	0	2	38	0	0	262						
03:55:00 PM	2	0	5	0	0	0	0	0	0	34	4	0	1	28	0	0	241	950					
04:00:00 PM	0	0	3	0	0	0	0	0	0	32	6	0	3	40	0	0	250	972					
04:05:00 PM	1	0	1	0	0	0	0	0	0	39	4	0	5	22	0	0	230	970					
04:10:00 PM	1	0	3	0	0	0	0	0	0	38	4	0	5	34	0	0	241	993					
04:15:00 PM	3	0	1	0	0	0	0	0	0	41	7	0	3	35	0	0	247	1020					
04:20:00 PM	3	0	4	0	0	0	0	0	0	26	2	0	4	32	0	0	246	996					
04:25:00 PM	3	0	4	0	0	0	0	0	0	28	1	0	3	15	0	0	215	961					
04:30:00 PM	5	0	0	0	0	0	0	0	0	19	1	0	4	15	0	0	169	929					
04:35:00 PM	7	0	1	0	0	0	0	0	0	59	9	0	4	38	0	0	216	954					
04:40:00 PM	1	0	5	0	0	0	0	0	0	46	9	0	2	25	0	0	250	947					
04:45:00 PM	2	0	1	0	0	0	0	0	0	41	7	0	2	38	0	0	297	963					
04:50:00 PM	5	0	3	0	0	0	0	0	0	46	4	0	3	27	0	0	267	959					
04:55:00 PM	4	0	1	0	0	0	0	0	0	51	4	0	1	29	0	0	269	975					

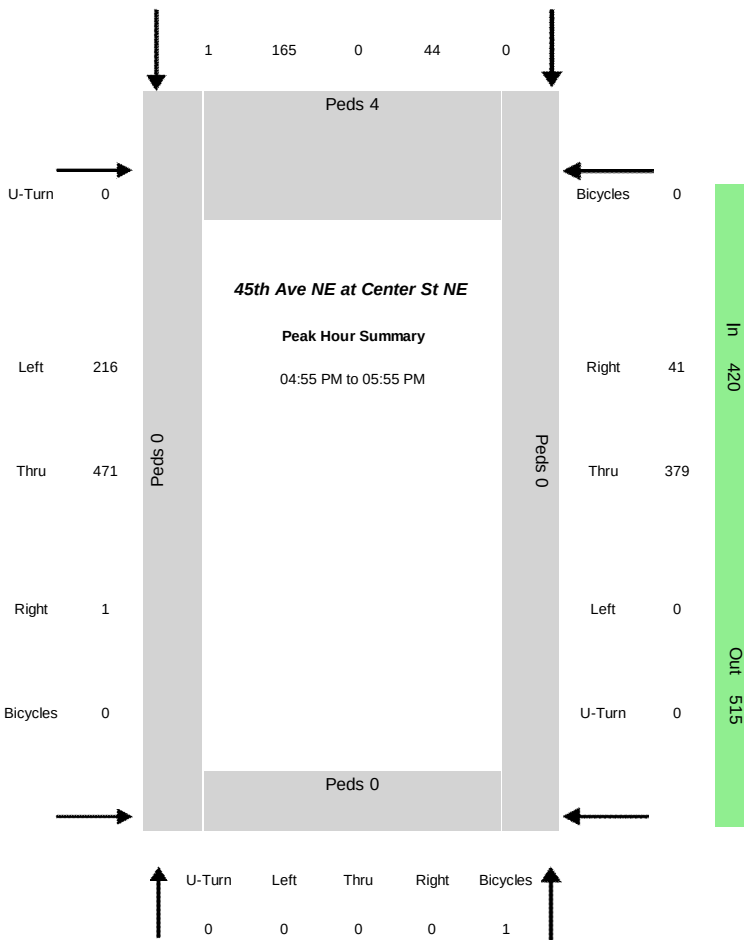
05:00:00 PM	2	0	2	0	0	0	0	0	0	48	6	0	0	31	0	0	267	980
05:05:00 PM	3	0	2	0	0	0	0	0	0	49	10	0	2	28	0	0	273	1002
05:10:00 PM	4	0	1	0	0	0	0	0	0	52	8	0	3	30	0	0	281	1015
05:15:00 PM	1	0	5	0	0	0	0	0	0	38	3	0	4	22	0	0	265	998
05:20:00 PM	4	0	4	0	0	0	0	0	0	49	3	0	2	27	0	0	260	1016
05:25:00 PM	2	0	3	0	0	0	0	0	0	30	7	0	0	33	0	0	237	1037
05:30:00 PM	3	0	3	0	0	0	0	0	0	59	7	0	4	29	0	0	269	1098
05:35:00 PM	2	0	0	0	0	0	0	0	0	39	10	0	4	26	0	0	261	1061
05:40:00 PM	3	0	1	0	0	0	0	0	0	46	7	0	1	26	0	0	270	1057
05:45:00 PM	3	0	0	0	0	0	0	0	0	47	9	0	6	22	0	0	252	1053
05:50:00 PM	4	0	5	0	0	0	0	0	0	35	9	0	1	25	0	0	250	1044
05:55:00 PM	5	0	1	0	0	0	0	0	0	26	7	0	2	32	0	0	239	1027



Data Provided by K-D-N.com 503-594-4224	
N/S street	45th Ave NE
E/W street	Center St NE
City, State	Salem OR
Site Notes	
Location	44.939759 - -122.973869
Start Date	Wednesday, June 07, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:55:00 PM
Peak 15 Min Start	05:40:00 PM
PHF (15-Min Int)	0.94

Eastbound
Center St NE
Heavy Vehicle 1.9%

In 688
Out 544



In 0 Out 1

Heavy Vehicle 0.0%

45th Ave NE
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	44	0	165	0	216	471	1	0	0	379	41	0	0	209	688	420	1	257	544	515
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	0.6%	0.0%	1.4%	2.1%	0.0%	0.0%	0.0%	2.1%	2.4%	0.0%	#DIV/0!	1.0%	1.9%	2.1%	0.0%	1.6%	1.7%	2.1%

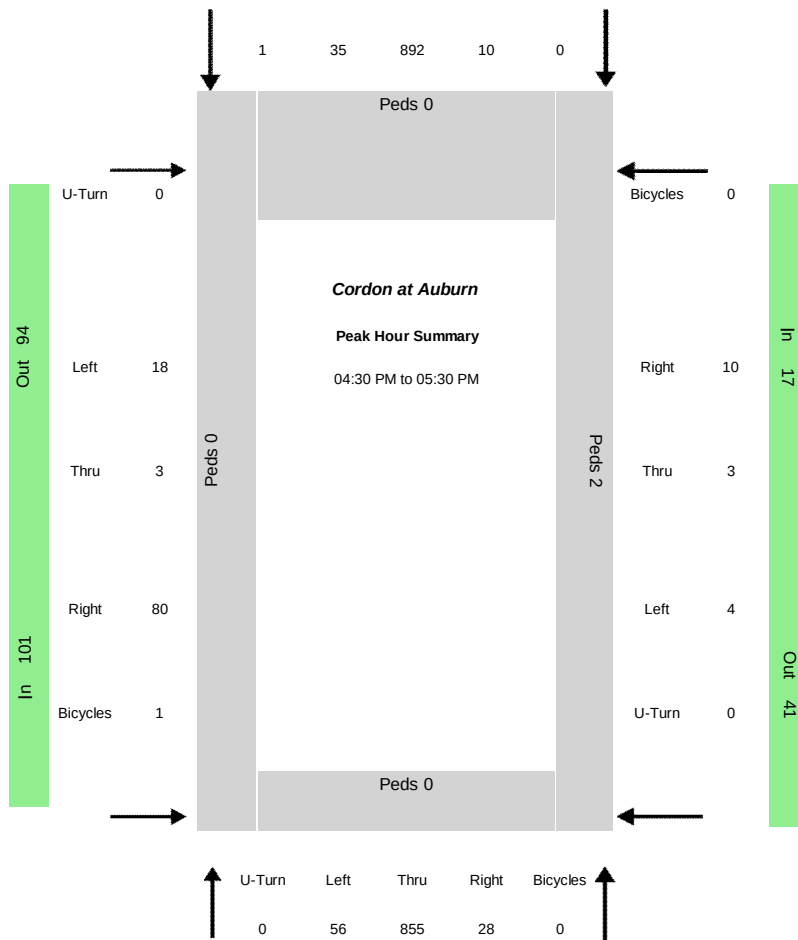
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		2	0	4	0	

All Vehicle Volumes																		
Time	Northbound 45th Ave NE				Southbound 45th Ave NE				Eastbound Center St NE				Westbound Center St NE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
03:00:00 PM	0	0	0	0	3	0	6	0	8	30	0	0	0	20	3	0		
03:05:00 PM	0	0	0	0	2	0	18	0	11	40	0	0	0	19	0	0		
03:10:00 PM	0	0	0	0	1	0	7	0	15	25	0	0	0	21	1	0	230	
03:15:00 PM	0	0	0	0	6	0	10	0	10	38	0	0	0	29	1	0	254	
03:20:00 PM	0	0	0	0	2	0	5	0	19	35	0	0	0	31	8	0	264	
03:25:00 PM	0	0	0	0	5	0	15	0	10	21	0	0	0	33	4	0	282	
03:30:00 PM	0	0	0	0	3	0	14	0	8	33	0	0	0	27	2	0	275	
03:35:00 PM	0	0	0	0	0	0	9	0	18	32	0	0	0	29	7	0	270	
03:40:00 PM	0	0	0	0	2	0	8	0	12	32	0	0	0	24	7	0	267	
03:45:00 PM	0	0	0	0	0	0	12	0	15	25	0	0	0	38	5	0	275	
03:50:00 PM	0	0	0	0	4	0	16	0	12	34	0	0	0	35	1	0	282	
03:55:00 PM	0	0	0	0	3	0	6	0	22	32	0	0	0	31	5	0	296	1075
04:00:00 PM	0	0	0	0	6	0	13	0	12	36	0	0	0	26	2	0	296	1100

04:05:00 PM	0	0	0	0	8	0	14	0	13	32	0	0	0	33	8	0	302	1118
04:10:00 PM	0	0	0	0	3	0	16	0	21	44	0	0	0	30	1	0	318	1163
04:15:00 PM	0	0	0	0	4	0	6	0	15	39	0	0	0	34	4	0	325	1171
04:20:00 PM	0	0	0	0	4	0	11	0	16	27	0	0	0	21	7	0	303	1157
04:25:00 PM	0	0	0	0	2	0	12	0	8	26	0	0	0	22	3	0	261	1142
04:30:00 PM	0	0	0	0	3	0	15	0	16	36	0	1	0	27	5	0	262	1158
04:35:00 PM	0	0	0	0	1	0	19	0	11	39	0	0	0	34	5	0	285	1172
04:40:00 PM	0	0	0	0	3	0	13	0	19	30	0	0	0	35	1	0	313	1188
04:45:00 PM	0	0	0	0	4	0	11	0	16	38	0	0	0	32	1	0	312	1195
04:50:00 PM	0	0	0	0	4	0	12	1	9	34	0	0	0	38	2	0	303	1193
04:55:00 PM	0	0	0	0	4	0	15	0	23	30	0	0	0	25	1	0	300	1192
05:00:00 PM	0	0	0	0	5	0	9	0	17	46	0	0	0	26	5	0	306	1205
05:05:00 PM	0	0	0	0	0	0	12	0	21	41	0	0	0	24	2	0	306	1197
05:10:00 PM	0	0	0	0	5	0	13	0	18	37	0	0	0	38	5	0	324	1198
05:15:00 PM	0	0	0	0	4	0	12	0	21	48	0	0	0	31	3	0	335	1215
05:20:00 PM	0	0	0	0	4	0	14	0	13	45	0	0	0	25	3	0	339	1233
05:25:00 PM	0	0	0	0	3	0	11	0	11	36	0	0	0	32	2	0	318	1255
05:30:00 PM	0	0	0	0	5	0	15	0	13	39	0	0	0	45	7	0	323	1276
05:35:00 PM	0	0	0	0	0	0	15	0	15	38	0	0	0	30	5	0	322	1270
05:40:00 PM	0	0	0	0	6	0	17	0	11	28	0	0	0	39	3	0	331	1273
05:45:00 PM	0	0	0	0	6	0	17	0	21	43	0	0	0	33	4	0	331	1295
05:50:00 PM	0	0	0	0	2	0	15	0	32	40	1	0	0	31	1	0	350	1317
05:55:00 PM	0	0	0	0	3	0	9	0	12	36	0	0	0	25	0	0	331	1304

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Auburn Rd NE
City, State	Salem OR
Site Notes	
Location	44.936344 - -122.95913
Start Date	Tuesday, June 06, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	05:15:00 PM
PHF (15-Min Int)	0.93

Eastbound
Auburn Rd NE
Heavy Vehicle 2.0%



In	939	Out	976

Heavy Vehicle 2.4%

Cordon Rd NE
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
56	855	28	0	10	892	35	0	18	3	80	0	4	3	10	0	939	937	101	17	976	883	94	41
Percent Heavy Vehicles																							
1.8%	2.6%	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	3.3%	2.0%	0.0%	3.4%	2.5%	1.1%	0.0%

PHV- Bicycles																PHV - Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0		0	0	0	2	2	

All Vehicle Volumes										
	Northbound	Southbound	Eastbound	Westbound						
	Cordon Rd NE	Cordon Rd NE	Auburn Rd NE	Auburn Rd NE	15 Min	1 HR				

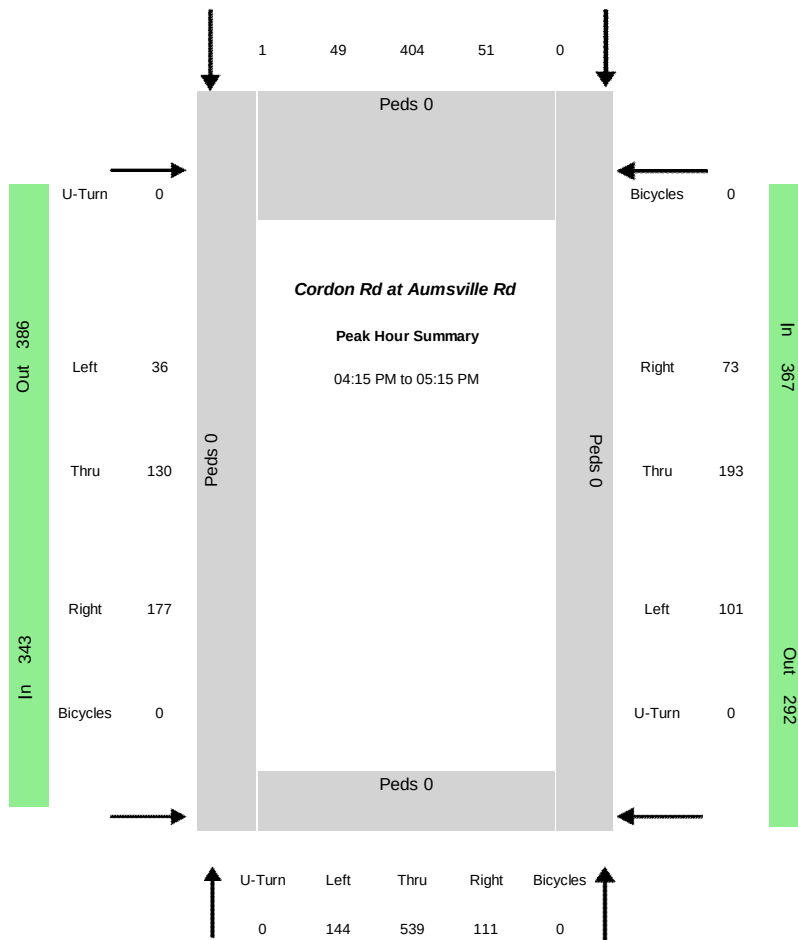
All Vehicle Volumes																	15 Min	1 HR
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Auburn Rd NE				Westbound Auburn Rd NE				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
03:00:00 PM	3	50	4	0	0	64	4	0	2	0	4	0	0	0	1	0		
03:05:00 PM	8	51	1	0	1	64	3	0	0	3	8	0	0	0	1	0		
03:10:00 PM	9	54	0	0	3	57	4	0	3	0	4	0	1	0	1	0	408	
03:15:00 PM	4	68	2	0	3	69	2	0	3	0	7	0	0	0	1	0	435	
03:20:00 PM	4	74	1	0	0	77	3	0	0	0	3	0	0	0	0	0	457	
03:25:00 PM	5	49	2	0	1	79	3	0	3	0	4	0	1	0	0	0	468	
03:30:00 PM	3	71	2	0	2	63	2	0	0	1	6	0	1	1	0	0	461	
03:35:00 PM	7	68	0	0	0	79	3	0	2	0	8	0	2	0	0	0	468	
03:40:00 PM	9	66	2	0	1	57	7	0	2	0	8	0	0	0	0	0	473	
03:45:00 PM	3	71	3	0	3	68	3	0	1	0	4	0	0	0	1	0	478	
03:50:00 PM	5	60	1	0	2	57	4	0	2	0	4	0	0	0	0	0	444	
03:55:00 PM	3	72	0	0	2	69	4	0	2	0	10	0	0	0	4	0	458	1807
04:00:00 PM	3	67	1	0	1	70	3	0	1	0	5	0	0	0	0	0	452	1826

04:05:00 PM	8	78	0	0	0	64	4	0	3	0	7	0	0	0	3	0	484	1853
04:10:00 PM	4	71	3	0	1	55	2	0	0	0	9	0	0	1	1	0	465	1864
04:15:00 PM	4	78	1	0	0	71	2	0	0	1	12	0	0	0	1	0	484	1875
04:20:00 PM	3	67	3	0	4	71	4	0	2	0	13	0	0	0	2	0	486	1882
04:25:00 PM	5	57	2	0	0	82	1	0	0	0	10	0	0	0	0	0	496	1892
04:30:00 PM	7	71	3	0	2	80	2	0	0	0	8	0	0	1	0	0	500	1914
04:35:00 PM	4	65	1	0	0	78	1	0	1	0	5	0	1	0	0	0	487	1901
04:40:00 PM	9	65	2	0	2	71	2	0	1	0	4	0	1	0	1	0	488	1907
04:45:00 PM	5	73	3	0	1	64	2	0	3	1	7	0	0	0	1	0	474	1910
04:50:00 PM	8	67	2	0	1	75	2	0	2	1	5	0	0	0	1	0	482	1939
04:55:00 PM	1	74	5	0	0	83	3	0	2	0	6	0	1	0	2	0	501	1950
05:00:00 PM	4	75	4	0	0	75	4	0	0	0	2	0	0	0	0	0	505	1963
05:05:00 PM	3	52	2	0	0	56	4	0	2	0	10	0	0	0	3	0	473	1928
05:10:00 PM	3	82	3	0	0	73	2	0	3	1	6	0	0	0	1	0	470	1955
05:15:00 PM	3	76	0	0	0	79	2	0	3	0	5	0	0	0	0	0	474	1953
05:20:00 PM	6	82	2	0	2	75	3	0	0	0	8	0	0	1	1	0	522	1964
05:25:00 PM	3	73	1	0	2	83	8	0	1	0	14	0	1	1	0	0	535	1994
05:30:00 PM	7	65	1	0	0	58	3	0	0	0	6	0	0	0	1	0	508	1961
05:35:00 PM	7	66	1	0	0	90	6	0	2	0	10	0	3	0	0	0	513	1990
05:40:00 PM	3	54	0	0	1	73	2	0	0	0	10	0	0	0	0	0	469	1975
05:45:00 PM	3	67	3	0	0	71	1	0	0	0	12	0	1	0	0	0	486	1973
05:50:00 PM	5	65	1	0	0	71	1	0	0	0	7	0	1	0	0	0	452	1960
05:55:00 PM	4	83	1	0	1	78	1	0	0	0	5	0	3	0	0	0	485	1959



Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd		
E/W street	Aumsville Rd		
City, State	Salem OR		
Site Notes			
Location	44.900479 - -122.970142		
Start Date	Tuesday, June 06, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	04:15:00 PM		
Peak 15 Min Start	05:00:00 PM		
PHF (15-Min Int)	0.96		

Eastbound
Aumsville Rd
Heavy Vehicle 6.1%

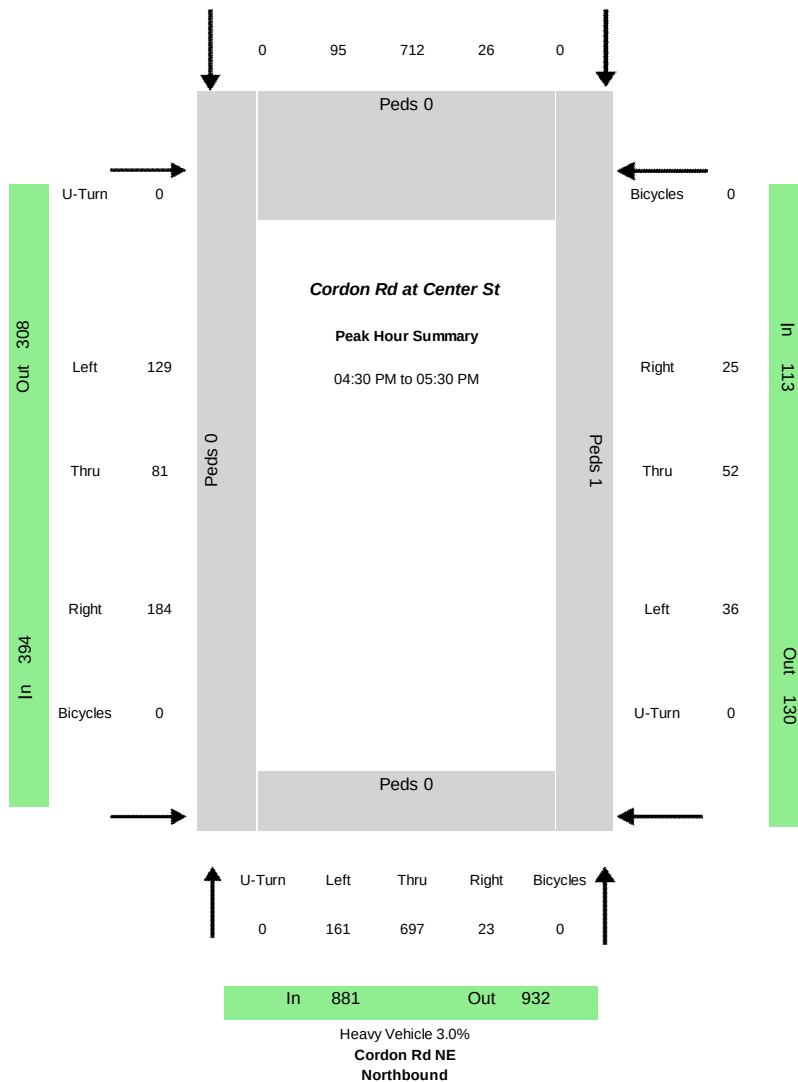


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
144	539	111	0	51	404	49	0	36	130	177	0	101	193	73	0	794	504	343	367	682	648	386	292
Percent Heavy Vehicles																							
2.8%	3.9%	9.0%	0.0%	3.9%	3.7%	2.0%	0.0%	16.7%	10.8%	0.6%	0.0%	5.0%	1.6%	0.0%	0.0%	4.4%	3.6%	6.1%	2.2%	3.1%	4.2%	2.1%	8.9%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0			
All Vehicle Volumes																							
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound Aumsville Rd				Westbound Aumsville Rd				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
	03:00:00 PM	18	23	9	0	2	14	5	0	2	15	6	0	5	17	1	0						
	03:05:00 PM	6	26	6	0	5	34	2	0	10	10	10	0	3	12	2	0						
	03:10:00 PM	16	51	11	0	1	39	7	0	2	4	17	0	9	10	3	0	413					
	03:15:00 PM	13	49	6	0	0	35	4	0	3	10	19	0	7	12	4	0	458					
	03:20:00 PM	9	20	7	0	4	36	6	0	0	9	12	0	5	9	8	0	457					
	03:25:00 PM	14	47	8	0	4	30	5	0	4	11	14	0	2	13	4	0	443					
	03:30:00 PM	10	27	4	0	1	40	5	0	5	7	16	0	3	9	7	0	415					
	03:35:00 PM	22	51	4	0	4	31	7	0	1	21	10	0	8	19	7	0	475					
	03:40:00 PM	14	39	5	0	4	35	7	0	4	11	11	0	3	17	3	0	472					
	03:45:00 PM	14	42	8	0	1	32	6	0	5	8	13	0	10	8	2	0	487					
	03:50:00 PM	15	33	3	0	5	32	6	0	6	10	13	0	4	21	7	0	457					
03:55:00 PM	11	43	4	0	5	24	2	0	2	10	10	0	7	13	4	0	439	1767					
04:00:00 PM	13	34	7	0	4	34	1	0	1	9	11	0	5	10	4	0	423	1783					

04:05:00 PM	23	32	9	0	5	31	6	0	3	11	17	0	9	10	3	0	427	1816
04:10:00 PM	9	43	12	0	1	33	3	0	1	10	11	0	5	11	6	0	437	1791
04:15:00 PM	10	39	12	0	3	38	9	0	4	12	15	0	9	18	2	0	475	1800
04:20:00 PM	12	48	4	0	3	28	5	0	5	12	16	0	6	20	9	0	484	1843
04:25:00 PM	6	37	5	0	3	44	6	0	7	12	9	0	5	9	4	0	486	1834
04:30:00 PM	11	37	8	0	6	18	6	0	1	10	19	0	8	15	4	0	458	1843
04:35:00 PM	10	54	10	0	4	54	6	0	1	9	19	0	4	17	8	0	486	1854
04:40:00 PM	15	51	8	0	4	34	2	0	1	3	10	0	10	13	6	0	496	1858
04:45:00 PM	11	35	8	0	6	24	4	0	3	17	20	0	14	18	8	0	521	1877
04:50:00 PM	19	34	12	0	2	33	1	0	2	11	14	0	6	7	6	0	472	1869
04:55:00 PM	11	63	14	0	8	25	6	0	1	15	17	0	6	13	7	0	501	1920
05:00:00 PM	12	39	6	0	9	28	1	0	4	11	15	0	12	17	7	0	494	1948
05:05:00 PM	14	43	8	0	1	39	1	0	2	7	11	0	17	25	8	0	523	1965
05:10:00 PM	13	59	16	0	2	39	2	0	5	11	12	0	4	21	4	0	525	2008
05:15:00 PM	12	41	19	0	1	29	4	0	5	6	15	0	10	14	4	0	524	1997
05:20:00 PM	12	39	14	0	6	35	7	0	4	9	14	0	5	13	5	0	511	1992
05:25:00 PM	9	46	12	0	1	31	4	0	4	7	16	0	6	14	6	0	479	2001
05:30:00 PM	19	25	12	0	0	28	6	0	2	8	16	0	8	5	3	0	451	1990
05:35:00 PM	22	50	12	0	3	26	7	0	6	13	11	0	5	8	1	0	452	1958
05:40:00 PM	11	56	7	0	7	48	8	0	1	9	11	0	9	10	5	0	478	1983
05:45:00 PM	14	43	13	0	5	34	5	0	8	7	8	0	9	9	2	0	503	1972
05:50:00 PM	11	41	7	0	3	26	9	0	3	15	13	0	4	9	4	0	484	1970
05:55:00 PM	13	40	6	0	5	26	4	0	4	7	15	0	6	10	1	0	439	1921

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Center St NE
City, State	Salem OR
Site Notes	
Location	44.939657 - -122.959282
Start Date	Tuesday, June 06, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	05:15:00 PM
PHF (15-Min Int)	0.92

Eastbound
Center St NE
Heavy Vehicle 2.0%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
161	697	23	0	26	712	95	0	129	81	184	0	36	52	25	0	881	833	394	113	932	851	308	130
Percent Heavy Vehicles																							
3.1%	2.9%	4.3%	0.0%	11.5%	2.4%	5.3%	0.0%	0.0%	2.5%	3.3%	0.0%	0.0%	1.9%	0.0%	0.0%	3.0%	3.0%	2.0%	0.9%	2.5%	2.4%	3.6%	4.6%

PHV- Bicycles																PHV- Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	1	1	

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

All Vehicle Volumes																	15 Min	1 HR
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Center St NE				Westbound Center St NE				Sum	Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
03:00:00 PM	10	38	5	0	2	49	10	0	10	9	11	0	2	7	2	0		
03:05:00 PM	11	42	4	0	4	58	8	0	9	3	11	0	4	4	4	0		
03:10:00 PM	6	37	2	0	3	46	6	0	8	2	9	0	4	2	2	0	444	
03:15:00 PM	7	63	7	0	5	64	8	0	12	4	14	0	3	0	1	0	477	
03:20:00 PM	13	60	4	0	2	61	9	0	9	4	14	0	5	5	4	0	505	
03:25:00 PM	10	37	2	0	3	60	19	0	13	6	13	0	7	11	3	0	562	
03:30:00 PM	9	57	3	0	3	61	7	0	9	1	9	0	1	4	2	0	540	
03:35:00 PM	9	63	3	0	3	64	4	0	8	3	12	0	2	6	2	0	529	
03:40:00 PM	11	55	1	0	2	47	7	0	11	7	14	0	2	1	3	0	506	
03:45:00 PM	17	41	0	0	5	58	5	0	7	5	9	0	4	5	0	0	496	
03:50:00 PM	17	55	3	0	1	62	7	0	12	7	11	0	3	4	1	0	500	
03:55:00 PM	13	53	3	0	2	65	16	0	11	6	9	0	4	1	2	0	524	2036
04:00:00 PM	10	71	2	0	1	62	4	0	16	8	12	0	1	7	2	0	564	2077

04:05:00 PM	12	55	4	0	1	58	4	0	10	5	13	0	5	7	4	0	559	2093
04:10:00 PM	12	68	3	0	2	60	12	0	13	1	8	0	0	5	1	0	559	2151
04:15:00 PM	13	63	0	0	1	61	10	0	12	6	11	0	1	3	2	0	546	2146
04:20:00 PM	14	55	2	0	2	70	6	0	10	12	7	0	1	1	3	0	551	2139
04:25:00 PM	10	39	2	0	2	64	13	0	15	2	9	0	6	4	0	0	532	2121
04:30:00 PM	12	56	0	0	2	68	8	0	8	5	15	0	5	6	3	0	537	2143
04:35:00 PM	7	67	1	0	3	61	6	0	8	9	15	0	3	1	1	0	536	2146
04:40:00 PM	14	47	1	0	2	51	6	0	11	9	22	0	2	11	1	0	547	2162
04:45:00 PM	15	58	2	0	2	51	4	0	10	6	10	0	5	2	3	0	527	2174
04:50:00 PM	18	47	3	0	1	56	9	0	9	5	19	0	3	5	4	0	524	2170
04:55:00 PM	17	59	2	0	4	67	7	0	10	6	18	0	4	2	1	0	544	2182
05:00:00 PM	18	60	1	0	4	62	5	0	13	2	12	0	1	3	3	0	560	2170
05:05:00 PM	13	43	0	0	1	45	6	0	16	6	12	0	2	6	3	0	534	2145
05:10:00 PM	11	63	5	0	3	61	12	0	7	5	20	0	0	4	0	0	528	2151
05:15:00 PM	15	70	2	0	0	64	10	0	7	7	10	0	3	3	2	0	537	2161
05:20:00 PM	10	65	4	0	3	63	10	0	22	13	12	0	2	5	0	0	593	2187
05:25:00 PM	11	62	2	0	1	63	12	0	8	8	19	0	6	4	4	0	602	2221
05:30:00 PM	13	54	3	0	2	58	14	0	9	4	7	0	1	5	0	0	579	2203
05:35:00 PM	6	65	0	0	1	75	10	0	4	1	16	0	2	3	2	0	555	2206
05:40:00 PM	8	46	4	0	2	56	13	0	12	8	18	0	0	3	3	0	528	2202
05:45:00 PM	10	54	3	0	4	67	9	0	10	9	11	0	1	3	2	0	541	2217
05:50:00 PM	7	57	3	0	5	60	8	0	7	8	10	0	2	8	1	0	532	2214
05:55:00 PM	17	62	4	0	3	61	8	0	13	12	11	0	3	1	0	0	554	2212

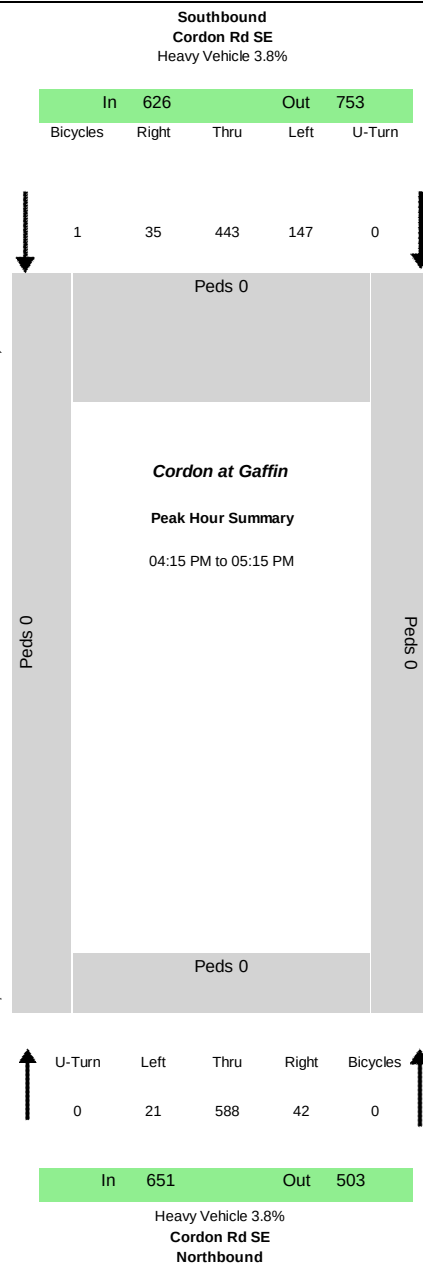
Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd SE		
E/W street	Gaffin Rd SE		
City, State	Salem OR		
Site Notes			
Location	44.911095 - -122.957446		
Start Date	Wednesday, June 07, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	04:15:00 PM		
Peak 15 Min Start	04:35:00 PM		
PHF (15-Min Int)	0.96		

Eastbound
Gaffin Rd SE
Heavy Vehicle 2.2%



In 46
Out 59

U-Turn 0
Left 28
Thru 0
Right 18
Bicycles 0



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
21	588	42	0	147	443	35	0	28	0	18	0	42	3	137	0	651	625	46	182	503	753	59	189
Percent Heavy Vehicles																							
0.0%	2.7%	21.4%	0.0%	6.1%	3.4%	0.0%	0.0%	0.0%	0.0%	5.6%	0.0%	7.1%	0.0%	3.6%	0.0%	3.8%	3.8%	2.2%	4.4%	3.8%	2.8%	0.0%	9.5%

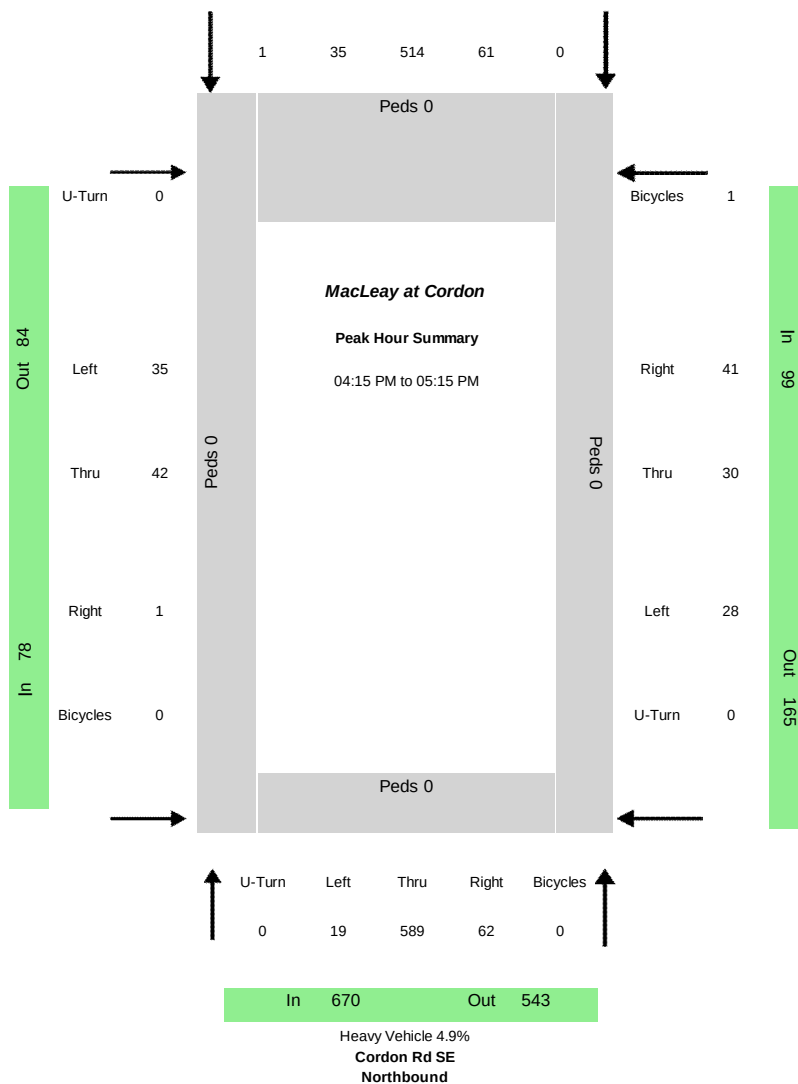
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

All Vehicle Volumes																		
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Gaffin Rd SE				Westbound Gaffin Rd SE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
03:00:00 PM	2	24	2	0	10	23	1	0	3	0	3	0	5	0	13	0		
03:05:00 PM	1	25	2	0	15	36	0	0	0	0	2	0	3	0	7	0		
03:10:00 PM	1	50	2	0	12	31	4	0	2	1	2	0	5	0	12	0	299	
03:15:00 PM	1	46	3	0	9	34	0	0	1	0	0	0	3	0	13	0	323	
03:20:00 PM	1	34	3	0	8	41	2	0	3	0	1	0	4	0	11	0	340	
03:25:00 PM	2	54	2	0	6	35	1	0	1	0	0	0	5	0	8	0	332	
03:30:00 PM	1	29	1	0	13	47	2	0	1	0	2	0	0	0	11	0	329	
03:35:00 PM	2	50	3	0	10	44	1	0	0	0	1	0	3	0	8	0	343	
03:40:00 PM	2	49	5	0	11	30	0	0	0	0	0	0	3	0	10	0	339	
03:45:00 PM	1	34	2	0	5	34	2	0	2	0	0	0	6	1	7	0	326	
03:50:00 PM	3	44	3	0	12	37	1	0	1	1	2	0	3	0	10	0	321	
03:55:00 PM	2	41	2	0	6	28	3	0	0	0	1	0	0	3	6	0	303	1273
04:00:00 PM	0	44	6	0	7	41	3	0	1	0	0	0	3	1	23	0	338	1316

04:05:00 PM	1	32	1	0	5	34	3	0	5	0	2	0	3	1	7	0	315	1319
04:10:00 PM	1	45	2	0	10	35	3	0	2	0	3	0	3	0	8	0	335	1309
04:15:00 PM	1	43	6	0	14	44	4	0	4	0	4	0	3	0	13	0	342	1335
04:20:00 PM	1	58	4	0	12	38	3	0	2	0	2	0	2	0	7	0	377	1356
04:25:00 PM	2	39	1	0	17	42	2	0	2	0	2	0	5	0	8	0	385	1362
04:30:00 PM	3	42	0	0	15	27	2	0	3	0	3	0	3	0	8	0	355	1361
04:35:00 PM	0	51	6	0	10	46	2	0	3	0	1	0	5	0	15	0	365	1378
04:40:00 PM	3	50	4	0	12	43	0	0	5	0	2	0	2	0	11	0	377	1400
04:45:00 PM	2	41	4	0	8	37	7	0	1	0	0	0	3	0	18	0	392	1427
04:50:00 PM	0	51	6	0	12	32	5	0	1	0	0	0	5	0	11	0	376	1433
04:55:00 PM	3	57	3	0	16	31	1	0	1	0	1	0	1	1	12	0	371	1468
05:00:00 PM	2	49	5	0	11	31	2	0	3	0	1	0	5	1	7	0	367	1456
05:05:00 PM	2	49	1	0	12	37	4	0	2	0	1	0	4	0	17	0	373	1491
05:10:00 PM	2	58	2	0	8	35	3	0	1	0	1	0	4	1	10	0	371	1504
05:15:00 PM	2	43	3	0	11	29	2	0	1	1	2	0	5	0	7	0	360	1474
05:20:00 PM	1	46	3	0	7	42	5	0	2	0	3	0	4	1	13	0	358	1472
05:25:00 PM	3	52	2	0	8	33	5	0	1	2	0	0	2	0	11	0	352	1471
05:30:00 PM	3	30	3	0	16	31	5	0	0	0	2	0	2	0	14	0	352	1471
05:35:00 PM	0	45	4	0	8	45	2	0	4	0	3	0	1	0	13	0	350	1457
05:40:00 PM	0	53	1	0	18	49	3	0	3	0	3	0	1	1	11	0	374	1468
05:45:00 PM	3	54	1	0	12	41	3	0	4	0	1	0	2	1	6	0	396	1475
05:50:00 PM	3	54	3	0	11	31	3	0	5	2	0	0	1	1	9	0	394	1475
05:55:00 PM	1	33	3	0	8	26	1	0	2	0	2	0	4	1	7	0	339	1436

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	MacLeay Rd SE
City, State	Salem OR
Site Notes	
Location	44.91364 - -122.953962
Start Date	Tuesday, June 06, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:15:00 PM
Peak 15 Min Start	04:15:00 PM
PHF (15-Min Int)	0.97

Eastbound
MacLeay Rd SE
Heavy Vehicle 2.6%



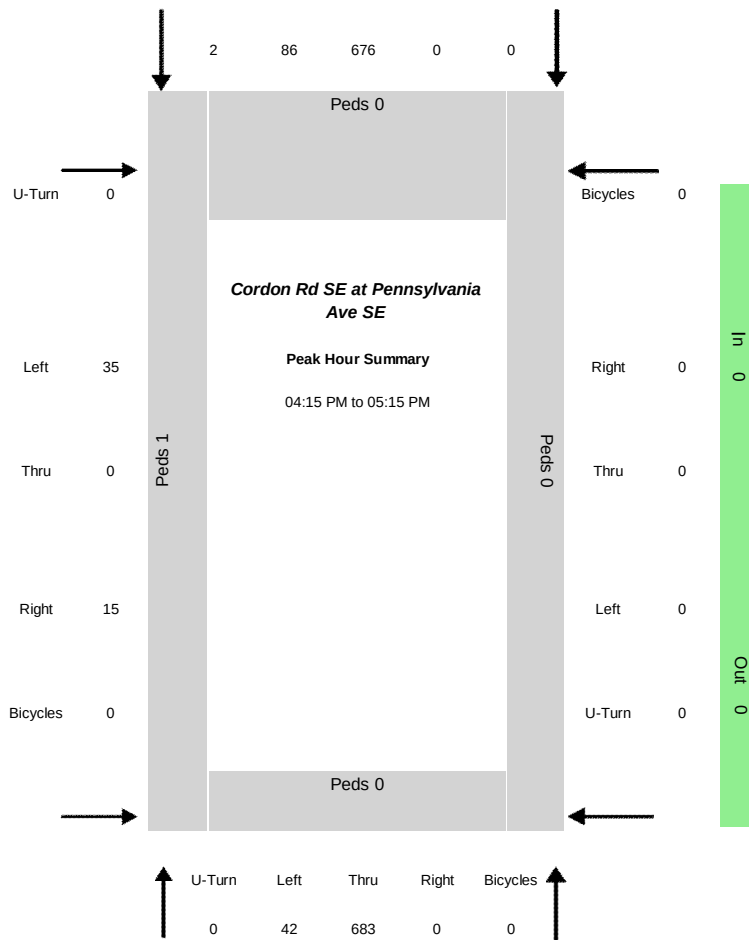
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
19	589	62	0	61	514	35	0	35	42	1	0	28	30	41	0	670	610	78	99	543	665	84	165
Percent Heavy Vehicles																							
5.3%	5.3%	1.6%	0.0%	3.3%	4.1%	2.9%	0.0%	2.9%	0.0%	100.0%	0.0%	7.1%	0.0%	7.3%	0.0%	4.9%	3.9%	2.6%	5.1%	4.4%	5.3%	2.4%	1.8%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0		2	0	0	0		0	
All Vehicle Volumes																							
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound MacLeay Rd SE				Westbound MacLeay Rd SE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
03:00:00 PM	0	36	4	0	3	29	2	0	3	1	0	0	1	5	4	0							
03:05:00 PM	0	19	6	0	3	38	5	0	5	3	0	0	5	3	1	0							
03:10:00 PM	1	56	4	0	2	39	1	0	4	5	0	0	2	6	8	0	304						
03:15:00 PM	1	48	4	0	2	36	4	0	2	4	0	0	3	4	4	0	328						
03:20:00 PM	2	37	5	0	3	44	3	0	3	6	0	0	2	3	5	0	353						
03:25:00 PM	1	45	3	0	7	33	0	0	3	7	0	0	2	4	3	0	333						
03:30:00 PM	1	32	2	0	4	47	6	0	6	4	0	0	0	2	6	0	331						
03:35:00 PM	1	45	6	0	9	43	2	0	8	1	0	0	4	2	1	0	340						
03:40:00 PM	0	41	6	0	5	38	2	0	9	7	0	0	3	3	3	0	349						
03:45:00 PM	0	40	1	0	7	40	1	0	7	3	0	0	2	3	4	0	347						
03:50:00 PM	0	41	8	0	5	36	2	0	4	9	0	0	4	4	4	0	342						
03:55:00 PM	1	37	5	0	6	26	1	0	0	5	0	0	0	5	3	0	314	1300					
04:00:00 PM	1	45	3	0	3	36	5	0	6	9	0	0	3	6	0	0	323	1329					

04:05:00 PM	1	30	4	0	7	38	3	0	3	4	0	0	4	2	1	0	303	1338
04:10:00 PM	0	44	1	0	5	33	4	0	3	4	1	0	3	3	6	0	321	1317
04:15:00 PM	3	45	6	0	5	55	2	0	4	6	0	0	3	3	3	0	339	1340
04:20:00 PM	2	50	4	0	6	34	6	0	0	3	0	0	3	5	6	0	361	1346
04:25:00 PM	0	39	4	0	5	52	4	0	7	3	1	0	2	1	5	0	377	1361
04:30:00 PM	2	37	7	0	6	43	2	0	3	5	0	0	2	5	1	0	355	1364
04:35:00 PM	0	53	8	0	3	44	2	0	2	2	0	0	3	1	3	0	357	1363
04:40:00 PM	2	54	5	0	2	37	2	0	6	4	0	0	4	3	7	0	360	1372
04:45:00 PM	2	53	2	0	5	42	7	0	4	5	0	0	2	1	6	0	376	1393
04:50:00 PM	1	51	3	0	4	42	2	0	2	4	0	0	1	3	2	0	370	1391
04:55:00 PM	3	55	9	0	4	35	1	0	3	2	0	0	1	1	4	0	362	1420
05:00:00 PM	1	46	4	0	6	48	2	0	1	2	0	0	2	4	0	0	349	1419
05:05:00 PM	0	55	4	0	6	36	4	0	0	3	0	0	3	1	2	0	348	1436
05:10:00 PM	3	51	6	0	9	46	1	0	3	3	0	0	2	2	2	0	358	1457
05:15:00 PM	1	39	6	0	5	28	3	0	3	9	0	0	5	1	4	0	346	1426
05:20:00 PM	0	45	4	0	5	36	2	0	2	3	0	0	3	6	8	0	346	1421
05:25:00 PM	2	47	6	0	8	45	1	0	4	8	0	0	3	2	5	0	349	1429
05:30:00 PM	0	31	4	0	4	46	2	0	2	5	0	0	0	3	1	0	343	1414
05:35:00 PM	2	45	8	0	6	50	0	0	3	3	0	0	0	3	0	0	349	1413
05:40:00 PM	2	50	5	0	9	59	1	0	3	3	0	0	1	7	1	0	359	1428
05:45:00 PM	0	58	5	0	7	37	2	0	7	7	0	0	0	1	7	0	392	1430
05:50:00 PM	2	48	5	0	6	34	5	0	7	14	1	0	3	3	1	0	401	1444
05:55:00 PM	2	36	3	0	9	21	1	0	1	5	0	0	4	2	7	0	351	1417

Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd SE		
E/W street	Pennsylvania Ave SE		
City, State	Salem OR		
Site Notes			
Location	44.923707 - -122.958136		
Start Date	Tuesday, June 06, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	04:15:00 PM		
Peak 15 Min Start	04:15:00 PM		
PHF (15-Min Int)	0.96		

Eastbound
Pennsylvania Ave SE
Heavy Vehicle 2.0%

In 50
Out 128



In 725
Out 691

Heavy Vehicle 5.0%
Cordon Rd SE
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
42	683	0	0	0	676	86	0	35	0	15	0	0	0	0	0	725	762	50	0	691	718	128	0
Percent Heavy Vehicles																							
0.0%	5.3%	0.0%	0.0%	0.0%	4.0%	3.5%	0.0%	0.0%	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	3.9%	2.0%	0.0%	4.1%	5.0%	2.3%	0.0%

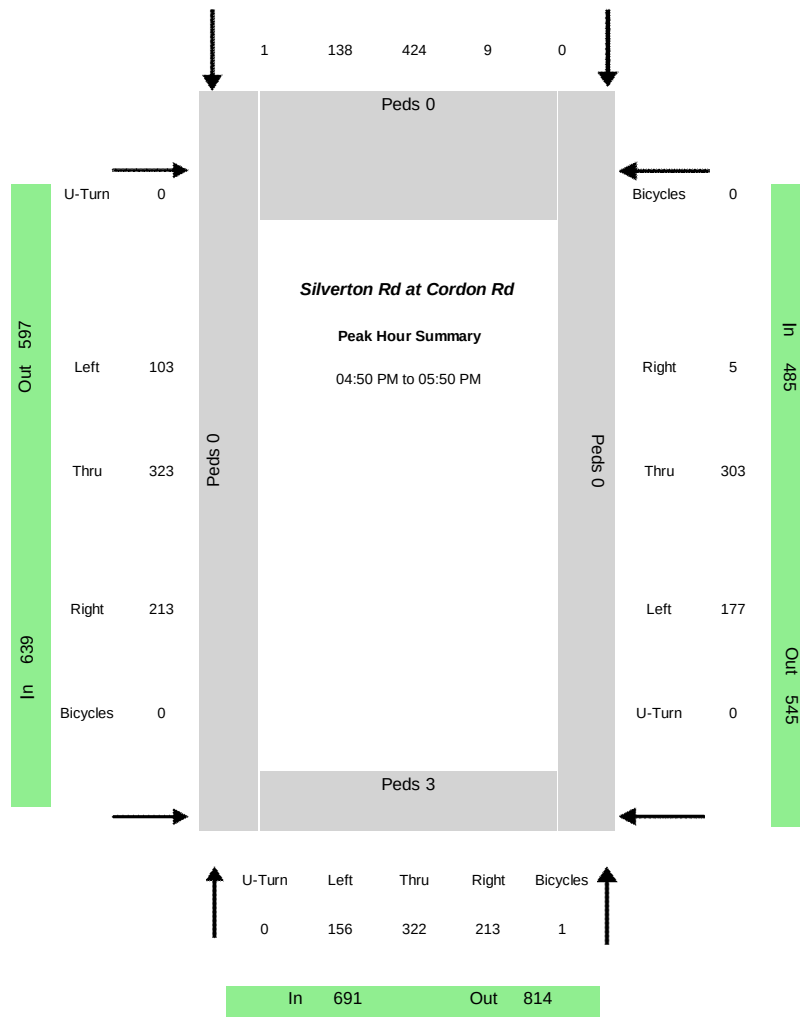
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0		2	0	0	1	

All Vehicle Volumes																		
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Pennsylvania Ave SE				Westbound Pennsylvania Ave SE				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
03:00:00 PM	1	48	0	0	0	42	5	0	2	0	1	0	0	0	0	0		
03:05:00 PM	2	30	0	0	0	52	7	0	5	0	2	0	0	0	0	0		
03:10:00 PM	6	60	0	0	0	40	4	0	0	0	1	0	0	0	0	0	308	
03:15:00 PM	5	66	0	0	0	52	4	0	5	0	1	0	0	0	0	0	342	
03:20:00 PM	2	50	0	0	0	62	12	0	5	0	1	0	0	0	0	0	376	
03:25:00 PM	3	47	0	0	0	62	5	0	3	0	3	0	0	0	0	0	388	
03:30:00 PM	3	55	0	0	0	64	5	0	3	0	1	0	0	0	0	0	386	
03:35:00 PM	2	56	0	0	0	61	6	0	0	0	3	0	0	0	0	0	382	
03:40:00 PM	4	51	0	0	0	44	3	0	10	0	4	0	0	0	0	0	375	
03:45:00 PM	2	60	0	0	0	39	8	0	5	0	3	0	0	0	0	0	361	
03:50:00 PM	6	45	0	0	0	57	4	0	3	0	0	0	0	0	0	0	348	
03:55:00 PM	4	57	0	0	0	52	8	0	5	0	1	0	0	0	0	0	359 1430	
04:00:00 PM	3	53	0	0	0	57	11	0	2	0	1	0	0	0	0	0	369 1458	

04:05:00 PM	4	40	0	0	0	48	7	0	7	0	2	0	0	0	0	0	362	1468
04:10:00 PM	3	52	0	0	0	52	4	0	5	0	2	0	0	0	0	0	353	1475
04:15:00 PM	1	51	0	0	0	65	8	0	8	0	1	0	0	0	0	0	360	1476
04:20:00 PM	3	51	0	0	0	61	8	0	2	0	2	0	0	0	0	0	379	1471
04:25:00 PM	3	62	0	0	0	65	5	0	1	0	2	0	0	0	0	0	399	1486
04:30:00 PM	0	52	0	0	0	46	6	0	6	0	2	0	0	0	0	0	377	1467
04:35:00 PM	3	46	0	0	0	61	11	0	5	0	0	0	0	0	0	0	376	1465
04:40:00 PM	4	69	0	0	0	55	7	0	4	0	1	0	0	0	0	0	378	1489
04:45:00 PM	2	61	0	0	0	55	7	0	1	0	1	0	0	0	0	0	393	1499
04:50:00 PM	4	67	0	0	0	46	4	0	0	0	3	0	0	0	0	0	391	1508
04:55:00 PM	2	55	0	0	0	58	9	0	2	0	0	0	0	0	0	0	377	1507
05:00:00 PM	4	55	0	0	0	65	8	0	0	0	0	0	0	0	0	0	382	1512
05:05:00 PM	6	56	0	0	0	47	11	0	0	0	1	0	0	0	0	0	379	1525
05:10:00 PM	10	58	0	0	0	52	2	0	6	0	2	0	0	0	0	0	383	1537
05:15:00 PM	4	31	0	0	0	22	3	0	1	0	5	1	0	0	0	0	318	1470
05:20:00 PM	2	23	0	0	0	35	3	0	2	0	2	0	0	0	0	0	264	1410
05:25:00 PM	1	36	0	0	0	46	4	0	3	0	2	0	0	0	0	0	226	1364
05:30:00 PM	3	35	0	0	0	40	2	0	3	0	3	1	0	0	0	0	246	1339
05:35:00 PM	1	52	0	0	0	65	7	0	3	0	3	0	0	0	0	0	310	1344
05:40:00 PM	10	46	0	0	0	75	7	0	7	0	4	0	0	0	0	0	367	1353
05:45:00 PM	4	64	0	0	0	59	6	0	0	0	2	0	0	0	0	0	415	1361
05:50:00 PM	5	74	0	0	0	53	10	0	2	0	4	0	0	0	0	0	432	1385
05:55:00 PM	3	53	0	0	0	34	8	0	6	0	1	0	0	0	0	0	388	1364

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Silverton Rd NE
City, State	Salem OR
Site Notes	
Location	44.971208 - -122.958914
Start Date	Tuesday, June 06, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:25:00 PM
PHF (15-Min Int)	0.87

Eastbound
Silverton Rd NE
Heavy Vehicle 0.9%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
156	322	213	0	9	424	138	0	103	323	213	0	177	303	5	0	691	571	639	485	814	430	597	545
Percent Heavy Vehicles																							
1.3%	1.2%	0.9%	0.0%	0.0%	1.9%	0.0%	0.0%	1.0%	0.6%	1.4%	0.0%	2.8%	2.3%	0.0%	0.0%	1.2%	1.4%	0.9%	2.5%	2.0%	1.2%	1.5%	0.7%

PHV- Bicycles																PHV - Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0		2	3	0	0	0	

All Vehicle Volumes										
	Northbound	Southbound	Eastbound	Westbound						
	Cordon Rd NE	Cordon Rd NE	Silverton Rd NE	Silverton Rd NE	15 Min	1 HR				

All Vehicle Volumes																15 Min	1 HR
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Silverton Rd NE				Westbound Silverton Rd NE				Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
03:00:00 PM	5	32	12	0	0	22	10	0	12	17	17	0	15	26	2	0	
03:05:00 PM	10	16	15	0	0	30	11	0	8	24	15	0	11	17	2	0	
03:10:00 PM	13	24	10	0	1	43	13	0	5	18	12	0	11	23	0	0	502
03:15:00 PM	9	21	19	0	1	37	5	0	4	29	30	0	11	25	1	0	524
03:20:00 PM	11	22	20	0	2	50	9	0	10	21	14	0	21	25	0	0	570
03:25:00 PM	18	19	24	0	0	21	10	0	5	22	20	0	21	24	1	0	582
03:30:00 PM	9	28	21	0	4	34	7	0	5	19	17	0	10	18	1	0	563
03:35:00 PM	11	30	27	0	0	29	6	0	8	22	24	0	7	14	1	0	537
03:40:00 PM	15	42	13	0	0	35	13	0	8	32	17	0	19	27	2	0	575
03:45:00 PM	22	24	20	0	2	21	8	0	3	16	20	0	8	18	0	0	564
03:50:00 PM	13	22	19	0	1	33	3	0	6	26	12	0	25	32	1	0	578
03:55:00 PM	7	20	22	0	1	36	14	0	10	27	29	0	17	22	0	0	560 2219
04:00:00 PM	17	23	19	0	0	28	10	0	3	28	17	0	7	22	0	0	572 2223

04:05:00 PM	12	32	27	0	0	31	14	0	7	25	18	0	8	24	2	0	579	2264
04:10:00 PM	14	25	32	0	2	41	9	0	3	20	19	0	18	15	0	0	572	2289
04:15:00 PM	14	19	17	0	2	26	8	0	3	34	27	0	19	24	1	0	592	2291
04:20:00 PM	12	24	25	0	0	43	6	0	8	23	14	0	13	25	0	0	585	2279
04:25:00 PM	15	22	19	0	0	29	3	0	6	12	18	0	19	18	0	0	548	2255
04:30:00 PM	10	15	25	0	1	29	7	0	6	15	19	0	9	18	1	0	509	2237
04:35:00 PM	17	31	16	0	0	33	16	0	6	18	10	0	16	17	1	0	497	2239
04:40:00 PM	15	32	15	0	1	31	7	0	6	25	12	0	8	7	1	0	496	2176
04:45:00 PM	19	22	23	0	0	34	10	0	3	28	10	0	4	8	0	0	502	2175
04:50:00 PM	17	25	18	0	1	33	12	0	12	29	23	0	9	13	1	0	514	2175
04:55:00 PM	7	19	16	0	0	35	19	0	13	25	12	0	9	21	0	0	530	2146
05:00:00 PM	12	35	17	0	1	39	5	0	7	22	9	0	10	17	0	0	543	2146
05:05:00 PM	14	22	12	0	0	30	11	0	10	29	21	0	14	25	0	0	538	2134
05:10:00 PM	15	28	20	0	0	40	15	0	11	29	23	0	14	15	0	0	572	2146
05:15:00 PM	18	25	19	0	1	36	6	0	9	30	19	0	12	35	1	0	609	2163
05:20:00 PM	17	18	22	0	0	40	13	0	8	23	17	0	15	28	0	0	622	2171
05:25:00 PM	13	25	19	0	3	43	10	0	8	24	10	0	26	32	0	0	625	2223
05:30:00 PM	12	39	21	0	2	37	13	0	3	39	20	0	16	33	0	0	649	2303
05:35:00 PM	6	24	12	0	1	40	10	0	8	36	20	0	30	46	2	0	683	2357
05:40:00 PM	11	39	23	0	0	25	11	0	5	17	22	0	12	22	1	0	658	2385
05:45:00 PM	14	23	14	0	0	26	13	0	9	20	17	0	10	16	0	0	585	2386
05:50:00 PM	13	24	21	0	0	37	6	0	5	23	15	0	10	22	0	0	526	2369
05:55:00 PM	11	23	17	0	2	23	4	0	6	32	13	0	23	24	0	0	516	2371

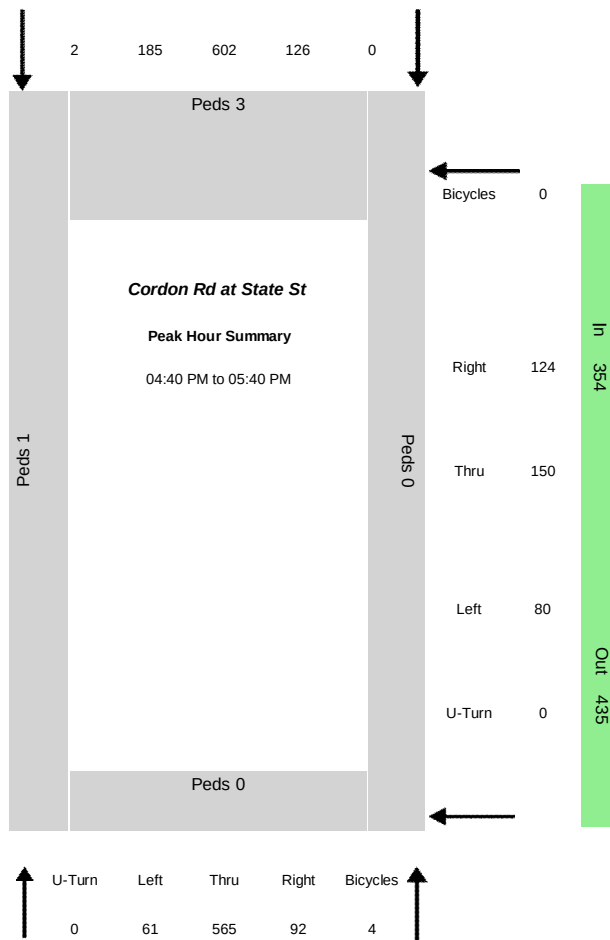


Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd		
E/W street	State St		
City, State	Salem OR		
Site Notes			
Location	44.928101	-	-122.958722
Start Date	Tuesday, June 06, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	04:40:00 PM		
Peak 15 Min Start	04:50:00 PM		
PHF (15-Min Int)	0.96		

Eastbound
State St
Heavy Vehicle 2.0%

In 561
Out 396

U-Turn 0
Left 265
Thru 217
Right 79
Bicycles 2



In 718
Out 761

Heavy Vehicle 2.9%

Cordon Rd
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
61	565	92	0	126	602	185	0	265	217	79	0	80	150	124	0	718	913	561	354	761	954	396	435
Percent Heavy Vehicles																							
0.0%	2.8%	5.4%	0.0%	4.8%	1.5%	2.2%	0.0%	0.8%	1.4%	7.6%	0.0%	1.3%	2.7%	1.6%	0.0%	2.9%	2.1%	2.0%	2.0%	2.1%	2.1%	2.0%	3.2%

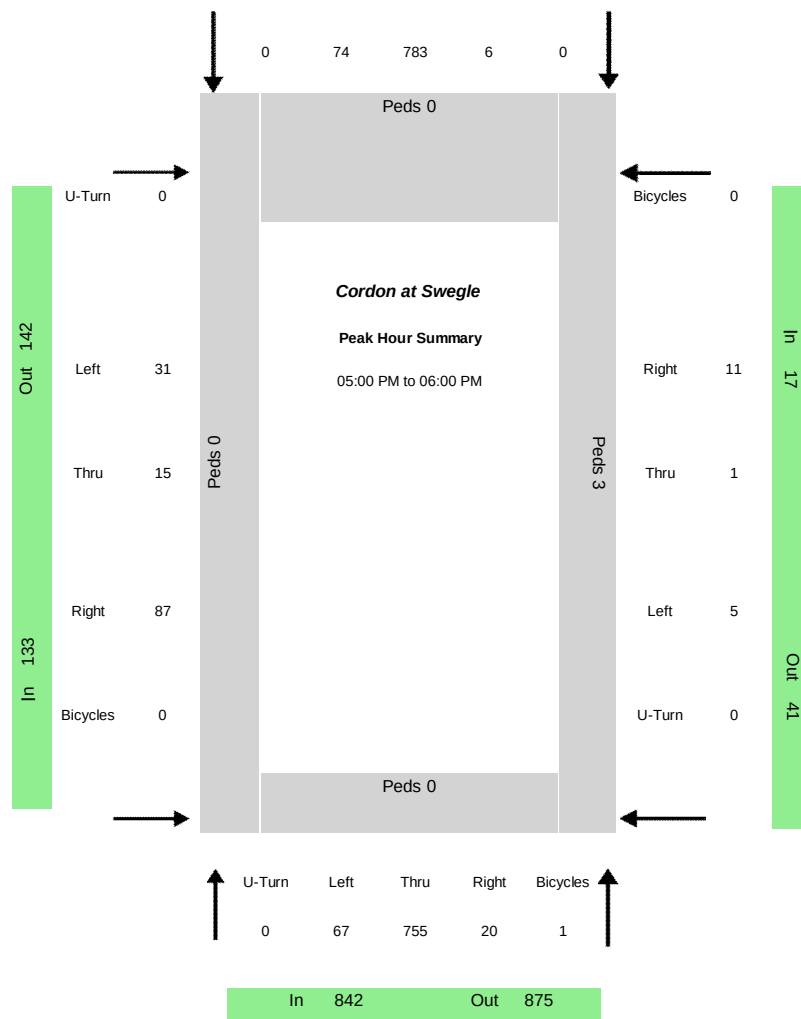
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
2	2	0	0	0	1	1	0	0	1	1	0	0	0	0	0	8	0	3	1	0	4

All Vehicle Volumes																		
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound State St				Westbound State St				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
03:00:00 PM	8	37	3	0	6	49	15	0	17	10	3	0	2	6	4	0		
03:05:00 PM	2	41	6	0	7	52	18	0	13	6	2	0	6	9	4	0		
03:10:00 PM	5	37	2	0	6	38	23	0	20	7	3	0	2	4	6	0	479	
03:15:00 PM	7	57	9	0	7	37	17	0	17	7	7	0	8	6	2	0	500	
03:20:00 PM	5	51	4	0	6	58	6	0	19	7	5	0	11	7	7	0	520	
03:25:00 PM	3	36	3	0	7	56	15	0	20	14	6	0	6	14	6	0	553	
03:30:00 PM	3	54	6	0	5	59	28	0	22	10	3	0	5	4	7	0	578	
03:35:00 PM	5	40	5	0	10	55	20	0	20	6	8	0	2	5	7	0	575	
03:40:00 PM	2	57	5	0	9	39	16	0	17	7	4	0	4	8	7	0	564	
03:45:00 PM	4	49	4	0	8	42	24	0	20	18	12	0	5	10	4	0	558	
03:50:00 PM	6	37	6	0	11	36	15	0	23	15	7	0	7	11	7	0	556	
03:55:00 PM	5	45	7	0	5	52	19	0	29	11	4	0	5	10	9	0	582	2178
04:00:00 PM	3	51	7	0	7	56	12	0	20	11	4	0	7	8	10	0	578	2214

04:05:00 PM	5	51	2	0	7	47	24	0	20	13	7	0	4	6	7	0	590	2241
04:10:00 PM	6	38	1	0	10	55	13	0	30	17	4	0	3	5	9	0	580	2279
04:15:00 PM	4	48	4	0	5	52	16	0	26	10	5	0	7	7	3	0	571	2285
04:20:00 PM	3	46	8	0	11	58	23	0	20	15	5	0	6	14	6	0	593	2314
04:25:00 PM	6	52	10	0	12	61	14	0	17	10	6	0	2	4	3	0	599	2325
04:30:00 PM	7	47	6	0	16	51	15	0	16	11	8	0	6	12	15	0	622	2329
04:35:00 PM	5	30	4	0	17	46	19	0	16	21	4	0	9	20	8	0	606	2345
04:40:00 PM	4	51	6	0	7	50	19	0	15	18	4	0	9	17	16	0	625	2386
04:45:00 PM	7	51	10	0	16	56	11	0	18	18	5	0	2	9	12	0	630	2401
04:50:00 PM	9	42	6	0	13	40	10	0	20	24	4	0	10	17	13	0	639	2428
04:55:00 PM	2	45	11	0	14	50	18	0	31	22	5	0	3	14	10	0	648	2452
05:00:00 PM	4	52	9	0	13	55	14	0	26	15	7	0	13	10	9	0	660	2483
05:05:00 PM	5	38	14	0	5	44	16	0	10	15	9	0	8	17	13	0	646	2484
05:10:00 PM	9	49	6	0	6	47	12	0	23	7	5	0	5	15	14	0	619	2491
05:15:00 PM	5	44	4	0	12	39	8	0	24	21	5	0	4	20	8	0	586	2498
05:20:00 PM	3	50	6	0	8	54	21	0	35	23	11	0	4	6	7	0	620	2511
05:25:00 PM	4	55	4	0	8	57	14	0	17	17	7	0	10	8	5	0	628	2520
05:30:00 PM	4	49	6	0	13	56	27	0	21	20	8	0	6	8	5	0	657	2533
05:35:00 PM	5	39	10	0	11	54	15	0	25	17	9	0	6	9	12	0	641	2546
05:40:00 PM	4	37	10	0	6	58	15	0	23	25	9	0	5	11	4	0	642	2537
05:45:00 PM	7	41	12	0	10	57	19	0	23	23	4	0	7	9	10	0	641	2544
05:50:00 PM	4	53	4	0	15	57	17	0	23	18	6	0	1	7	3	0	637	2544
05:55:00 PM	3	51	7	0	11	41	11	0	19	16	3	0	1	6	10	0	609	2498

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Swegle Rd NE
City, State	Salem OR
Site Notes	
Location	44.948929 - -122.958605
Start Date	Tuesday, June 06, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:15:00 PM
PHF (15-Min Int)	0.91

Eastbound
Swegle Rd NE
Heavy Vehicle 1.5%

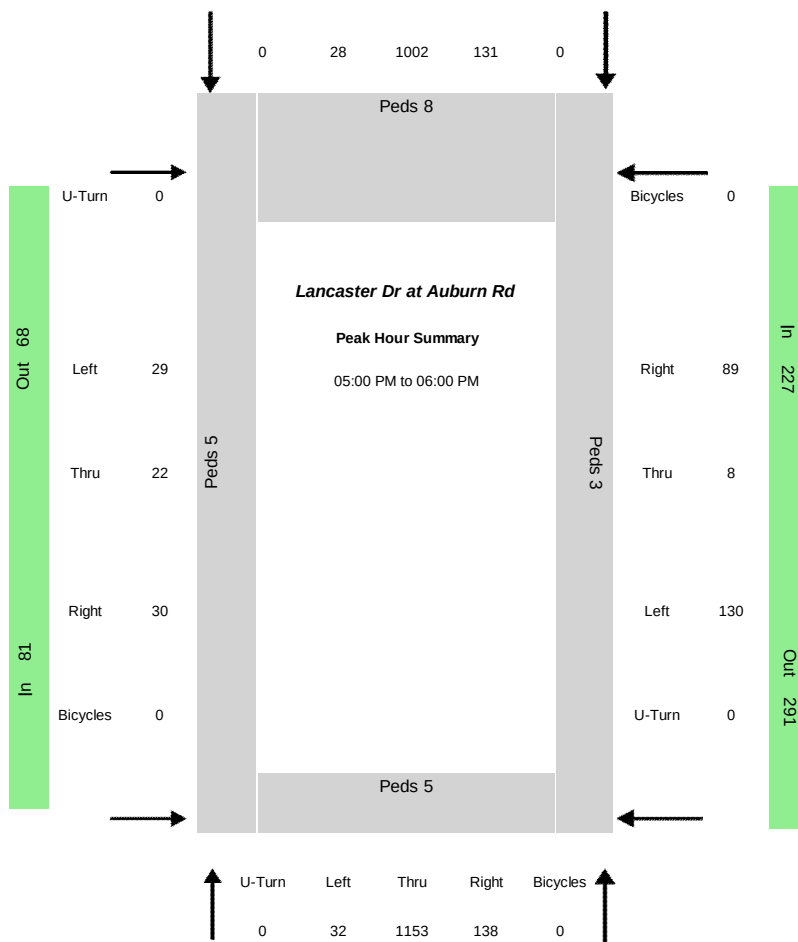


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
67	755	20	0	6	783	74	0	31	15	87	0	5	1	11	0	842	863	133	17	875	797	142	41
Percent Heavy Vehicles																							
0.0%	1.6%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	3.2%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	1.6%	1.5%	0.0%	1.7%	1.6%	0.0%	0.0%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3		3	
All Vehicle Volumes																							
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Swegle Rd NE				Westbound Swegle Rd NE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
	03:00:00 PM	2	49	1	0	1	55	3	0	0	1	12	0	1	0	1	0						
	03:05:00 PM	9	45	0	0	0	67	4	0	2	3	6	0	0	1	2	0						
	03:10:00 PM	3	44	1	0	1	57	6	0	2	1	5	0	1	0	0	0	386					
	03:15:00 PM	12	60	3	0	0	66	3	0	3	1	6	0	0	2	2	0	418					
	03:20:00 PM	4	60	1	0	0	65	4	0	3	3	14	0	1	0	1	0	435					
	03:25:00 PM	8	57	3	0	0	70	5	0	2	2	7	0	0	2	1	0	471					
	03:30:00 PM	3	55	2	0	1	67	8	0	4	0	6	0	0	0	0	0	459					
	03:35:00 PM	7	64	0	0	1	47	7	0	2	1	4	0	0	1	0	0	437					
	03:40:00 PM	8	57	1	0	0	69	0	0	2	0	6	0	2	0	2	0	427					
	03:45:00 PM	4	54	2	0	1	57	7	0	2	2	7	0	0	1	3	0	421					
	03:50:00 PM	4	56	0	0	0	61	4	0	1	0	11	0	0	0	4	0	428					
	03:55:00 PM	7	47	0	0	2	75	7	0	1	0	8	0	1	0	1	0	430	1714				
04:00:00 PM	4	87	1	0	1	66	5	0	3	0	3	0	0	0	1	0	461	1759					

04:05:00 PM	9	64	2	0	0	56	10	0	2	1	9	0	1	0	2	0	476	1776
04:10:00 PM	9	71	0	0	1	60	2	0	3	1	4	0	0	1	1	0	480	1808
04:15:00 PM	4	62	4	0	0	70	5	0	3	0	7	0	0	0	1	0	465	1806
04:20:00 PM	6	66	1	0	1	77	6	0	0	1	4	0	0	0	1	0	472	1813
04:25:00 PM	3	58	1	0	0	69	5	0	2	0	6	0	1	0	0	0	464	1801
04:30:00 PM	7	50	2	0	1	65	6	0	3	1	4	0	0	0	0	0	447	1794
04:35:00 PM	6	67	3	0	0	48	5	0	2	1	12	0	0	1	0	0	429	1805
04:40:00 PM	1	59	2	0	1	58	6	0	2	1	7	0	0	1	0	0	422	1796
04:45:00 PM	3	68	1	0	0	64	3	0	0	0	5	0	0	1	0	0	428	1801
04:50:00 PM	6	51	2	0	4	57	4	0	2	2	9	0	1	0	1	0	422	1799
04:55:00 PM	8	59	1	0	1	62	5	0	1	0	9	0	2	1	1	0	434	1800
05:00:00 PM	7	61	5	0	0	47	6	0	3	0	7	0	2	0	1	0	428	1768
05:05:00 PM	6	62	0	0	0	61	9	0	0	5	7	0	0	0	1	0	440	1763
05:10:00 PM	4	58	1	0	0	63	1	0	3	1	5	0	0	0	0	0	426	1746
05:15:00 PM	8	69	0	0	1	70	9	0	2	0	12	0	0	0	0	0	458	1761
05:20:00 PM	6	72	3	0	2	68	5	0	3	1	5	0	0	0	1	0	473	1764
05:25:00 PM	4	73	4	0	0	66	15	0	2	1	6	0	1	0	1	0	510	1792
05:30:00 PM	9	55	1	0	1	69	8	0	2	1	8	0	0	0	2	0	495	1809
05:35:00 PM	6	61	1	0	0	78	6	0	3	1	8	0	0	1	1	0	495	1830
05:40:00 PM	3	62	2	0	0	80	6	0	4	1	2	0	0	0	0	0	482	1852
05:45:00 PM	5	58	0	0	0	59	0	0	8	0	10	0	0	0	0	0	466	1847
05:50:00 PM	3	56	2	0	1	62	2	0	1	3	7	0	2	0	1	0	440	1848
05:55:00 PM	6	68	1	0	1	60	7	0	0	1	10	0	0	0	3	0	437	1855

Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	Auburn Rd NE		
City, State	Salem OR		
Site Notes			
Location	44.936517 - -122.983071		
Start Date	Thursday, June 08, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	05:00:00 PM		
Peak 15 Min Start	05:20:00 PM		
PHF (15-Min Int)	0.94		

Eastbound
Auburn Rd NE
Heavy Vehicle 0.0%



Heavy Vehicle 1.2%
Lancaster Dr NE
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
32	1153	138	0	131	1002	28	0	29	22	30	0	130	8	89	0	1323	1161	81	227	1162	1271	68	291
Percent Heavy Vehicles																							
0.0%	1.2%	1.4%	0.0%	0.8%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	1.2%	1.0%	0.0%	0.4%	0.9%	1.2%	0.0%	1.0%

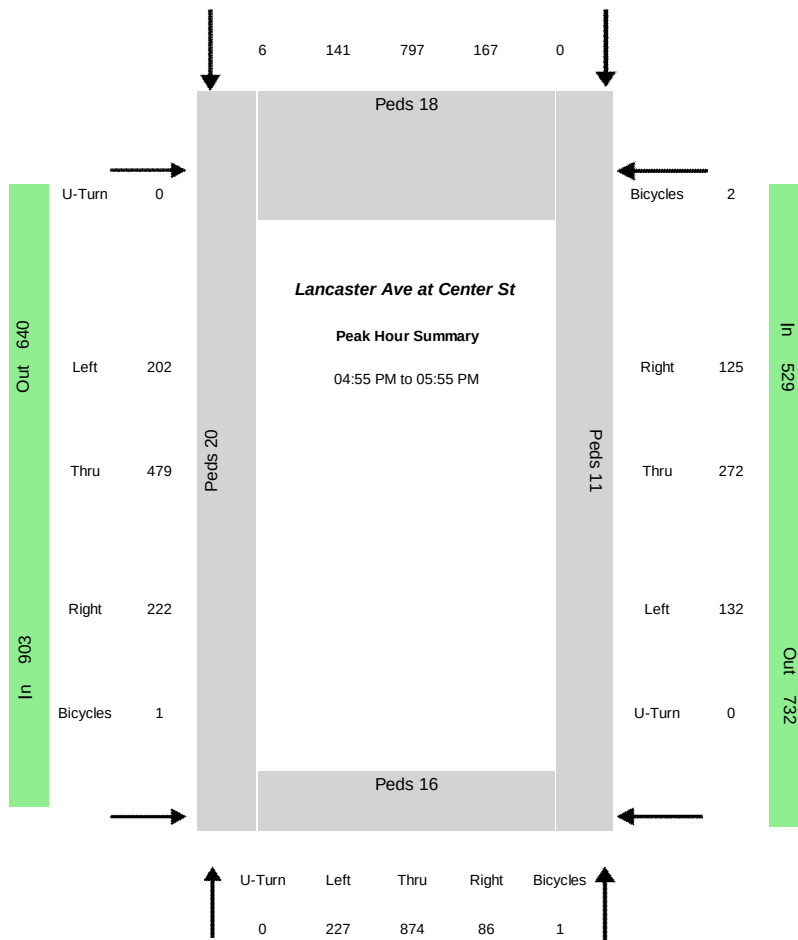
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		5	8	5	3	

All Vehicle Volumes																		
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Auburn Rd NE				Westbound Auburn Rd NE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
03:00:00 PM	1	75	8	0	6	93	3	0	5	0	1	0	13	1	3	0		
03:05:00 PM	0	78	10	0	10	80	3	0	1	0	0	0	5	0	8	0		
03:10:00 PM	4	93	5	0	8	88	2	0	1	1	1	0	6	0	7	0	620	
03:15:00 PM	1	83	15	0	10	80	2	0	1	1	2	0	10	1	3	0	620	
03:20:00 PM	0	74	8	0	7	64	0	0	4	0	0	0	8	4	4	0	598	
03:25:00 PM	0	84	9	0	7	81	0	0	0	2	4	0	4	0	4	0	577	
03:30:00 PM	2	79	10	0	7	98	1	0	2	2	3	0	9	0	5	0	586	
03:35:00 PM	3	73	11	0	15	75	1	0	3	1	1	0	15	4	1	0	616	
03:40:00 PM	2	94	13	0	10	88	0	0	2	1	1	0	13	0	5	0	650	
03:45:00 PM	2	101	6	0	9	83	2	0	1	3	2	0	14	2	10	0	667	
03:50:00 PM	0	94	4	0	8	74	1	0	2	0	1	0	23	3	15	0	689	
03:55:00 PM	4	114	12	0	7	86	3	0	1	2	3	0	8	0	5	0	705	2552
04:00:00 PM	4	90	6	0	9	91	1	0	3	2	2	0	9	0	4	0	691	2564

04:05:00 PM	0	75	10	0	9	99	2	0	4	0	4	0	8	0	6	0	683	2586
04:10:00 PM	1	100	6	0	10	71	1	0	2	1	1	0	9	2	9	0	651	2583
04:15:00 PM	0	88	12	0	9	108	0	0	1	1	0	0	8	1	8	0	666	2610
04:20:00 PM	5	95	11	0	8	83	1	0	1	3	3	0	13	1	6	0	679	2667
04:25:00 PM	4	92	14	0	7	87	1	0	2	1	2	0	11	1	5	0	693	2699
04:30:00 PM	2	103	10	0	6	78	3	0	3	0	2	0	11	0	6	0	681	2705
04:35:00 PM	1	85	11	0	10	90	2	0	3	1	4	0	4	0	9	0	671	2722
04:40:00 PM	1	74	15	0	6	80	4	0	0	0	1	0	7	0	6	0	638	2687
04:45:00 PM	0	81	10	0	2	79	3	0	2	1	2	0	7	0	10	0	611	2649
04:50:00 PM	4	102	18	0	9	97	0	0	1	0	0	0	6	1	7	0	636	2669
04:55:00 PM	3	79	15	0	8	63	2	0	3	1	2	0	12	0	10	0	640	2622
05:00:00 PM	2	107	22	0	14	83	5	0	2	2	2	0	6	0	7	0	695	2653
05:05:00 PM	1	110	12	0	12	68	4	0	2	1	1	0	11	2	10	0	684	2670
05:10:00 PM	1	83	11	0	17	53	1	0	2	4	2	0	8	3	3	0	674	2645
05:15:00 PM	7	118	13	0	9	55	0	0	5	4	1	0	7	1	2	0	644	2631
05:20:00 PM	4	88	13	0	14	123	3	0	2	3	8	0	8	0	10	0	686	2677
05:25:00 PM	2	76	6	0	11	96	2	0	1	2	3	0	17	0	7	0	721	2673
05:30:00 PM	2	104	12	0	10	87	2	0	1	1	3	0	12	1	11	0	745	2695
05:35:00 PM	1	104	10	0	9	92	4	0	3	2	0	0	12	0	5	0	711	2717
05:40:00 PM	3	99	8	0	8	83	3	0	2	2	3	0	13	0	6	0	718	2753
05:45:00 PM	3	88	9	0	14	73	1	0	3	0	3	0	14	1	8	0	689	2773
05:50:00 PM	2	89	13	0	7	96	2	0	3	1	4	0	10	0	11	0	685	2766
05:55:00 PM	4	87	9	0	6	93	1	0	3	0	0	0	12	0	9	0	679	2792

Data Provided by K-D-N.com 503-594-4224	
N/S street	Lancaster Dr NE
E/W street	Center St NE
City, State	Salem OR
Site Notes	
Location	44.939689 - -122.982958
Start Date	Thursday, June 08, 2017
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:55:00 PM
Peak 15 Min Start	05:30:00 PM
PHF (15-Min Int)	0.98

Eastbound
Center St NE
Heavy Vehicle 1.4%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
227	874	86	0	167	797	141	0	202	479	222	0	132	272	125	0	1187	1105	903	529	1151	1201	640	732
Percent Heavy Vehicles																							
0.9%	1.6%	3.5%	0.0%	1.8%	1.1%	1.4%	0.0%	0.5%	1.5%	2.3%	0.0%	0.8%	3.3%	0.8%	0.0%	1.6%	1.3%	1.4%	2.1%	1.3%	1.3%	2.0%	1.8%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk							
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	1	0	0	0	6	0	0	0	1	0	0	1	0	1	0	10	16	18	20	11	65		
All Vehicle Volumes																							
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Center St NE				Westbound Center St NE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
	03:00:00 PM	22	63	7	0	8	76	18	0	18	29	20	0	9	19	5	0						
	03:05:00 PM	12	69	5	0	10	74	6	0	19	36	23	0	9	16	8	0						
	03:10:00 PM	8	58	12	0	5	53	10	0	27	36	24	0	8	25	10	0	857					
	03:15:00 PM	27	71	7	0	15	54	9	0	22	30	14	0	11	24	11	0	858					
	03:20:00 PM	10	73	11	0	18	62	13	0	12	21	15	0	7	12	11	0	836					
	03:25:00 PM	12	58	4	0	12	74	21	0	20	34	15	0	15	28	7	0	860					
	03:30:00 PM	18	53	4	0	10	56	11	0	20	50	19	0	11	17	11	0	845					
	03:35:00 PM	19	81	8	0	13	76	9	0	16	26	19	0	7	23	9	0	886					
	03:40:00 PM	17	60	5	0	10	73	18	0	15	40	23	0	16	26	7	0	896					
	03:45:00 PM	16	68	8	0	12	52	10	0	13	34	21	0	7	29	10	0	896					
	03:50:00 PM	24	77	15	0	19	68	11	0	17	28	19	0	7	23	4	0	902					
03:55:00 PM	13	84	10	0	9	72	15	0	7	24	10	0	18	30	7	0	891	3504					
04:00:00 PM	15	66	10	0	9	64	9	0	24	31	21	0	12	28	9	0	909	3508					

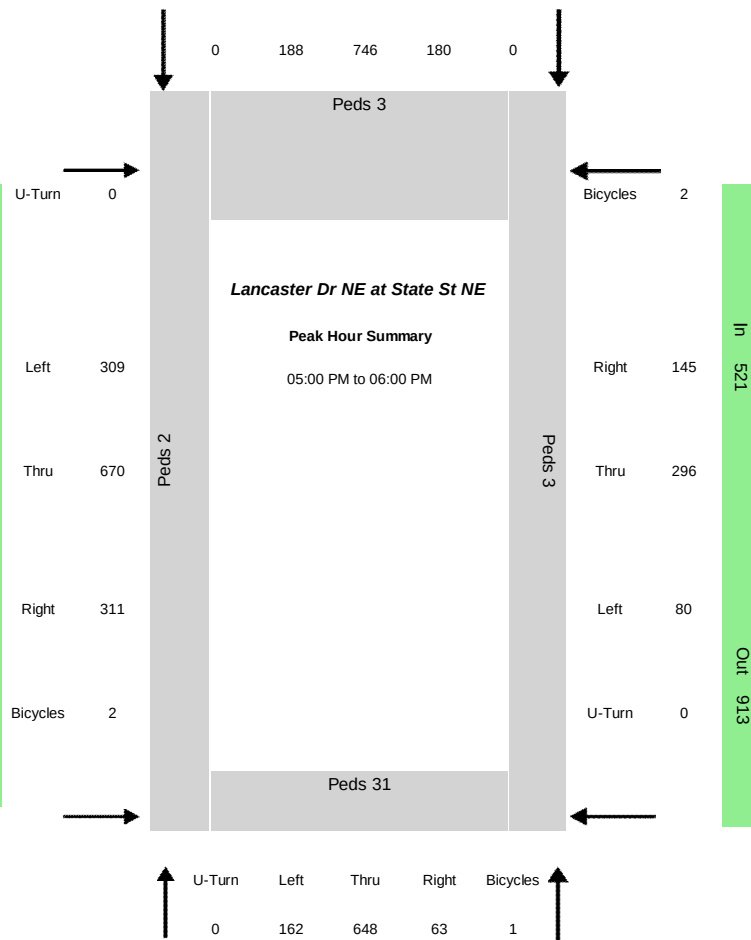
04:05:00 PM	15	67	8	0	9	81	10	0	18	29	18	0	8	31	6	0	897	3521
04:10:00 PM	17	85	9	0	12	82	13	0	14	40	14	0	7	29	6	0	926	3573
04:15:00 PM	13	58	10	0	8	65	3	0	23	36	22	0	12	36	4	0	918	3568
04:20:00 PM	26	62	10	0	19	58	12	0	21	47	21	0	7	39	6	0	946	3631
04:25:00 PM	14	89	13	0	6	93	15	0	15	35	14	0	3	29	3	0	947	3660
04:30:00 PM	16	63	6	0	9	55	9	0	22	35	20	0	16	15	3	0	926	3649
04:35:00 PM	15	60	8	0	9	60	9	0	16	37	23	0	14	45	6	0	900	3645
04:40:00 PM	20	71	7	0	17	76	11	0	15	41	19	0	9	22	6	0	885	3649
04:45:00 PM	16	65	9	0	8	74	14	0	19	30	15	0	15	14	10	0	905	3658
04:50:00 PM	18	63	4	0	6	60	9	0	15	45	20	0	7	38	19	0	907	3650
04:55:00 PM	29	80	5	0	16	57	11	0	10	35	26	0	4	23	7	0	896	3654
05:00:00 PM	19	77	6	0	13	83	14	0	14	20	17	0	14	26	11	0	921	3670
05:05:00 PM	11	67	5	0	11	62	9	0	25	60	24	0	5	22	16	0	934	3687
05:10:00 PM	27	75	3	0	21	63	13	0	16	37	14	0	12	17	7	0	936	3664
05:15:00 PM	21	84	12	0	12	52	8	0	14	39	10	0	10	12	12	0	908	3660
05:20:00 PM	12	52	5	0	12	68	9	0	14	58	25	0	14	27	16	0	903	3644
05:25:00 PM	21	59	6	0	18	71	13	0	14	51	18	0	11	17	7	0	904	3621
05:30:00 PM	20	91	14	0	10	83	15	0	7	40	17	0	5	20	5	0	945	3679
05:35:00 PM	17	66	10	0	13	62	11	0	30	38	17	0	15	24	5	0	941	3685
05:40:00 PM	14	60	7	0	16	57	10	0	23	43	21	0	11	36	14	0	947	3683
05:45:00 PM	18	88	7	0	13	80	15	0	10	31	10	0	15	25	11	0	943	3717
05:50:00 PM	18	75	6	0	12	59	13	0	25	27	23	0	16	23	14	0	946	3724
05:55:00 PM	15	63	8	0	18	56	14	0	11	39	22	0	11	28	6	0	925	3712



Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	State St		
City, State	Salem OR		
Site Notes			
Location	44.927939 - -122.983375		
Start Date	Wednesday, June 07, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	05:00:00 PM		
Peak 15 Min Start	05:10:00 PM		
PHF (15-Min Int)	0.97		

Eastbound
State St
Heavy Vehicle 1.5%

In 1290
Out 646



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
162	648	63	0	180	746	188	0	309	670	311	0	80	296	145	0	873	1114	1290	521	1137	1102	646	913
Percent Heavy Vehicles																							
3.1%	1.2%	0.0%	0.0%	1.1%	0.8%	1.6%	0.0%	1.0%	1.5%	1.9%	0.0%	0.0%	0.7%	0.0%	0.0%	1.5%	1.0%	1.5%	0.4%	1.1%	1.0%	1.5%	1.3%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk							
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5	31	3	2	3	39		
All Vehicle Volumes																							
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound State St				Westbound State St				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
	03:00:00 PM	10	62	4	0	14	62	20	0	24	16	17	0	3	24	16	0						
	03:05:00 PM	23	70	3	0	11	60	21	0	21	28	26	0	3	19	8	0						
	03:10:00 PM	16	66	5	0	11	58	10	0	28	39	11	0	8	29	20	0	866					
	03:15:00 PM	14	57	5	0	14	60	25	0	33	45	28	0	3	22	13	0	913					
	03:20:00 PM	15	61	6	0	10	61	10	0	25	27	24	0	6	16	8	0	889					
	03:25:00 PM	8	43	10	0	10	38	16	0	39	42	18	0	7	34	9	0	862					
	03:30:00 PM	6	54	4	0	18	57	17	0	25	35	22	1	8	24	18	0	832					
	03:35:00 PM	11	70	8	0	10	64	18	0	23	27	23	0	5	20	15	0	857					
	03:40:00 PM	18	49	6	0	10	53	6	0	39	43	24	1	5	24	11	0	872					
	03:45:00 PM	14	49	6	0	6	48	14	0	17	47	28	0	4	37	21	0	874					
	03:50:00 PM	13	56	5	0	20	75	19	0	24	48	18	0	7	16	19	0	900					
03:55:00 PM	21	47	6	0	13	47	18	0	34	37	34	0	3	14	10	0	895	3495					
04:00:00 PM	11	34	3	0	11	55	13	0	20	56	26	1	6	35	16	0	891	3510					

04:05:00 PM	7	55	4	0	15	77	23	0	22	44	29	0	8	15	13	0	883	3529
04:10:00 PM	23	52	2	0	9	64	18	0	25	43	21	0	5	16	13	0	890	3519
04:15:00 PM	11	43	4	0	14	61	15	0	29	70	32	0	10	37	17	0	946	3543
04:20:00 PM	17	50	4	0	15	68	17	0	35	35	32	0	8	19	9	0	943	3583
04:25:00 PM	18	71	5	0	15	58	14	0	17	38	10	0	6	23	10	0	937	3594
04:30:00 PM	14	59	5	0	17	47	17	0	41	45	26	0	5	27	14	0	911	3622
04:35:00 PM	11	49	2	0	14	44	17	0	27	40	28	0	6	31	22	0	893	3619
04:40:00 PM	13	67	8	0	18	64	16	0	29	35	28	0	6	26	19	0	937	3659
04:45:00 PM	16	44	5	0	10	51	19	0	38	49	32	0	6	18	12	0	920	3668
04:50:00 PM	7	39	6	0	16	54	22	0	22	61	34	0	8	29	15	0	942	3661
04:55:00 PM	12	61	4	0	16	71	15	0	27	43	19	0	4	22	8	0	915	3679
05:00:00 PM	24	44	4	0	11	61	15	0	27	59	21	0	8	20	4	0	913	3690
05:05:00 PM	13	44	4	0	14	57	16	0	23	59	32	0	7	25	12	0	906	3684
05:10:00 PM	8	41	8	0	20	71	20	0	33	63	23	0	11	27	9	0	938	3727
05:15:00 PM	19	71	8	0	15	52	16	0	22	48	25	0	4	22	7	0	949	3693
05:20:00 PM	8	48	6	0	8	63	10	0	35	80	36	0	5	26	12	0	980	3721
05:25:00 PM	13	51	5	0	13	59	13	0	18	50	23	0	6	16	15	0	928	3718
05:30:00 PM	14	56	2	0	25	65	8	0	17	48	35	0	3	26	17	0	935	3717
05:35:00 PM	18	48	5	0	15	62	17	0	41	67	32	0	4	26	10	0	943	3771
05:40:00 PM	7	68	5	0	15	65	18	0	22	34	16	0	9	22	18	0	960	3741
05:45:00 PM	15	73	7	0	14	70	12	0	27	41	16	0	6	20	20	0	965	3762
05:50:00 PM	18	56	4	0	15	61	28	0	27	68	23	0	5	27	9	0	961	3790
05:55:00 PM	5	48	5	0	15	60	15	0	17	53	29	0	12	39	12	0	972	3798

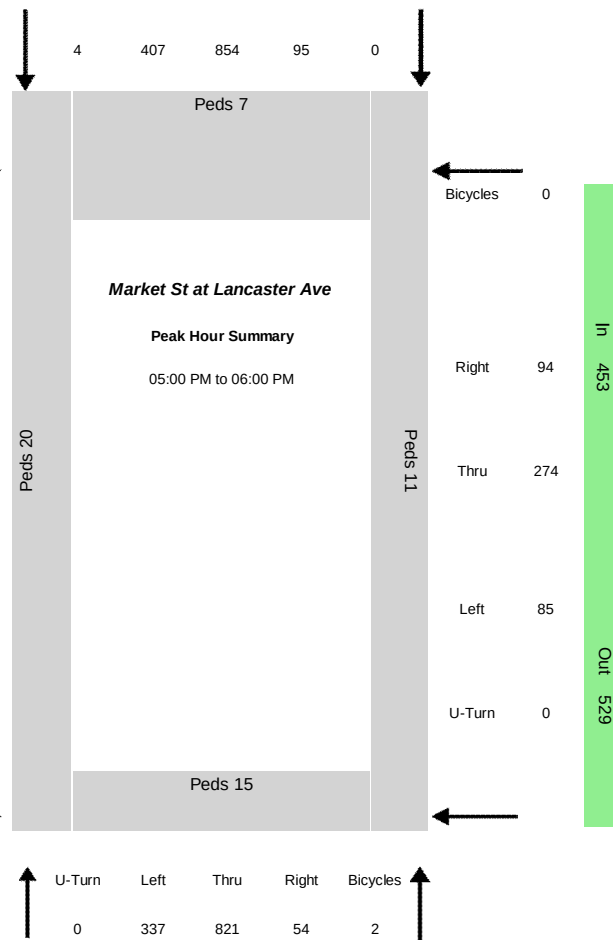
Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	Market St NE		
City, State	Salem OR		
Site Notes			
Location	44.950169 - -122.983791		
Start Date	Thursday, June 08, 2017		
Start Time	03:00:00 PM		
Weather			
Study ID #			
Peak Hour Start	05:00:00 PM		
Peak 15 Min Start	05:25:00 PM		
PHF (15-Min Int)	0.97		

Eastbound
Market St NE
Heavy Vehicle 1.6%



In 1282 Out 1018

U-Turn 0
Left 558
Thru 380
Right 344
Bicycles 0



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
337	821	54	0	95	854	407	0	558	380	344	0	85	274	94	0	1212	1356	1282	453	1283	1473	1018	529
2.1%	1.0%	0.0%	0.0%	0.0%	0.8%	1.0%	0.0%	2.3%	0.5%	1.5%	0.0%	0.0%	1.1%	5.3%	0.0%	1.2%	0.8%	1.6%	1.8%	0.9%	1.8%	1.4%	0.4%

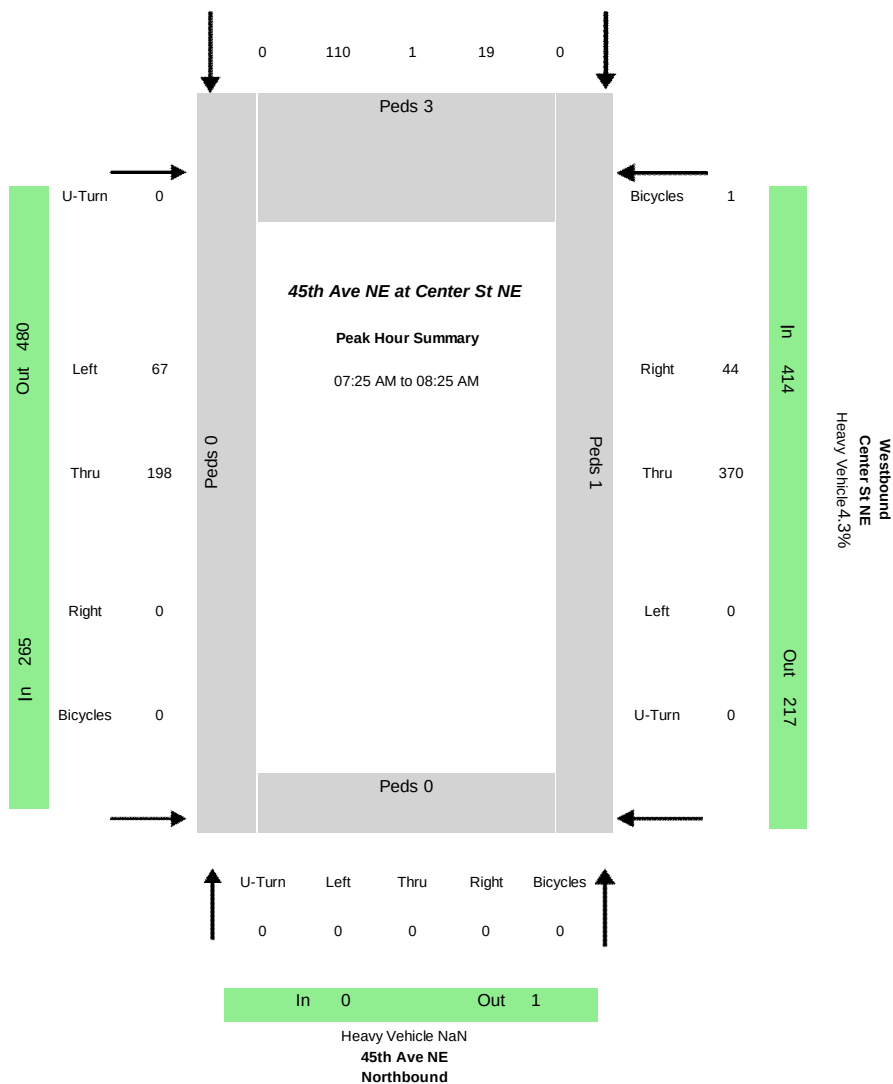
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	15	7	20	11	53

All Vehicle Volumes																	
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Market St NE				Westbound Market St NE				15 Min Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
03:00:00 PM	38	65	4	0	9	58	41	0	47	16	26	0	7	28	13	0	
03:05:00 PM	16	83	3	0	4	58	40	0	41	15	24	0	8	16	13	0	
03:10:00 PM	18	63	7	0	5	57	32	0	45	35	28	0	8	19	5	0	995
03:15:00 PM	26	57	5	0	10	51	19	0	55	31	38	0	4	22	8	0	969
03:20:00 PM	20	100	4	0	7	86	32	0	46	32	33	0	8	30	8	0	1054
03:25:00 PM	27	52	5	0	9	69	30	0	39	35	24	0	7	21	5	0	1055
03:30:00 PM	23	64	3	0	6	61	28	0	46	28	31	0	4	36	4	0	1063
03:35:00 PM	34	70	2	0	2	69	42	0	32	19	20	0	3	32	3	0	985
03:40:00 PM	28	73	3	0	5	69	45	0	39	33	29	0	3	19	4	0	1012
03:45:00 PM	20	57	4	0	3	64	26	0	54	33	33	0	5	19	12	0	1008
03:50:00 PM	26	63	8	0	5	81	38	0	44	31	35	0	2	24	8	0	1045
03:55:00 PM	23	62	10	0	6	58	40	0	39	24	27	0	13	18	6	0	1021 4083
04:00:00 PM	16	61	4	0	6	58	33	0	58	27	30	0	6	13	9	0	1012 4052

04:05:00 PM	37	69	5	0	5	56	31	0	35	28	26	0	10	31	9	0	989	4073
04:10:00 PM	20	82	2	0	4	72	24	0	37	30	25	0	11	18	2	0	990	4078
04:15:00 PM	29	56	2	0	9	56	34	0	50	34	35	0	10	18	4	0	1006	4089
04:20:00 PM	30	51	3	0	10	68	33	0	51	21	44	0	7	25	7	0	1014	4033
04:25:00 PM	22	99	2	0	4	91	36	0	36	31	18	0	4	9	5	0	1044	4067
04:30:00 PM	21	67	4	0	12	57	25	0	35	27	30	0	7	18	10	0	1020	4046
04:35:00 PM	32	60	8	0	6	56	31	0	53	36	34	0	6	35	8	0	1035	4083
04:40:00 PM	14	66	7	0	3	79	37	0	38	29	26	0	7	24	2	0	1010	4065
04:45:00 PM	22	62	2	0	7	59	36	0	32	24	33	0	14	20	7	0	1015	4053
04:50:00 PM	21	52	3	0	5	50	31	0	60	31	48	0	1	32	4	0	988	4026
04:55:00 PM	32	61	9	0	6	78	28	0	42	26	34	0	5	26	5	0	1008	4052
05:00:00 PM	27	69	2	0	6	82	36	0	44	27	17	0	13	17	6	0	1036	4077
05:05:00 PM	26	51	2	0	6	60	33	0	52	44	37	0	1	19	10	0	1039	4076
05:10:00 PM	37	80	7	0	8	73	36	0	40	22	27	0	3	30	7	0	1057	4119
05:15:00 PM	37	71	2	0	9	73	30	0	40	30	33	0	7	20	8	0	1071	4142
05:20:00 PM	28	49	5	0	11	67	32	0	53	39	32	0	5	21	4	0	1076	4138
05:25:00 PM	37	56	6	0	9	56	36	0	63	27	31	0	6	27	8	0	1068	4143
05:30:00 PM	25	85	7	0	7	87	31	0	39	27	28	0	7	24	9	0	1084	4206
05:35:00 PM	22	62	3	0	10	67	47	0	40	42	36	0	8	22	7	0	1104	4207
05:40:00 PM	25	70	7	0	5	71	34	0	52	29	33	0	5	22	7	0	1102	4235
05:45:00 PM	24	86	4	0	4	73	31	0	37	23	16	0	8	26	9	0	1067	4258
05:50:00 PM	23	73	4	0	10	85	28	0	37	30	25	0	11	25	10	0	1062	4281
05:55:00 PM	26	69	5	0	10	60	33	0	61	40	29	0	11	21	9	0	1076	4303

Data Provided by K-D-N.com 503-594-4224	
N/S street	45th Ave NE
E/W street	Center St NE
City, State	Salem OR
Site Notes	
Location	44.939759 - -122.973869
Start Date	Thursday, June 08, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:25:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.87

Eastbound
Center St NE
Heavy Vehicle 7.5%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	19	1	110	0	67	198	0	0	0	370	44	0	0	130	265	414	1	111	480	217
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	10.5%	100.0%	10.0%	0.0%	4.5%	8.6%	0.0%	0.0%	0.0%	4.3%	4.5%	0.0%	#DIV/0!	10.8%	7.5%	4.3%	100.0%	4.5%	5.6%	8.8%

PHV- Bicycles																PHV- Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		1	0	3	0	1	

PHV- Bicycles														PHV - Pedestrians					

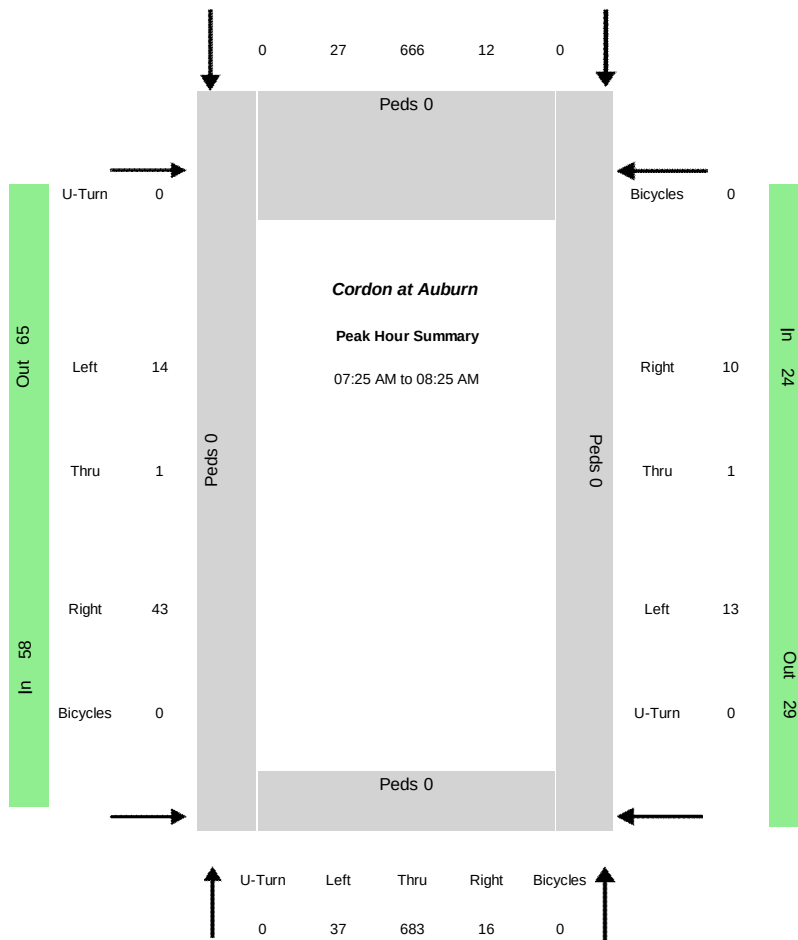
Northbound				Southbound				Eastbound				Westbound				in Crosswalk				Sum	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	1	4

All Vehicle Volumes																		
Time	Northbound 45th Ave NE				Southbound 45th Ave NE				Eastbound Center St NE				Westbound Center St NE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	0	0	0	0	0	0	5	0	0	10	0	0	0	14	2	0		
06:05:00 AM	0	0	0	0	2	0	4	0	4	8	0	0	0	19	4	0		
06:10:00 AM	0	0	0	0	2	0	7	0	2	9	0	0	0	15	3	0	110	
06:15:00 AM	0	0	0	0	0	0	2	0	3	6	0	0	0	19	3	0	112	
06:20:00 AM	0	0	0	0	1	0	10	0	0	7	0	0	0	12	3	0	104	
06:25:00 AM	0	0	0	0	1	0	12	0	4	13	0	0	0	6	3	0	105	
06:30:00 AM	0	0	0	0	3	0	5	0	3	13	0	0	0	9	1	0	106	
06:35:00 AM	0	0	0	0	1	1	11	0	2	5	0	0	0	9	5	0	107	
06:40:00 AM	0	0	0	0	2	0	7	0	1	16	0	0	0	16	3	0	113	
06:45:00 AM	0	0	0	0	1	0	12	0	5	13	0	0	0	27	3	0	140	
06:50:00 AM	0	0	0	0	3	0	7	0	4	11	0	0	0	22	3	0	156	
06:55:00 AM	0	0	0	0	2	0	8	0	6	9	0	0	0	22	0	0	158	486
07:00:00 AM	0	0	0	0	0	0	10	0	5	12	0	0	0	16	2	0	142	500

07:05:00 AM	0	0	0	0	1	0	16	0	3	7	0	0	0	25	8	0	152	519
07:10:00 AM	0	0	0	0	3	0	7	0	3	9	0	0	0	26	1	0	154	530
07:15:00 AM	0	0	0	0	2	0	8	0	3	13	0	0	0	38	1	0	174	562
07:20:00 AM	0	0	0	0	0	0	7	0	2	12	0	0	0	19	3	0	157	572
07:25:00 AM	0	0	0	0	1	0	12	0	4	14	0	0	0	28	4	0	171	596
07:30:00 AM	0	0	0	0	1	0	14	0	4	14	0	0	0	31	4	0	174	630
07:35:00 AM	0	0	0	0	2	1	4	0	7	20	0	0	0	36	6	0	207	672
07:40:00 AM	0	0	0	0	3	0	10	0	5	14	0	0	0	31	2	0	209	692
07:45:00 AM	0	0	0	0	3	0	9	0	6	11	0	0	0	53	3	0	226	716
07:50:00 AM	0	0	0	0	0	0	12	0	9	20	0	0	0	38	4	0	233	749
07:55:00 AM	0	0	0	0	0	0	5	0	4	15	0	0	0	25	3	0	220	754
08:00:00 AM	0	0	0	0	1	0	9	0	8	19	0	0	0	39	3	0	214	788
08:05:00 AM	0	0	0	0	2	0	6	0	4	20	0	0	0	16	4	0	183	780
08:10:00 AM	0	0	0	0	3	0	10	0	7	15	0	0	0	26	5	0	197	797
08:15:00 AM	0	0	0	0	1	0	7	0	1	15	0	0	0	25	6	0	173	787
08:20:00 AM	0	0	0	0	2	0	12	0	8	21	0	0	0	22	0	0	186	809
08:25:00 AM	0	0	0	0	2	0	14	0	8	12	0	0	0	19	4	0	179	805
08:30:00 AM	0	0	0	0	0	0	12	0	3	10	0	0	0	27	2	0	178	791
08:35:00 AM	0	0	0	0	1	0	7	0	4	11	0	0	0	22	2	0	160	762
08:40:00 AM	0	0	0	0	3	0	11	0	9	10	0	0	0	24	2	0	160	756
08:45:00 AM	0	0	0	0	3	0	16	0	5	15	0	0	0	19	2	0	166	731
08:50:00 AM	0	0	0	0	4	0	5	0	1	12	0	0	0	29	1	0	171	700
08:55:00 AM	0	0	0	0	2	0	13	0	9	18	0	0	0	32	2	0	188	724

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Auburn Rd NE
City, State	Salem OR
Site Notes	
Location	44.936344 - -122.95913
Start Date	Tuesday, June 06, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:25:00 AM
Peak 15 Min Start	07:45:00 AM
PHF (15-Min Int)	0.90

Eastbound
Auburn Rd NE
Heavy Vehicle 8.6%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
37	683	16	0	12	666	27	0	14	1	43	0	13	1	10	0	736	705	58	24	722	707	65	29
Percent Heavy Vehicles																							
0.0%	4.8%	25.0%	0.0%	0.0%	6.5%	0.0%	0.0%	7.1%	0.0%	9.3%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	6.1%	8.6%	0.0%	6.5%	4.8%	0.0%	13.8%

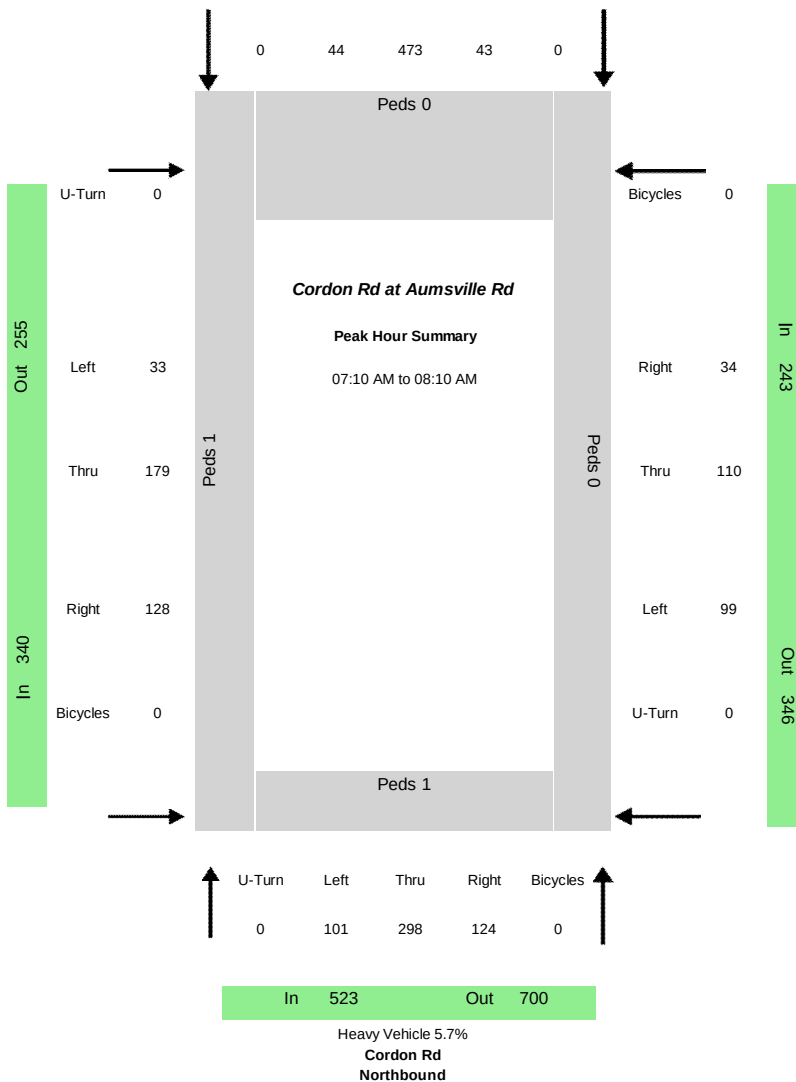
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

All Vehicle Volumes																15 Min	1 HR
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Auburn Rd NE				Westbound Auburn Rd NE				Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
06:00:00 AM	0	25	0	0	0	24	1	0	1	0	1	0	0	1	1	0	
06:05:00 AM	1	30	0	0	1	31	1	0	1	0	1	0	1	0	4	0	
06:10:00 AM	1	26	0	0	0	29	2	0	2	0	1	0	0	0	0	0	186
06:15:00 AM	0	21	1	0	0	25	0	0	0	0	2	0	2	0	1	0	184
06:20:00 AM	1	37	1	0	0	31	1	0	2	0	2	0	1	0	0	0	189
06:25:00 AM	2	28	0	0	0	34	0	0	0	0	0	0	0	0	1	0	193
06:30:00 AM	0	28	1	0	0	44	0	0	3	0	5	0	0	0	0	0	222
06:35:00 AM	1	37	1	0	0	41	2	0	0	0	1	0	1	0	0	0	230
06:40:00 AM	2	44	0	0	0	53	1	0	1	0	0	0	0	1	0	0	267
06:45:00 AM	1	35	0	0	0	63	1	0	2	0	4	0	0	0	1	0	293
06:50:00 AM	2	42	0	0	1	41	0	0	0	0	6	0	1	0	0	0	302
06:55:00 AM	1	38	0	0	1	58	6	0	1	0	4	0	0	0	1	0	310
07:00:00 AM	1	32	2	0	0	47	1	0	2	0	2	0	2	1	3	0	995

07:05:00 AM	1	36	0	0	0	38	1	0	1	0	3	0	3	0	1	0	287	1008
07:10:00 AM	1	47	0	0	0	49	3	0	0	0	1	0	0	0	1	0	279	1049
07:15:00 AM	1	50	0	0	2	42	0	0	0	0	2	0	2	0	1	0	286	1097
07:20:00 AM	1	47	5	0	0	45	2	0	2	0	2	0	0	0	0	0	306	1125
07:25:00 AM	2	48	1	0	0	50	3	0	2	0	5	0	2	0	0	0	317	1173
07:30:00 AM	2	51	1	0	1	56	1	0	0	1	3	0	0	0	1	0	334	1209
07:35:00 AM	4	62	0	0	1	52	0	0	0	0	7	0	1	0	1	0	358	1253
07:40:00 AM	2	42	1	0	0	71	6	0	3	0	3	0	2	1	2	0	378	1284
07:45:00 AM	3	62	1	0	1	57	2	0	2	0	5	0	2	0	1	0	397	1313
07:50:00 AM	5	58	2	0	0	72	3	0	1	0	5	0	2	0	1	0	418	1369
07:55:00 AM	6	56	0	0	4	63	2	0	1	0	4	0	1	0	1	0	423	1397
08:00:00 AM	2	51	4	0	1	48	2	0	4	0	0	0	1	0	1	0	401	1418
08:05:00 AM	4	67	2	0	0	56	1	0	1	0	5	0	1	0	1	0	390	1472
08:10:00 AM	3	59	0	0	1	52	1	0	0	0	1	0	0	0	0	0	369	1487
08:15:00 AM	2	63	1	0	3	37	4	0	0	0	2	0	0	0	0	0	367	1499
08:20:00 AM	2	64	3	0	0	52	2	0	0	0	3	0	1	0	1	0	357	1523
08:25:00 AM	0	39	3	0	0	60	0	0	2	1	3	0	1	0	1	0	350	1520
08:30:00 AM	4	49	1	0	0	49	4	0	4	0	3	0	0	0	1	0	353	1518
08:35:00 AM	2	48	1	0	0	42	3	0	3	0	3	0	1	0	1	0	329	1494
08:40:00 AM	2	57	0	0	1	39	6	0	1	0	4	0	1	0	0	0	330	1472
08:45:00 AM	4	46	0	0	0	42	2	0	3	0	2	0	0	0	0	0	314	1435
08:50:00 AM	4	52	1	0	1	41	1	0	0	1	7	0	0	0	1	0	319	1395
08:55:00 AM	6	57	1	0	1	55	2	0	2	0	1	0	0	0	0	0	333	1382

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd
E/W street	Aumsville Rd
City, State	Salem OR
Site Notes	
Location	44.900479 - -122.970142
Start Date	Tuesday, June 06, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.88

Eastbound
Aumsville Rd
Heavy Vehicle 5.3%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
101	298	124	0	43	473	44	0	33	179	128	0	99	110	34	0	523	560	340	243	700	365	255	346
Percent Heavy Vehicles																							
6.9%	5.7%	4.8%	0.0%	2.3%	4.7%	20.5%	0.0%	3.0%	5.6%	5.5%	0.0%	6.1%	18.2%	2.9%	0.0%	5.7%	5.7%	5.3%	11.1%	5.0%	5.2%	14.1%	4.9%

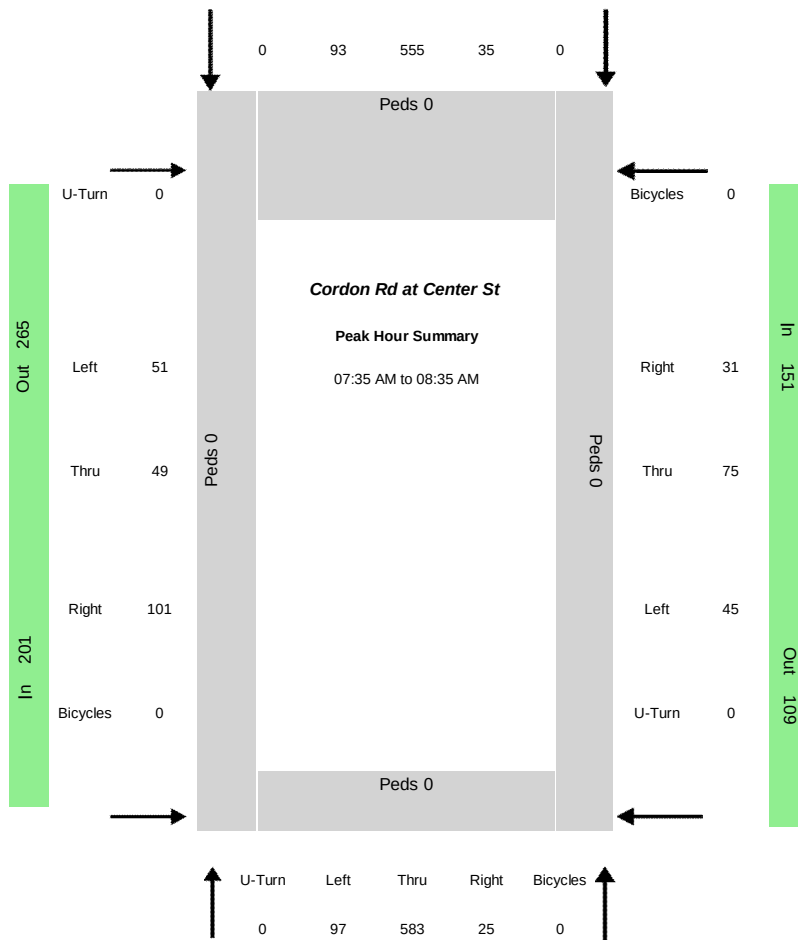
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	1	0	1	

All Vehicle Volumes																		
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound Aumsville Rd				Westbound Aumsville Rd				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
06:00:00 AM	3	8	3	0	0	22	3	0	1	6	4	0	3	8	1	0		
06:05:00 AM	1	14	4	0	3	17	1	0	1	8	6	0	2	6	1	0		
06:10:00 AM	6	18	1	0	2	16	1	0	1	3	2	0	2	2	3	0	183	
06:15:00 AM	4	15	5	0	2	18	1	0	2	8	9	0	2	4	5	0	196	
06:20:00 AM	8	19	8	0	0	15	4	0	2	6	3	0	4	7	0	0	208	
06:25:00 AM	4	9	3	0	2	23	2	0	3	13	6	0	2	7	2	0	227	
06:30:00 AM	2	12	5	0	0	21	1	0	2	10	4	0	3	4	3	0	219	
06:35:00 AM	3	14	3	0	3	40	1	0	0	12	6	0	2	10	3	0	240	
06:40:00 AM	4	21	1	0	4	35	1	0	0	11	15	0	4	4	3	0	267	
06:45:00 AM	10	17	5	0	1	29	3	0	2	16	13	0	7	9	0	0	312	
06:50:00 AM	7	13	5	0	4	44	3	0	1	14	14	0	4	7	0	0	331	
06:55:00 AM	11	17	7	0	1	41	1	0	2	13	10	0	6	7	1	0	345	1022
07:00:00 AM	8	23	8	0	5	40	0	0	1	7	14	0	2	3	1	0	345	1072

07:05:00 AM	5	23	8	0	1	29	1	0	0	14	9	0	7	9	3	0	338	1117
07:10:00 AM	5	15	8	0	2	39	5	0	4	16	13	0	7	10	6	0	351	1190
07:15:00 AM	6	33	14	0	1	44	1	0	2	7	10	0	8	6	1	0	372	1248
07:20:00 AM	6	21	6	0	4	32	4	0	1	20	12	0	5	6	3	0	383	1292
07:25:00 AM	4	27	6	0	6	42	2	0	2	9	11	0	2	7	0	0	371	1334
07:30:00 AM	5	29	12	0	2	35	5	0	7	22	10	0	9	16	1	0	391	1420
07:35:00 AM	11	29	10	0	6	51	5	0	3	12	15	0	13	7	1	0	434	1486
07:40:00 AM	18	20	12	0	4	39	3	0	6	18	4	0	7	9	4	0	460	1527
07:45:00 AM	10	24	15	0	2	61	2	0	0	13	14	0	14	6	6	0	474	1582
07:50:00 AM	13	14	10	0	4	31	6	0	1	21	11	0	10	8	3	0	443	1598
07:55:00 AM	5	32	10	0	8	43	5	0	4	14	11	0	12	8	4	0	455	1637
08:00:00 AM	10	29	9	0	0	30	3	0	3	11	5	0	7	17	3	0	415	1652
08:05:00 AM	8	25	12	0	4	26	3	0	0	16	12	0	5	10	2	0	406	1666
08:10:00 AM	11	21	5	0	3	37	5	0	3	9	9	0	5	6	2	0	366	1652
08:15:00 AM	4	18	3	0	1	31	5	0	3	18	8	0	6	7	2	0	345	1625
08:20:00 AM	7	21	6	0	3	21	4	0	5	15	10	0	4	8	3	0	329	1612
08:25:00 AM	6	26	3	0	2	33	2	0	3	7	7	0	10	7	3	0	322	1603
08:30:00 AM	7	21	0	0	3	36	1	0	2	10	13	0	2	3	1	0	315	1549
08:35:00 AM	9	15	4	0	0	22	4	0	5	11	8	0	2	12	0	0	300	1478
08:40:00 AM	7	18	6	0	1	29	2	0	0	2	2	0	2	9	2	0	271	1414
08:45:00 AM	6	22	6	0	4	35	2	0	2	19	20	0	5	17	2	0	312	1387
08:50:00 AM	2	41	6	0	0	28	2	0	3	9	8	0	5	7	1	0	332	1367
08:55:00 AM	13	27	4	0	9	26	5	0	1	12	7	0	4	14	4	0	378	1337

Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd NE		
E/W street	Center St NE		
City, State	Salem OR		
Site Notes			
Location	44.939657 - -122.959282		
Start Date	Tuesday, June 06, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:35:00 AM		
Peak 15 Min Start	07:45:00 AM		
PHF (15-Min Int)	0.91		

Eastbound
Center St NE
Heavy Vehicle 4.0%

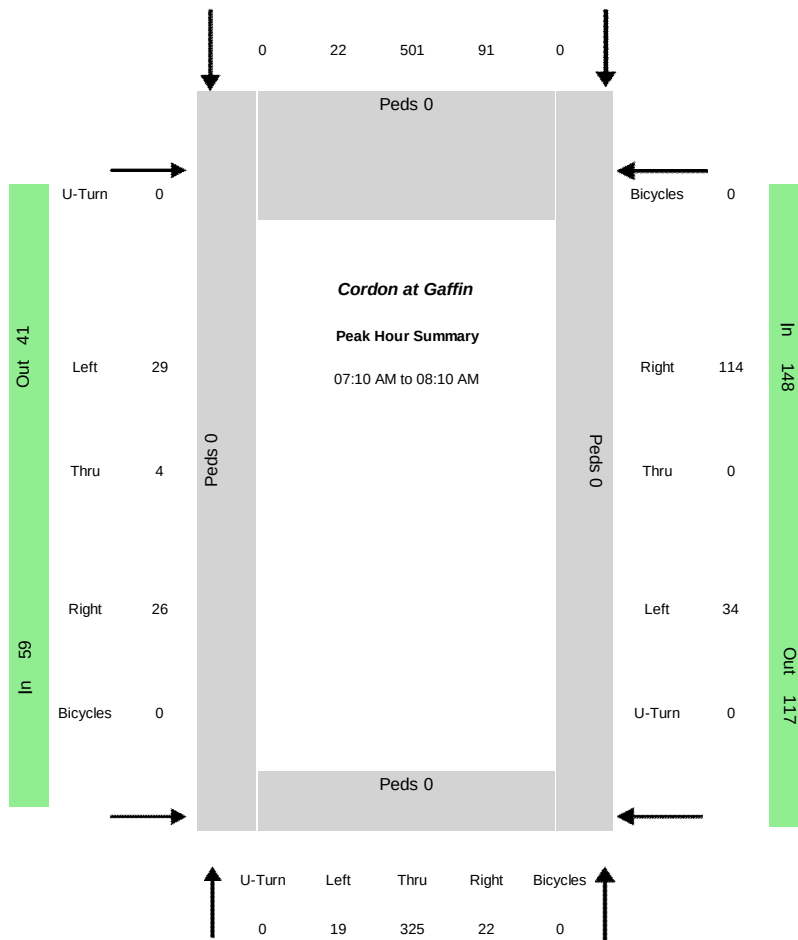


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
97	583	25	0	35	555	93	0	51	49	101	0	45	75	31	0	705	683	201	151	701	665	265	109
Percent Heavy Vehicles																							
3.1%	5.0%	4.0%	0.0%	0.0%	6.7%	3.2%	0.0%	2.0%	2.0%	5.9%	0.0%	4.4%	2.7%	9.7%	0.0%	4.7%	5.9%	4.0%	4.6%	6.4%	5.0%	3.0%	1.8%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0			
All Vehicle Volumes																							
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Center St NE				Westbound Center St NE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
	06:00:00 AM	5	22	1	0	1	19	2	0	1	0	5	0	0	0	0	0						
	06:05:00 AM	6	29	1	0	0	25	3	0	2	1	8	0	0	5	0	0						
	06:10:00 AM	3	26	0	0	0	23	6	0	3	3	6	0	2	1	2	0	211					
	06:15:00 AM	3	21	0	0	0	22	6	0	5	1	5	0	2	3	2	0	225					
	06:20:00 AM	5	30	0	0	0	20	3	0	7	2	7	0	1	5	1	0	226					
	06:25:00 AM	1	28	0	0	1	29	7	0	7	1	5	0	1	3	1	0	235					
	06:30:00 AM	1	31	0	0	0	36	2	0	9	2	4	0	3	5	0	0	258					
	06:35:00 AM	4	35	0	0	0	30	7	0	1	1	9	0	3	3	1	0	271					
	06:40:00 AM	6	36	2	0	1	40	6	0	2	1	10	0	2	5	4	0	302					
	06:45:00 AM	5	35	0	0	0	58	5	0	3	2	6	0	3	0	1	0	327					
	06:50:00 AM	7	27	4	0	1	28	8	0	10	0	7	0	4	4	1	0	334					
	06:55:00 AM	7	30	1	0	1	48	7	0	9	3	14	0	3	5	3	0	350	1098				
	07:00:00 AM	6	34	0	0	0	40	5	0	2	4	3	0	2	2	1	0	331	1141				

07:05:00 AM	5	29	0	0	0	34	4	0	7	1	3	0	2	3	4	0	322	1153
07:10:00 AM	3	47	2	0	0	41	7	0	3	1	11	0	2	6	3	0	317	1204
07:15:00 AM	13	32	2	0	1	34	6	0	6	1	8	0	1	4	3	0	329	1245
07:20:00 AM	6	43	0	0	0	38	6	0	8	2	10	0	1	8	3	0	362	1289
07:25:00 AM	8	46	0	0	1	41	11	0	5	2	9	0	2	0	1	0	362	1331
07:30:00 AM	11	33	1	0	2	52	5	0	8	2	8	0	4	6	0	0	383	1370
07:35:00 AM	8	54	0	0	4	33	7	0	3	0	11	0	4	7	4	0	393	1411
07:40:00 AM	7	47	0	0	0	70	6	0	2	6	9	0	2	6	2	0	424	1453
07:45:00 AM	11	44	3	0	4	43	13	0	5	2	8	0	6	4	10	0	445	1488
07:50:00 AM	9	49	2	0	0	58	10	0	4	5	17	0	3	5	1	0	473	1550
07:55:00 AM	10	52	2	0	0	62	13	0	1	6	5	0	1	8	1	0	477	1580
08:00:00 AM	12	48	1	0	1	41	2	0	4	3	10	0	4	4	0	0	454	1611
08:05:00 AM	11	48	0	0	3	36	9	0	5	6	13	0	2	8	3	0	435	1663
08:10:00 AM	8	48	2	0	6	48	9	0	8	5	5	0	5	3	1	0	422	1685
08:15:00 AM	4	49	4	0	7	29	3	0	2	5	8	0	2	10	3	0	418	1700
08:20:00 AM	10	62	6	0	5	45	12	0	2	2	5	0	6	5	1	0	435	1736
08:25:00 AM	2	29	1	0	2	43	2	0	11	4	7	0	7	7	2	0	404	1727
08:30:00 AM	5	53	4	0	3	47	7	0	4	5	3	0	3	8	3	0	423	1740
08:35:00 AM	7	44	2	0	0	34	6	0	2	5	8	0	2	6	2	0	380	1723
08:40:00 AM	5	44	1	0	0	38	6	0	6	4	9	0	0	3	2	0	381	1684
08:45:00 AM	6	43	3	0	1	34	8	0	6	4	6	0	5	6	2	0	360	1655
08:50:00 AM	13	36	4	0	3	32	11	0	2	1	9	0	2	10	4	0	369	1619
08:55:00 AM	8	42	2	0	1	41	6	0	4	3	10	0	6	6	2	0	382	1589

Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd SE		
E/W street	Gaffin Rd SE		
City, State	Salem OR		
Site Notes			
Location	44.911095 - -122.957446		
Start Date	Wednesday, June 07, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:10:00 AM		
Peak 15 Min Start	07:35:00 AM		
PHF (15-Min Int)	0.90		

Eastbound
Gaffin Rd SE
Heavy Vehicle 1.7%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
19	325	22	0	91	501	22	0	29	4	26	0	34	0	114	0	366	614	59	148	561	468	41	117
Percent Heavy Vehicles																							
15.8%	5.8%	9.1%	0.0%	4.4%	5.4%	4.5%	0.0%	0.0%	0.0%	3.8%	0.0%	5.9%	0.0%	2.6%	0.0%	6.6%	5.2%	1.7%	3.4%	5.3%	4.7%	9.8%	5.1%

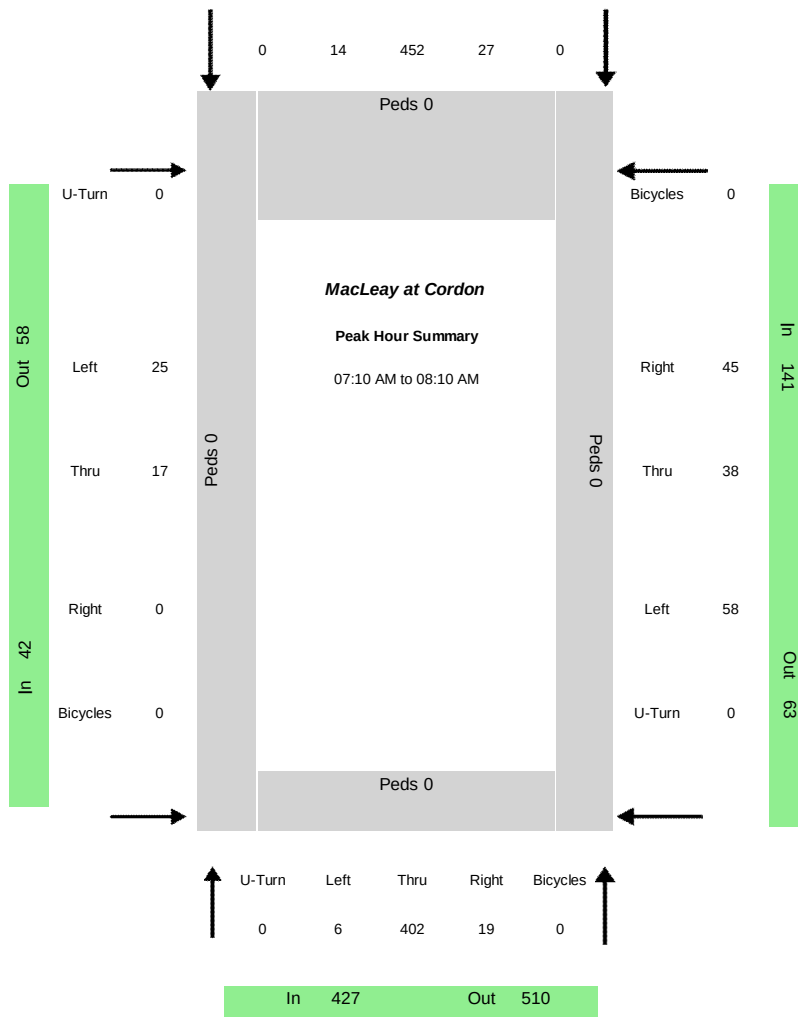
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	

All Vehicle Volumes																		
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Gaffin Rd SE				Westbound Gaffin Rd SE				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
06:00:00 AM	0	9	4	0	9	19	0	0	3	0	1	0	3	0	3	0		
06:05:00 AM	0	11	2	0	6	20	0	0	1	0	0	0	1	0	4	0		
06:10:00 AM	0	18	1	0	7	20	0	0	2	1	3	0	1	0	4	0	153	
06:15:00 AM	1	19	0	0	7	15	1	0	0	0	2	0	4	0	3	0	154	
06:20:00 AM	0	15	5	0	4	17	2	0	1	0	4	0	3	0	5	0	165	
06:25:00 AM	0	17	1	0	8	18	4	0	0	1	4	0	2	0	4	0	167	
06:30:00 AM	1	11	3	0	6	25	2	0	2	0	0	0	7	0	8	0	180	
06:35:00 AM	1	17	1	0	9	31	0	0	0	1	0	0	5	1	7	0	197	
06:40:00 AM	1	20	2	0	5	40	1	0	2	1	3	0	5	1	11	0	230	
06:45:00 AM	0	15	3	0	3	34	4	0	4	0	0	0	2	1	6	0	237	
06:50:00 AM	0	16	2	0	6	46	3	0	1	0	2	0	2	0	4	0	246	
06:55:00 AM	1	14	2	0	5	40	2	0	2	0	3	0	3	0	7	0	233	783
07:00:00 AM	1	18	1	0	3	26	4	0	2	0	1	0	3	0	7	0	227	798

07:05:00 AM	0	24	0	0	6	41	4	0	3	1	2	0	1	0	5	0	232	840
07:10:00 AM	0	21	1	0	13	36	3	0	2	2	3	0	3	0	6	0	243	873
07:15:00 AM	0	35	0	0	6	50	2	0	4	1	0	0	0	0	9	0	284	928
07:20:00 AM	2	30	0	0	6	38	3	0	2	0	1	0	0	0	8	0	287	962
07:25:00 AM	2	22	1	0	4	41	0	0	3	1	3	0	2	0	4	0	280	986
07:30:00 AM	3	29	4	0	6	38	0	0	2	0	3	0	3	0	7	0	268	1016
07:35:00 AM	2	27	4	0	8	51	5	0	1	0	3	0	2	0	5	0	286	1051
07:40:00 AM	3	28	1	0	9	48	1	0	2	0	2	0	1	0	12	0	310	1066
07:45:00 AM	1	26	2	0	12	55	1	0	2	0	4	0	3	0	10	0	331	1110
07:50:00 AM	3	20	1	0	6	46	1	0	4	0	4	0	7	0	15	0	330	1135
07:55:00 AM	2	29	4	0	9	34	1	0	1	0	0	0	3	0	12	0	318	1151
08:00:00 AM	1	28	3	0	8	28	3	0	3	0	1	0	5	0	15	0	297	1180
08:05:00 AM	0	30	1	0	4	36	2	0	3	0	2	0	5	0	11	0	284	1187
08:10:00 AM	1	23	1	0	13	35	0	0	4	0	4	0	3	0	6	0	279	1187
08:15:00 AM	2	19	0	0	2	33	1	0	1	0	0	0	3	0	12	0	257	1153
08:20:00 AM	1	24	2	0	4	21	2	0	1	0	3	0	2	0	7	0	230	1130
08:25:00 AM	2	27	3	0	6	39	3	0	3	0	1	0	4	1	8	0	237	1144
08:30:00 AM	0	25	3	0	6	28	0	0	3	1	4	0	2	0	11	0	247	1132
08:35:00 AM	0	17	3	0	3	14	1	0	1	0	3	0	1	0	7	0	230	1074
08:40:00 AM	0	18	2	0	7	44	1	0	4	0	1	0	4	0	6	0	220	1054
08:45:00 AM	1	21	3	0	4	24	1	0	3	1	2	0	4	0	11	0	212	1013
08:50:00 AM	1	30	8	0	2	27	1	0	3	0	1	0	3	0	5	0	243	987
08:55:00 AM	0	29	3	0	4	42	1	0	3	0	2	0	2	0	11	0	253	989

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd SE
E/W street	MacLeay Rd SE
City, State	Salem OR
Site Notes	
Location	44.91364 - -122.953962
Start Date	Tuesday, June 06, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:45:00 AM
PHF (15-Min Int)	0.92

Eastbound
MacLeay Rd SE
Heavy Vehicle 11.9%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
6	402	19	0	27	452	14	0	25	17	0	0	58	38	45	0	427	493	42	141	510	472	58	63

Percent Heavy Vehicles																							
0.0%	4.5%	10.5%	0.0%	11.1%	6.6%	7.1%	0.0%	16.0%	5.9%	0.0%	0.0%	0.0%	7.9%	2.2%	0.0%	4.7%	6.9%	11.9%	2.8%	5.9%	4.9%	6.9%	9.5%

PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk							
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

All Vehicle Volumes																		
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound MacLeay Rd SE				Westbound MacLeay Rd SE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	0	12	1	0	0	23	0	0	0	0	0	0	0	1	2	0		
06:05:00 AM	0	9	0	0	3	21	0	0	1	0	0	0	1	5	1	0		
06:10:00 AM	0	17	2	0	0	20	0	0	1	1	0	0	3	1	1	0	126	
06:15:00 AM	0	25	1	0	0	14	0	0	0	2	0	0	1	1	2	0	133	
06:20:00 AM	0	20	1	0	1	17	0	0	0	1	0	0	2	1	1	0	136	
06:25:00 AM	0	18	0	0	2	25	0	0	2	0	0	0	2	0	0	0	139	
06:30:00 AM	0	18	1	0	0	33	0	0	0	1	0	0	0	3	2	0	151	
06:35:00 AM	0	23	1	0	2	31	0	0	2	0	0	0	3	4	3	0	176	
06:40:00 AM	1	29	0	0	3	34	0	0	0	1	0	0	3	4	5	0	207	
06:45:00 AM	0	17	0	0	4	34	0	0	0	0	0	0	3	2	6	0	215	
06:50:00 AM	0	20	0	0	1	49	0	0	0	2	0	0	2	3	1	0	224	
06:55:00 AM	1	19	1	0	1	41	2	0	0	1	0	0	4	2	10	0	226	698
07:00:00 AM	0	21	2	0	2	22	1	0	3	2	0	0	4	3	1	0	221	720

07:05:00 AM	1	29	1	0	1	32	0	0	1	0	0	0	6	2	2	0	218	754
07:10:00 AM	0	25	3	0	3	42	0	0	1	2	0	0	7	2	4	0	225	797
07:15:00 AM	1	40	1	0	3	46	1	0	1	0	0	0	5	4	4	0	270	857
07:20:00 AM	0	28	2	0	1	22	4	0	0	1	0	0	4	4	4	0	265	883
07:25:00 AM	0	30	0	0	1	35	0	0	1	0	0	0	2	1	5	0	251	909
07:30:00 AM	1	34	0	0	1	37	0	0	3	3	0	0	7	1	5	0	237	943
07:35:00 AM	0	25	5	0	3	47	0	0	2	1	0	0	5	2	2	0	259	966
07:40:00 AM	1	31	2	0	0	42	1	0	3	1	0	0	7	4	4	0	280	982
07:45:00 AM	1	31	2	0	2	39	3	0	3	1	0	0	6	6	3	0	285	1013
07:50:00 AM	0	36	1	0	3	44	1	0	2	3	0	0	6	3	6	0	298	1040
07:55:00 AM	1	39	0	0	5	37	2	0	4	2	0	0	4	2	3	0	301	1057
08:00:00 AM	0	44	2	0	3	27	1	0	1	1	0	0	2	4	2	0	291	1083
08:05:00 AM	1	39	1	0	2	34	1	0	4	2	0	0	3	5	3	0	281	1103
08:10:00 AM	1	24	0	0	1	42	2	0	4	2	0	0	2	1	4	0	265	1097
08:15:00 AM	0	34	0	0	4	28	1	0	6	0	0	0	3	3	1	0	258	1071
08:20:00 AM	0	26	1	0	2	26	1	0	2	2	0	0	1	3	2	0	229	1067
08:25:00 AM	1	37	1	0	3	37	2	0	1	0	0	0	4	2	1	0	235	1081
08:30:00 AM	1	34	1	0	4	21	2	0	0	0	0	0	3	1	1	0	223	1057
08:35:00 AM	0	20	1	0	2	10	0	0	1	4	0	0	3	5	4	0	207	1015
08:40:00 AM	1	24	2	0	4	41	4	0	1	0	0	0	5	0	2	0	202	1003
08:45:00 AM	1	25	2	0	0	27	1	0	2	0	0	0	1	3	3	0	199	971
08:50:00 AM	0	24	1	0	2	28	1	0	0	0	0	0	2	3	4	0	214	931
08:55:00 AM	0	29	3	0	1	32	1	0	0	0	0	0	4	6	1	0	207	909

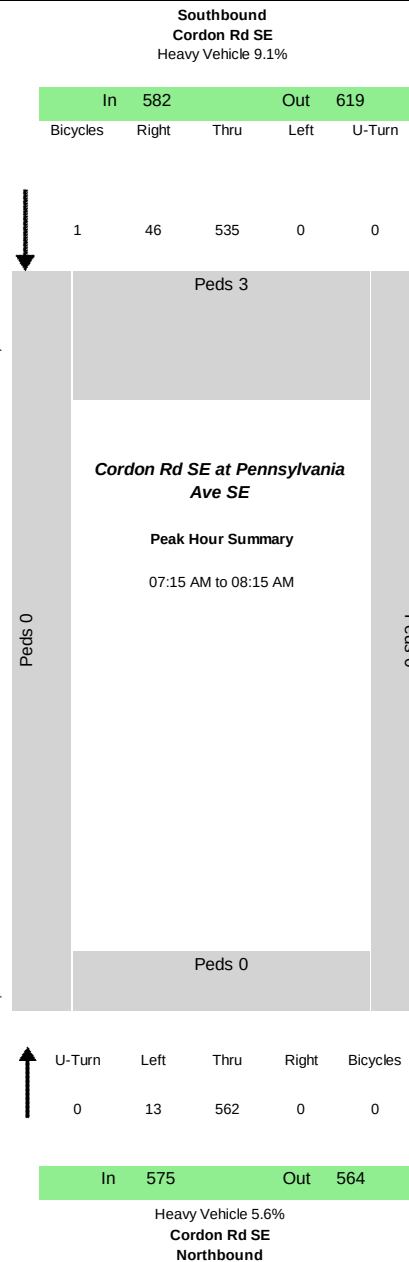
Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd SE		
E/W street	Pennsylvania Ave SE		
City, State	Salem OR		
Site Notes			
Location	44.923707 - -122.958136		
Start Date	Wednesday, June 07, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:15:00 AM		
Peak 15 Min Start	07:45:00 AM		
PHF (15-Min Int)	0.92		

Eastbound
Pennsylvania Ave SE
Heavy Vehicle 5.8%



In 86
Out 59

U-Turn 0
Left 57
Thru 0
Right 29
Bicycles 0



Westbound
Pennsylvania Ave SE
Heavy Vehicle 0.0%

In 0
Out 0

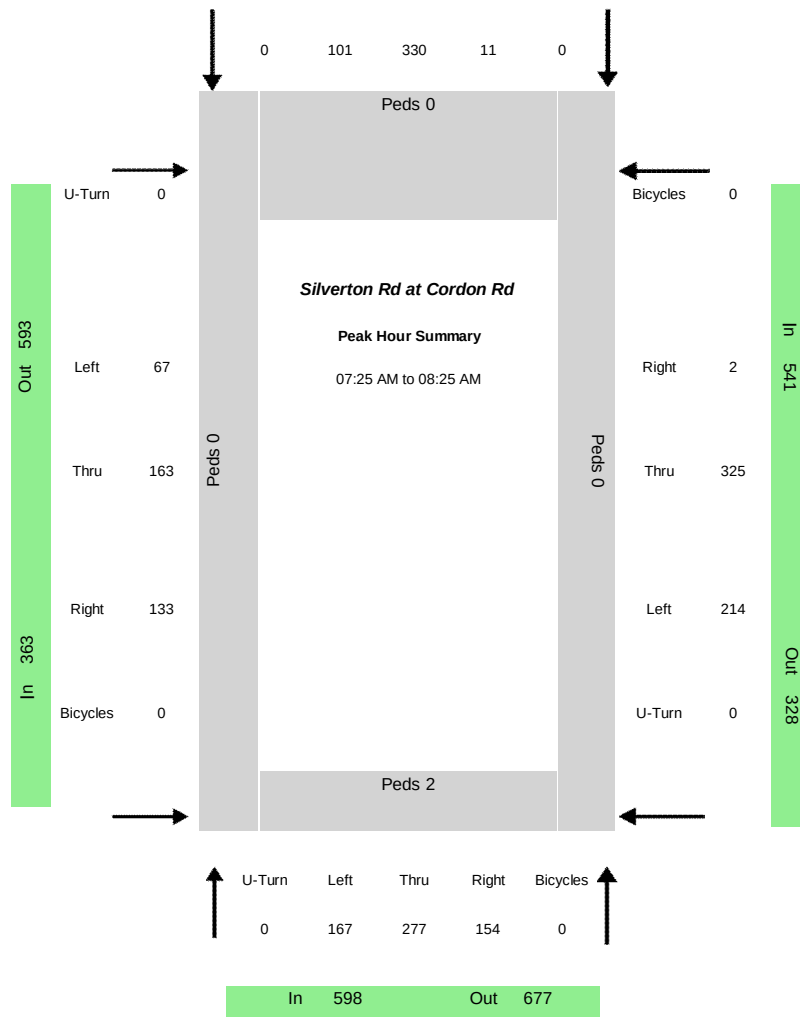
Bicycles 0
Right 0
Thru 0
Left 0
U-Turn 0

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
13	562	0	0	0	535	46	0	57	0	29	0	0	0	0	0	575	581	86	0	564	619	59	0
Percent Heavy Vehicles																							
7.7%	5.5%	0.0%	0.0%	0.0%	9.2%	8.7%	0.0%	5.3%	0.0%	6.9%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	9.1%	5.8%	0.0%	9.0%	5.5%	8.5%	0.0%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	3		
All Vehicle Volumes																							
Time	Northbound Cordon Rd SE				Southbound Cordon Rd SE				Eastbound Pennsylvania Ave SE				Westbound Pennsylvania Ave SE										
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	15 Min Sum	1 HR Sum					
	06:00:00 AM	1	17	0	0	0	19	0	0	1	0	2	0	0	0	0	0						
	06:05:00 AM	0	18	0	0	0	27	0	0	4	0	1	0	0	0	0	0						
	06:10:00 AM	0	21	0	0	0	20	1	0	2	0	0	0	0	0	0	134						
	06:15:00 AM	0	27	0	0	0	19	0	0	3	0	0	0	0	0	0	143						
	06:20:00 AM	0	30	0	0	0	20	1	0	2	0	1	0	0	0	0	147						
	06:25:00 AM	1	27	0	0	0	25	1	0	4	0	1	0	0	0	0	162						
	06:30:00 AM	0	21	0	0	0	34	1	0	2	0	3	0	0	0	0	174						
	06:35:00 AM	1	27	0	0	0	33	1	0	1	0	3	0	0	0	0	186						
	06:40:00 AM	2	38	0	0	0	30	2	0	4	0	3	0	0	0	0	206						
	06:45:00 AM	1	28	0	0	0	51	4	0	3	0	6	0	0	0	0	238						
06:50:00 AM	1	24	0	0	0	48	2	0	3	0	4	0	0	0	0	254							
06:55:00 AM	0	36	0	0	0	43	2	0	5	0	2	0	0	0	0	263	765						
07:00:00 AM	2	23	0	0	0	37	4	0	0	0	1	0	0	0	0	237	792						

07:05:00 AM	2	41	0	0	0	33	2	0	1	0	2	0	0	0	0	0	236	823
07:10:00 AM	1	28	0	0	0	37	3	0	4	0	3	0	0	0	0	0	224	855
07:15:00 AM	2	49	0	0	0	38	1	0	3	0	5	0	0	0	0	0	255	904
07:20:00 AM	0	48	0	0	0	26	3	0	6	0	3	0	0	0	0	0	260	936
07:25:00 AM	1	40	0	0	0	49	4	0	5	0	4	0	0	0	0	0	287	980
07:30:00 AM	1	46	0	0	0	45	5	0	4	0	0	0	0	0	0	0	290	1020
07:35:00 AM	2	41	0	0	0	44	3	0	5	0	3	0	0	0	0	0	302	1052
07:40:00 AM	1	45	0	0	0	51	2	0	4	0	2	0	0	0	0	0	304	1078
07:45:00 AM	0	44	0	0	0	44	8	0	6	0	1	0	0	0	0	0	306	1088
07:50:00 AM	1	54	0	0	0	55	4	0	2	0	1	0	0	0	0	0	325	1123
07:55:00 AM	0	50	0	0	0	51	8	0	6	0	3	0	0	0	0	0	338	1153
08:00:00 AM	0	51	0	0	0	37	5	0	4	0	5	0	0	0	0	0	337	1188
08:05:00 AM	4	45	0	0	0	38	1	0	3	0	2	0	0	0	0	0	313	1200
08:10:00 AM	1	49	0	0	0	57	2	0	9	0	0	0	0	0	0	0	313	1242
08:15:00 AM	2	46	0	0	0	23	6	0	3	0	5	0	0	0	0	0	296	1229
08:20:00 AM	1	36	0	0	0	30	1	0	0	0	4	0	0	0	0	0	275	1215
08:25:00 AM	2	47	0	0	0	52	6	0	1	0	2	0	0	0	0	0	267	1222
08:30:00 AM	0	40	0	0	0	38	2	0	2	0	0	0	0	0	0	0	264	1203
08:35:00 AM	0	28	0	0	0	24	1	0	2	0	0	0	0	0	0	0	247	1160
08:40:00 AM	1	30	0	0	0	42	5	0	4	0	1	0	0	0	0	0	220	1138
08:45:00 AM	1	34	0	0	0	26	2	0	6	0	2	0	0	0	0	0	209	1106
08:50:00 AM	0	33	0	0	0	43	2	0	4	0	1	0	0	0	0	0	237	1072
08:55:00 AM	1	43	0	0	0	36	2	0	5	0	2	0	0	0	0	0	243	1043

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Silverton Rd NE
City, State	Salem OR
Site Notes	
Location	44.971208 - -122.958914
Start Date	Tuesday, June 06, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:25:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.87

Eastbound
Silverton Rd NE
Heavy Vehicle 8.5%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
167	277	154	0	11	330	101	0	67	163	133	0	214	325	2	0	598	442	363	541	677	346	593	328

Percent Heavy Vehicles																							
7.8%	1.8%	7.8%	0.0%	18.2%	4.8%	5.0%	0.0%	9.0%	8.6%	8.3%	0.0%	4.7%	4.0%	0.0%	0.0%	5.0%	5.2%	8.5%	4.3%	5.5%	3.2%	5.2%	8.5%

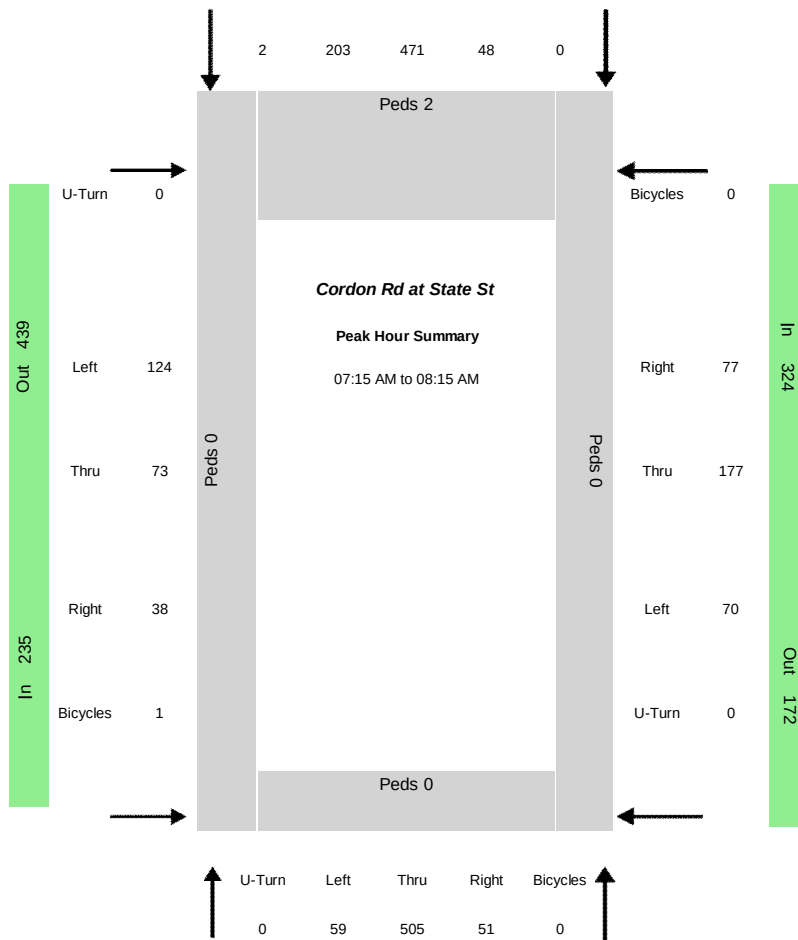
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2

Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	4	11	8	0	0	10	0	0	4	11	3	0	9	8	0	0		
06:05:00 AM	4	14	7	0	1	4	1	0	5	15	9	0	11	8	0	0		
06:10:00 AM	2	20	11	0	0	11	1	0	1	19	5	0	5	14	0	0	236	
06:15:00 AM	9	11	14	0	0	8	2	0	4	12	4	0	8	15	0	0	255	
06:20:00 AM	7	8	11	0	1	9	2	0	5	13	7	0	12	15	0	0	266	
06:25:00 AM	3	16	17	0	0	15	0	0	4	28	1	0	16	17	0	0	294	
06:30:00 AM	9	21	18	0	0	20	2	0	4	16	5	0	16	9	0	0	327	
06:35:00 AM	9	18	15	0	0	14	8	0	5	21	6	0	11	21	0	0	365	
06:40:00 AM	9	16	18	0	1	18	2	0	1	21	6	0	26	17	0	0	383	
06:45:00 AM	5	22	13	0	2	11	3	0	10	21	8	0	18	19	0	0	395	
06:50:00 AM	10	22	18	0	0	28	7	0	7	15	10	0	20	20	0	0	424	
06:55:00 AM	1	14	7	0	0	14	3	0	5	14	5	0	20	31	0	0	403	1316
07:00:00 AM	7	22	10	0	1	15	0	0	3	6	5	0	12	11	0	0	363	1340

07:05:00 AM	4	14	10	0	1	12	7	0	9	10	8	0	12	19	0	0	312	1367
07:10:00 AM	6	24	11	0	0	21	4	0	14	12	6	0	26	24	0	0	346	1426
07:15:00 AM	8	17	18	0	0	20	6	0	10	10	7	0	16	23	0	0	389	1474
07:20:00 AM	14	28	20	0	0	20	11	0	7	7	5	0	21	23	0	0	439	1540
07:25:00 AM	6	24	18	0	1	31	12	0	10	13	15	0	16	22	0	0	459	1591
07:30:00 AM	8	27	10	0	2	32	6	0	5	14	11	0	13	39	0	0	491	1638
07:35:00 AM	13	20	10	0	0	27	16	0	6	17	15	0	20	29	0	0	508	1683
07:40:00 AM	15	20	20	0	1	39	15	0	8	15	18	0	20	30	0	0	541	1749
07:45:00 AM	15	28	16	0	1	40	10	0	6	16	6	0	14	32	1	0	559	1802
07:50:00 AM	17	20	7	0	2	33	5	0	8	14	10	0	23	22	0	0	547	1806
07:55:00 AM	12	17	12	0	4	16	7	0	2	20	19	0	14	25	0	0	494	1840
08:00:00 AM	10	16	10	0	0	18	7	0	6	6	11	0	25	21	0	0	439	1878
08:05:00 AM	20	18	10	0	0	23	4	0	2	9	9	0	19	28	1	0	421	1915
08:10:00 AM	13	22	17	0	0	26	7	0	4	6	6	0	12	17	0	0	403	1897
08:15:00 AM	15	33	13	0	0	22	6	0	3	17	8	0	22	30	0	0	442	1931
08:20:00 AM	23	32	11	0	0	23	6	0	7	16	5	0	16	30	0	0	468	1944
08:25:00 AM	12	24	14	0	1	26	10	0	7	20	11	0	15	26	1	0	505	1943
08:30:00 AM	9	39	13	0	0	20	8	0	4	18	10	0	12	23	0	0	492	1932
08:35:00 AM	11	28	11	0	4	24	13	0	6	17	13	0	12	26	0	0	488	1924
08:40:00 AM	8	14	16	0	1	17	13	0	4	7	17	0	10	19	0	0	447	1849
08:45:00 AM	14	31	12	0	0	27	8	0	4	12	10	0	16	16	1	0	442	1815
08:50:00 AM	8	17	10	0	2	19	8	0	7	20	8	0	10	18	0	0	404	1781
08:55:00 AM	6	12	9	0	1	22	2	0	5	14	21	0	26	28	0	0	424	1779

Data Provided by K-D-N.com 503-594-4224			
N/S street	Cordon Rd		
E/W street	State St		
City, State	Salem OR		
Site Notes			
Location	44.928101	-	-122.958722
Start Date	Tuesday, June 06, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:15:00 AM		
Peak 15 Min Start	07:40:00 AM		
PHF (15-Min Int)	0.89		

Eastbound
State St
Heavy Vehicle 4.2%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
59	505	51	0	48	471	203	0	124	73	38	0	70	177	77	0	615	722	235	324	579	706	439	172
8.5%	3.8%	7.8%	0.0%	14.6%	6.6%	0.0%	0.0%	5.6%	1.4%	5.3%	0.0%	15.7%	5.1%	10.4%	0.0%	4.6%	5.3%	4.3%	8.6%	7.6%	4.8%	3.2%	7.0%

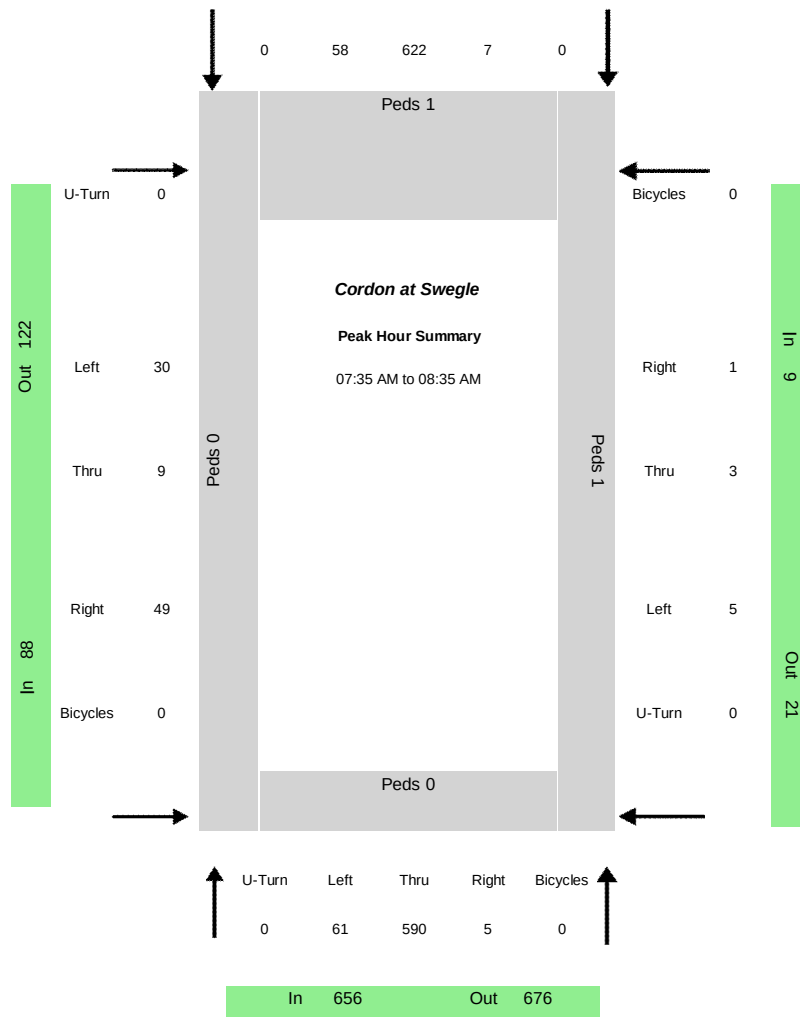
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3	0	2	0	0	2

All Vehicle Volumes																		
Time	Northbound Cordon Rd				Southbound Cordon Rd				Eastbound State St				Westbound State St				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	2	14	1	0	4	19	4	0	8	1	5	0	4	2	8	0		
06:05:00 AM	2	15	3	0	3	12	9	0	8	5	4	0	1	11	7	0		
06:10:00 AM	3	15	3	0	3	18	8	0	6	5	4	0	2	7	3	0	229	
06:15:00 AM	5	19	6	0	6	9	9	0	3	7	3	0	7	7	3	0	241	
06:20:00 AM	4	22	10	0	8	17	4	0	11	5	0	0	2	3	4	0	251	
06:25:00 AM	5	20	1	0	3	20	11	0	7	3	2	0	4	14	2	0	266	
06:30:00 AM	3	20	5	0	3	30	11	0	9	3	2	0	4	3	5	0	280	
06:35:00 AM	2	20	2	0	7	29	18	0	17	10	2	0	1	5	6	0	309	
06:40:00 AM	5	29	2	0	4	21	22	0	9	4	3	0	10	11	2	0	339	
06:45:00 AM	4	30	5	0	4	43	13	0	5	4	3	0	6	21	5	0	384	
06:50:00 AM	4	22	2	0	2	37	14	0	13	5	7	0	8	13	4	0	396	
06:55:00 AM	8	27	7	0	7	40	17	0	4	3	5	0	3	11	10	0	416	1250
07:00:00 AM	2	14	5	0	4	24	24	0	8	5	2	0	8	13	4	0	386	1291

07:05:00 AM	6	35	3	0	2	26	12	0	7	5	5	0	8	12	4	0	380	1336
07:10:00 AM	6	26	0	0	4	27	10	0	4	8	3	0	6	17	10	0	359	1380
07:15:00 AM	5	40	6	0	2	34	20	0	4	6	3	0	4	15	5	0	390	1440
07:20:00 AM	8	44	3	0	1	23	21	0	8	2	1	0	5	12	3	0	396	1481
07:25:00 AM	6	28	2	0	5	40	15	0	9	5	1	0	14	23	4	0	427	1541
07:30:00 AM	9	43	2	0	2	40	13	0	7	10	5	0	6	11	9	0	440	1600
07:35:00 AM	7	38	3	0	5	34	14	0	16	8	4	0	7	11	7	0	463	1635
07:40:00 AM	6	39	10	0	2	58	18	0	7	9	1	0	4	16	6	0	487	1689
07:45:00 AM	3	42	3	0	5	47	22	0	17	7	1	0	6	18	7	0	508	1724
07:50:00 AM	4	40	6	0	7	39	17	0	10	7	5	0	7	27	10	0	533	1772
07:55:00 AM	1	56	3	0	4	47	22	0	10	5	4	0	6	8	3	0	526	1799
08:00:00 AM	4	43	6	0	8	29	14	0	16	6	3	0	5	10	8	0	500	1838
08:05:00 AM	2	45	3	0	4	30	9	0	9	2	6	0	4	16	8	0	459	1851
08:10:00 AM	4	47	4	0	3	50	18	0	11	6	4	0	2	10	7	0	456	1896
08:15:00 AM	3	39	2	0	4	20	12	0	14	3	3	0	6	16	12	0	438	1886
08:20:00 AM	2	41	1	0	4	33	14	0	13	2	2	0	4	4	4	0	424	1879
08:25:00 AM	3	36	7	0	3	43	22	0	11	2	2	0	6	5	3	0	401	1870
08:30:00 AM	2	40	1	0	9	30	15	0	8	4	4	0	4	8	8	0	400	1846
08:35:00 AM	4	23	3	0	4	27	10	0	15	4	2	0	4	10	7	0	389	1805
08:40:00 AM	1	27	2	0	3	33	14	0	22	4	1	0	6	12	6	0	377	1760
08:45:00 AM	1	39	2	0	3	20	14	0	12	8	4	0	2	7	3	0	359	1697
08:50:00 AM	2	32	1	0	5	38	12	0	12	4	4	0	10	12	8	0	386	1658
08:55:00 AM	0	42	6	0	2	29	13	0	15	4	0	0	5	6	5	0	382	1616

Data Provided by K-D-N.com 503-594-4224	
N/S street	Cordon Rd NE
E/W street	Swegle Rd NE
City, State	Salem OR
Site Notes	
Location	44.948929 - -122.958605
Start Date	Tuesday, June 06, 2017
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:35:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.93

Eastbound
Swegle Rd NE
Heavy Vehicle 3.4%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
61	590	5	0	7	622	58	0	30	9	49	0	5	3	1	0	656	687	88	9	676	621	122	21
Percent Heavy Vehicles																							
1.6%	5.4%	0.0%	0.0%	0.0%	7.4%	3.4%	0.0%	0.0%	0.0%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	7.0%	3.4%	0.0%	7.2%	5.2%	2.5%	0.0%

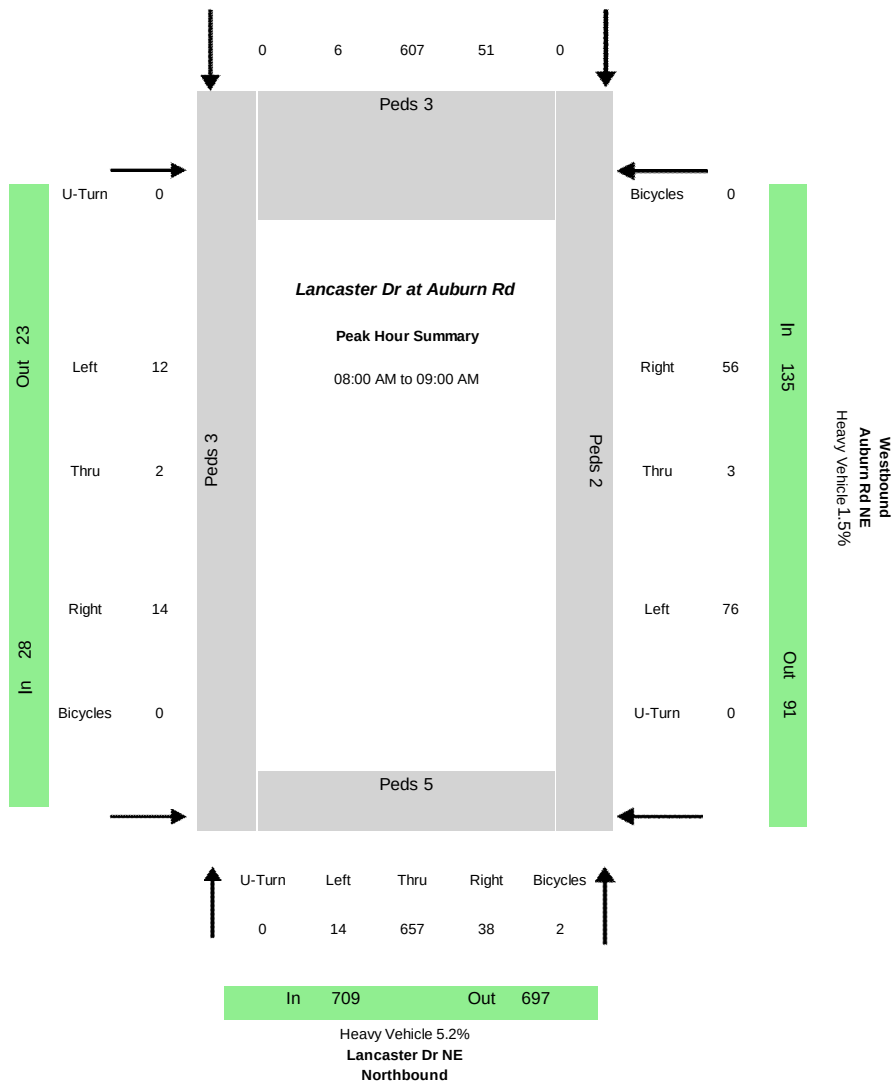
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	1	0	1	

All Vehicle Volumes																		
Time	Northbound Cordon Rd NE				Southbound Cordon Rd NE				Eastbound Swegle Rd NE				Westbound Swegle Rd NE				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
06:00:00 AM	3	21	0	0	1	20	0	0	1	0	3	0	0	0	0	0	0	
06:05:00 AM	3	22	0	0	0	30	1	0	0	0	1	0	0	0	0	0	0	
06:10:00 AM	3	32	0	0	0	20	1	0	3	0	2	0	0	1	0	0	168	
06:15:00 AM	4	26	0	0	1	22	2	0	3	0	1	0	1	1	0	0	180	
06:20:00 AM	2	34	0	0	0	30	1	0	0	0	2	0	0	1	0	0	193	
06:25:00 AM	1	35	0	0	0	31	0	0	8	0	1	0	0	0	0	0	207	
06:30:00 AM	0	36	0	0	0	40	1	0	0	0	3	0	0	0	0	0	226	
06:35:00 AM	2	35	0	0	0	41	0	0	2	0	5	0	0	0	0	0	241	
06:40:00 AM	3	39	1	0	0	41	0	0	2	0	3	0	1	0	0	0	255	
06:45:00 AM	3	34	0	0	0	49	1	0	2	0	4	0	0	2	0	0	270	
06:50:00 AM	3	35	0	0	0	45	5	0	2	0	2	0	1	0	0	0	278	
06:55:00 AM	10	27	0	0	1	44	0	0	2	0	5	0	1	0	0	0	278 908	
07:00:00 AM	5	34	1	0	1	46	3	0	1	0	1	0	0	1	0	0	276 952	

07:05:00 AM	6	29	0	0	0	28	1	0	2	0	2	0	1	0	0	0	252	964
07:10:00 AM	3	52	0	0	0	50	2	0	5	1	5	0	0	1	0	0	281	1021
07:15:00 AM	3	42	0	0	0	41	2	0	4	0	5	0	0	1	0	0	286	1058
07:20:00 AM	5	50	0	0	0	37	1	0	1	0	3	0	0	1	0	0	315	1086
07:25:00 AM	4	46	0	0	0	59	3	0	2	0	3	0	0	0	0	0	313	1127
07:30:00 AM	4	36	1	0	1	45	5	0	2	0	2	0	0	0	0	0	311	1143
07:35:00 AM	8	55	0	0	0	55	4	0	3	0	2	0	0	0	0	0	340	1185
07:40:00 AM	5	44	1	0	0	61	7	0	3	0	2	0	0	0	0	0	346	1218
07:45:00 AM	5	51	0	0	0	66	8	0	2	1	6	0	0	0	0	0	389	1262
07:50:00 AM	7	47	0	0	0	57	6	0	3	0	5	0	0	0	0	0	387	1294
07:55:00 AM	10	38	0	0	0	52	6	0	4	0	8	0	1	1	0	0	384	1324
08:00:00 AM	6	51	0	0	1	38	2	0	1	1	4	0	0	0	0	0	349	1335
08:05:00 AM	2	58	0	0	0	65	6	0	1	1	4	0	0	0	0	0	361	1403
08:10:00 AM	4	52	0	0	1	44	3	0	5	1	6	0	2	1	0	0	360	1403
08:15:00 AM	3	53	0	0	2	40	4	0	1	0	1	0	1	1	0	0	362	1411
08:20:00 AM	3	45	1	0	0	58	2	0	3	2	4	0	0	0	0	0	343	1431
08:25:00 AM	3	45	0	0	2	48	3	0	1	2	4	0	0	0	0	0	332	1422
08:30:00 AM	5	51	3	0	1	38	7	0	3	1	3	0	1	0	1	0	340	1440
08:35:00 AM	4	50	1	0	1	44	2	0	3	0	2	0	0	0	2	0	331	1422
08:40:00 AM	4	45	1	0	0	42	1	0	2	0	5	0	0	0	0	0	323	1399
08:45:00 AM	6	45	0	0	0	39	6	0	2	0	3	0	0	0	0	0	310	1361
08:50:00 AM	2	40	1	0	0	52	5	0	2	2	3	0	0	0	0	0	308	1343
08:55:00 AM	3	41	1	0	0	40	6	0	2	0	5	0	0	1	0	0	307	1322

Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	Auburn Rd NE		
City, State	Salem OR		
Site Notes			
Location	44.936517 - -122.983071		
Start Date	Thursday, June 08, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	08:00:00 AM		
Peak 15 Min Start	08:45:00 AM		
PHF (15-Min Int)	0.91		

Eastbound
Auburn Rd NE
Heavy Vehicle 7.1%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
14	657	38	0	51	607	6	0	12	2	14	0	76	3	56	0	709	664	28	135	697	725	23	91

Percent Heavy Vehicles																							
0.0%	5.0%	10.5%	0.0%	9.8%	6.1%	16.7%	0.0%	0.0%	0.0%	14.3%	0.0%	1.3%	33.3%	0.0%	0.0%	5.2%	6.5%	7.1%	1.5%	5.7%	4.6%	8.7%	9.9%

PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk							
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	3	3	2	13		

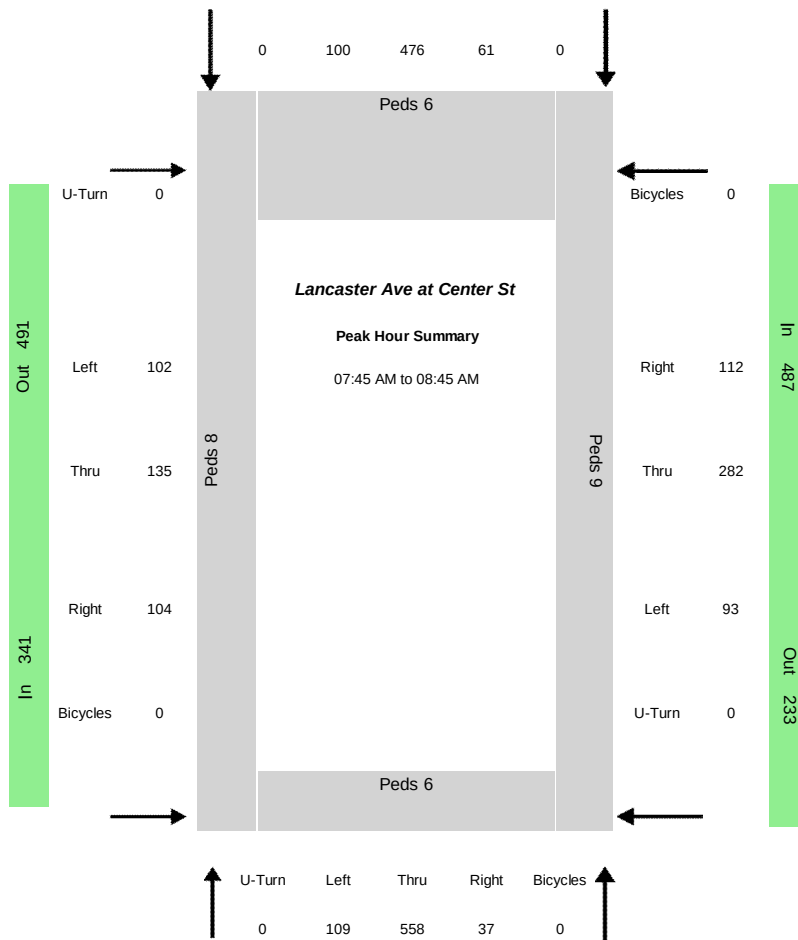
All Vehicle Volumes																		
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Auburn Rd NE				Westbound Auburn Rd NE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	1	16	1	0	0	18	0	0	0	0	1	0	1	0	6	0		
06:05:00 AM	1	27	1	0	1	17	0	0	0	0	2	0	4	0	2	0		
06:10:00 AM	0	31	3	0	0	21	0	0	2	0	1	0	3	0	1	0	161	
06:15:00 AM	0	26	0	0	1	19	1	0	0	1	0	0	2	1	1	0	169	
06:20:00 AM	0	30	0	0	0	24	3	0	0	0	2	0	1	0	2	0	176	
06:25:00 AM	0	30	3	0	0	23	0	0	1	1	0	0	2	0	5	0	179	
06:30:00 AM	1	22	1	0	2	22	0	0	3	1	2	0	3	0	6	0	190	
06:35:00 AM	0	23	1	0	1	30	0	0	0	0	1	0	2	0	6	0	192	
06:40:00 AM	2	43	2	0	2	33	0	0	2	0	0	0	3	0	5	0	219	
06:45:00 AM	0	26	1	0	2	30	0	0	0	0	1	0	5	0	4	0	225	
06:50:00 AM	0	44	1	0	1	25	0	0	1	0	1	0	6	0	9	0	249	
06:55:00 AM	0	32	2	0	4	34	0	0	2	1	0	0	10	1	7	0	250	809
07:00:00 AM	0	35	1	0	1	29	0	0	3	0	0	0	5	1	4	0	260	844

07:05:00 AM	2	57	2	0	0	37	0	0	1	0	2	0	4	0	8	0	285	902
07:10:00 AM	0	43	1	0	3	20	0	0	2	0	3	0	4	0	5	0	273	921
07:15:00 AM	1	41	2	0	2	33	0	0	1	1	3	0	7	1	5	0	291	966
07:20:00 AM	0	43	3	0	0	39	0	0	1	1	3	0	8	1	6	0	283	1009
07:25:00 AM	1	47	5	0	3	32	0	0	0	0	2	0	6	0	4	0	302	1044
07:30:00 AM	2	61	3	0	2	47	1	0	2	1	2	0	8	1	7	0	342	1118
07:35:00 AM	1	45	1	0	3	45	0	0	2	1	2	0	6	1	6	0	350	1167
07:40:00 AM	0	61	4	0	2	51	1	0	4	0	0	0	1	1	3	0	378	1203
07:45:00 AM	1	54	3	0	6	36	1	0	1	0	1	0	7	1	3	0	355	1248
07:50:00 AM	0	72	1	0	8	54	0	0	0	1	3	0	10	1	2	0	394	1312
07:55:00 AM	1	49	5	0	4	72	0	0	1	0	0	0	8	1	6	0	413	1366
08:00:00 AM	1	42	4	0	3	43	0	0	1	0	1	0	5	0	4	0	403	1391
08:05:00 AM	1	57	1	0	2	33	1	0	1	0	0	0	6	0	2	0	355	1382
08:10:00 AM	0	51	4	0	2	42	0	0	0	0	1	0	5	0	3	0	316	1409
08:15:00 AM	1	42	2	0	3	58	0	0	0	0	1	0	7	0	3	0	329	1429
08:20:00 AM	2	61	2	0	2	56	0	0	0	0	1	0	8	0	3	0	360	1459
08:25:00 AM	1	52	3	0	6	60	1	0	1	0	3	0	4	1	8	0	392	1499
08:30:00 AM	2	59	2	0	3	44	1	0	1	0	1	0	2	0	3	0	393	1480
08:35:00 AM	0	58	1	0	4	54	1	0	1	1	1	0	7	1	3	0	390	1499
08:40:00 AM	1	74	3	0	6	58	0	0	0	0	0	0	8	0	8	0	408	1529
08:45:00 AM	1	50	3	0	4	43	0	0	1	1	2	0	7	0	7	0	409	1534
08:50:00 AM	2	38	8	0	8	66	1	0	4	0	2	0	6	0	6	0	418	1523
08:55:00 AM	2	73	5	0	8	50	1	0	2	0	1	0	11	1	6	0	420	1536



Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	Center St NE		
City, State	Salem OR		
Site Notes			
Location	44.939689 - -122.982958		
Start Date	Thursday, June 08, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:45:00 AM		
Peak 15 Min Start	07:45:00 AM		
PHF (15-Min Int)	0.90		

Eastbound
Center St NE
Heavy Vehicle 7.3%



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
109	558	37	0	61	476	100	0	102	135	104	0	93	282	112	0	704	637	341	487	673	772	491	233
Percent Heavy Vehicles																							
2.8%	4.1%	8.1%	0.0%	1.6%	5.7%	2.0%	0.0%	2.9%	9.6%	8.7%	0.0%	7.5%	6.4%	2.7%	0.0%	4.1%	4.7%	7.3%	5.7%	6.4%	3.8%	4.7%	7.3%

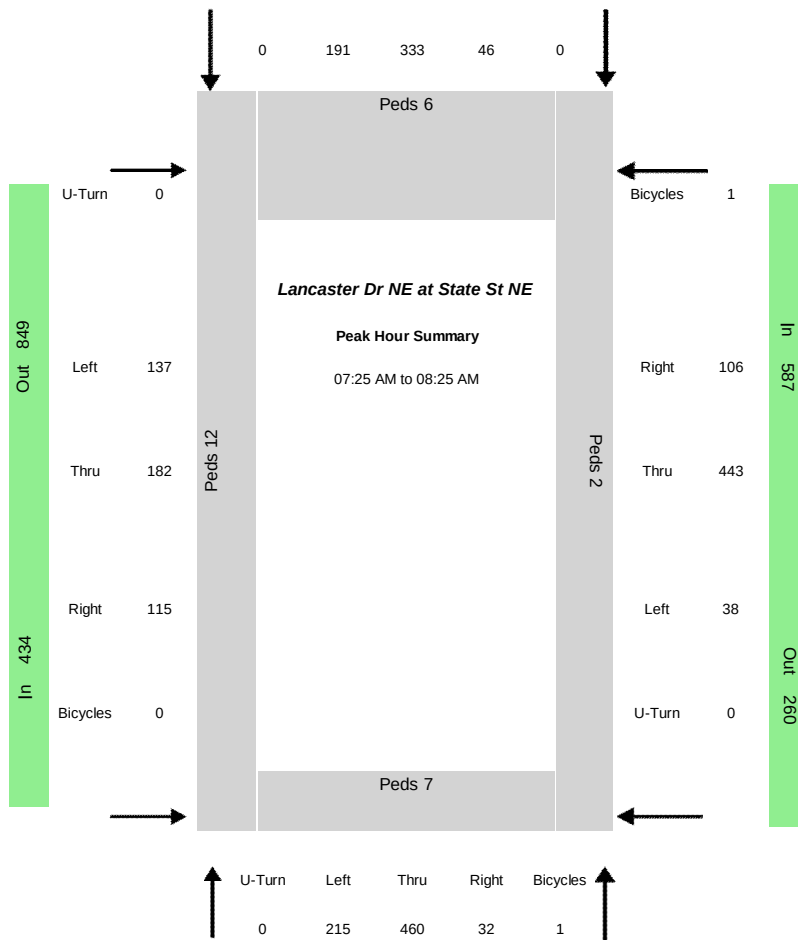
PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	8	9	29

All Vehicle Volumes																		
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Center St NE				Westbound Center St NE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	3	19	1	0	2	14	8	0	4	3	0	0	6	12	4	0		
06:05:00 AM	2	24	4	0	2	14	1	0	2	7	2	0	3	17	7	0		
06:10:00 AM	7	20	3	0	4	13	6	0	1	3	4	0	6	19	9	0	256	
06:15:00 AM	0	32	0	0	4	18	5	0	4	6	3	0	6	16	4	0	278	
06:20:00 AM	3	27	1	0	4	18	3	0	3	3	1	0	4	20	7	0	287	
06:25:00 AM	4	28	3	0	2	18	5	0	4	8	5	0	7	13	7	0	296	
06:30:00 AM	7	15	3	0	1	15	3	0	5	13	4	0	0	13	7	0	284	
06:35:00 AM	7	28	1	0	3	19	6	0	4	6	3	0	9	11	2	0	289	
06:40:00 AM	4	37	4	0	1	23	2	0	10	7	13	0	5	17	10	0	318	
06:45:00 AM	4	29	2	0	2	25	5	0	0	11	3	0	4	23	13	0	353	
06:50:00 AM	6	37	2	0	3	17	3	0	12	7	6	0	5	25	6	0	383	
06:55:00 AM	11	34	1	0	4	27	4	0	5	7	7	0	5	11	4	0	370	1240
07:00:00 AM	3	24	2	0	2	15	2	0	7	9	6	0	8	25	11	0	363	1278

07:05:00 AM	5	53	1	0	1	22	8	0	5	9	9	0	1	28	5	0	381	1340
07:10:00 AM	8	36	3	0	3	14	4	0	6	9	8	0	2	27	9	0	390	1374
07:15:00 AM	8	51	2	0	2	34	6	0	6	6	5	0	1	31	13	0	441	1441
07:20:00 AM	6	30	3	0	3	28	6	0	5	11	7	0	7	30	4	0	434	1487
07:25:00 AM	9	40	4	0	7	22	9	0	5	14	8	0	9	22	7	0	461	1539
07:30:00 AM	7	43	1	0	4	27	5	0	5	19	9	0	5	30	15	0	466	1623
07:35:00 AM	11	47	4	0	4	30	9	0	7	14	4	0	8	23	5	0	492	1690
07:40:00 AM	11	58	2	0	2	43	15	0	12	11	4	0	5	20	8	0	527	1748
07:45:00 AM	11	44	1	0	4	27	9	0	10	10	2	0	6	44	16	0	541	1811
07:50:00 AM	12	59	1	0	5	54	15	0	13	13	9	0	16	25	13	0	610	1917
07:55:00 AM	14	33	2	0	11	34	4	0	8	15	11	0	8	26	16	0	601	1979
08:00:00 AM	4	39	1	0	4	37	15	0	10	12	8	0	8	19	11	0	585	2033
08:05:00 AM	9	49	7	0	6	33	9	0	6	8	5	0	5	20	8	0	515	2051
08:10:00 AM	9	38	6	0	4	42	5	0	4	9	2	0	1	18	6	0	477	2066
08:15:00 AM	7	36	1	0	4	38	5	0	10	13	9	0	8	17	8	0	465	2057
08:20:00 AM	3	48	3	0	9	47	7	0	6	11	10	0	9	26	3	0	482	2099
08:25:00 AM	7	53	6	0	2	46	9	0	7	6	16	0	7	20	10	0	527	2132
08:30:00 AM	10	48	3	0	3	30	7	0	9	12	12	0	8	22	4	0	539	2130
08:35:00 AM	9	44	2	0	0	38	8	0	9	10	9	0	10	25	8	0	529	2136
08:40:00 AM	14	67	4	0	9	50	7	0	10	16	11	0	7	20	9	0	564	2169
08:45:00 AM	13	46	4	0	2	44	5	0	8	6	12	0	6	16	6	0	564	2153
08:50:00 AM	11	43	3	0	2	43	4	0	8	16	13	0	7	21	12	0	575	2101
08:55:00 AM	4	23	3	0	4	20	2	0	4	5	4	0	4	10	3	0	437	2005

Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	State St		
City, State	Salem OR		
Site Notes			
Location	44.927939 - -122.983375		
Start Date	Wednesday, June 07, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:25:00 AM		
Peak 15 Min Start	07:40:00 AM		
PHF (15-Min Int)	0.90		

Eastbound
State St
Heavy Vehicle 6.9%



In	707	Out	486

Heavy Vehicle 4.1%
Lancaster Dr NE
Northbound

Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
215	460	32	0	46	333	191	0	137	182	115	0	38	443	106	0	707	570	434	587	486	703	849	260
Percent Heavy Vehicles																							
3.3%	4.1%	9.4%	0.0%	10.9%	6.3%	4.2%	0.0%	10.2%	4.9%	6.1%	0.0%	13.2%	1.6%	2.8%	0.0%	4.1%	6.0%	6.9%	2.6%	6.8%	5.1%	2.6%	6.5%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0		2	7	6	12	

All Vehicle Volumes																		
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound State St				Westbound State St				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	4	10	2	0	3	9	9	0	4	6	2	0	2	10	4	0		
06:05:00 AM	6	18	4	0	4	7	7	0	2	7	3	0	5	9	8	0		
06:10:00 AM	6	13	1	0	1	9	8	0	6	14	5	0	1	17	4	0	230	
06:15:00 AM	9	17	0	0	1	18	4	0	6	5	6	0	3	22	7	0	263	
06:20:00 AM	10	13	1	0	3	11	10	0	2	8	5	0	2	27	5	0	280	
06:25:00 AM	6	18	0	0	3	9	9	0	5	6	4	0	2	25	7	0	289	
06:30:00 AM	9	12	1	0	2	16	8	0	4	6	6	0	1	21	10	0	287	
06:35:00 AM	11	16	1	0	3	13	11	0	2	9	3	0	2	29	7	0	297	
06:40:00 AM	13	12	1	0	5	21	15	0	3	8	5	0	1	42	13	0	342	
06:45:00 AM	19	24	4	0	5	16	10	0	6	8	5	0	1	41	3	0	388	
06:50:00 AM	26	22	1	0	6	14	16	0	3	8	7	0	2	39	8	0	433	
06:55:00 AM	12	30	2	0	2	9	12	0	4	8	10	0	7	36	8	0	434	1295
07:00:00 AM	18	21	1	0	0	16	18	0	8	9	6	0	0	34	7	0	430	1368

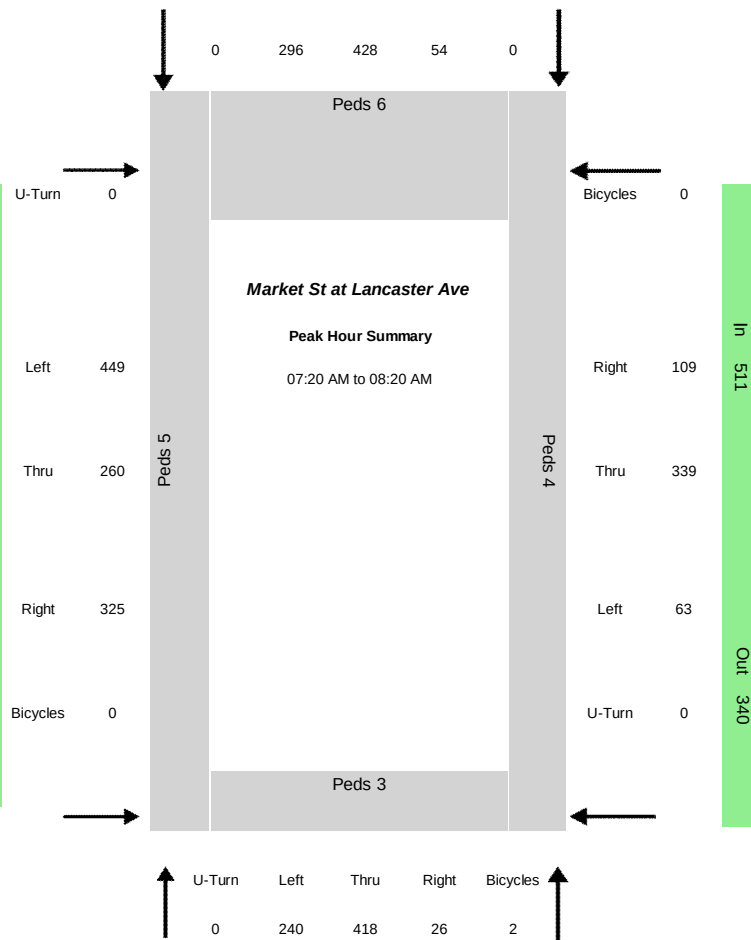
07:05:00 AM	20	40	0	0	3	18	6	0	7	10	8	0	4	41	5	0	440	1450
07:10:00 AM	21	35	1	0	2	23	16	0	3	5	4	0	5	36	6	0	457	1522
07:15:00 AM	19	22	1	0	2	18	16	0	3	12	7	0	2	43	5	0	469	1574
07:20:00 AM	20	38	1	0	1	27	13	0	9	13	11	0	1	32	6	0	479	1649
07:25:00 AM	23	27	3	0	5	22	17	0	11	19	15	0	3	43	6	0	516	1749
07:30:00 AM	18	32	1	0	4	24	19	0	6	8	13	0	1	40	10	0	542	1829
07:35:00 AM	19	28	3	0	1	29	10	0	11	17	12	0	2	58	8	0	568	1920
07:40:00 AM	25	50	2	0	11	31	6	0	14	25	10	0	0	23	12	0	583	1990
07:45:00 AM	21	52	3	0	3	28	17	0	11	22	11	0	3	37	9	0	624	2065
07:50:00 AM	21	38	3	0	1	27	27	0	7	11	6	0	4	52	16	0	639	2126
07:55:00 AM	16	35	3	0	1	34	20	0	14	14	8	0	2	50	9	0	636	2192
08:00:00 AM	15	39	3	0	4	29	17	0	17	9	11	0	5	20	4	0	592	2227
08:05:00 AM	15	29	1	0	5	30	8	0	14	15	3	0	3	46	13	0	561	2247
08:10:00 AM	15	47	4	0	3	18	19	0	11	21	10	0	4	20	3	0	530	2265
08:15:00 AM	14	44	3	0	5	28	17	0	10	10	9	0	3	23	10	0	533	2291
08:20:00 AM	13	39	3	0	3	33	14	0	11	11	7	0	8	31	6	0	530	2298
08:25:00 AM	13	33	0	0	9	38	9	0	9	14	5	0	3	33	8	0	529	2278
08:30:00 AM	16	51	4	0	5	25	15	0	11	21	10	0	3	22	9	0	545	2294
08:35:00 AM	19	36	3	0	6	20	17	0	14	6	6	0	5	15	9	0	522	2252
08:40:00 AM	13	46	5	0	5	38	21	0	12	16	12	0	1	34	8	0	559	2254
08:45:00 AM	18	33	3	0	2	23	15	0	14	11	11	0	3	27	7	0	534	2204
08:50:00 AM	7	41	3	0	11	34	17	0	13	14	13	0	4	20	4	0	559	2172
08:55:00 AM	5	50	5	0	11	30	15	0	11	14	7	0	3	26	7	0	532	2150

Data Provided by K-D-N.com 503-594-4224			
N/S street	Lancaster Dr NE		
E/W street	Market St NE		
City, State	Salem OR		
Site Notes			
Location	44.950169 - -122.983791		
Start Date	Thursday, June 08, 2017		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:20:00 AM		
Peak 15 Min Start	07:45:00 AM		
PHF (15-Min Int)	0.89		

Eastbound
Market St NE
Heavy Vehicle 3.8%



In 1034
Out 875



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
240	418	26	0	54	428	296	0	449	260	325	0	63	339	109	0	684	778	1034	511	816	976	875	340
Percent Heavy Vehicles																							
2.9%	3.1%	0.0%	0.0%	5.6%	4.7%	5.4%	0.0%	4.5%	2.3%	4.0%	0.0%	0.0%	2.9%	7.3%	0.0%	2.9%	5.0%	3.8%	3.5%	4.0%	4.2%	3.8%	2.6%

PHV- Bicycles																PHV - Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0		2	3	6	5	4	

All Vehicle Volumes											
	Northbound	Southbound	Eastbound	Westbound							
	Lancaster Dr NE	Lancaster Dr NE	Market St NE	Market St NE	15 Min	1 HR					

All Vehicle Volumes																15 Min	1 HR
Time	Northbound Lancaster Dr NE				Southbound Lancaster Dr NE				Eastbound Market St NE				Westbound Market St NE				Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
06:00:00 AM	20	10	0	0	0	13	15	0	15	3	5	0	3	15	0	0	
06:05:00 AM	16	9	3	0	1	13	14	0	5	2	9	0	1	12	0	0	
06:10:00 AM	11	14	1	0	0	20	13	0	8	8	8	0	1	16	3	0	287
06:15:00 AM	13	22	0	0	0	20	19	0	13	3	10	0	1	15	5	0	309
06:20:00 AM	24	15	0	0	3	13	16	0	14	4	9	0	0	17	6	0	345
06:25:00 AM	20	15	0	0	0	21	19	0	14	3	8	0	1	17	3	0	363
06:30:00 AM	13	21	0	0	3	14	15	0	16	7	8	0	2	11	1	0	353
06:35:00 AM	19	17	1	0	0	16	24	0	17	5	8	0	2	27	9	0	377
06:40:00 AM	19	17	1	0	0	18	11	0	11	9	16	0	2	18	4	0	382
06:45:00 AM	21	22	3	0	0	22	14	0	14	14	12	0	4	21	4	0	422
06:50:00 AM	13	12	2	0	2	19	22	0	24	9	8	0	2	24	3	0	417
06:55:00 AM	21	27	5	0	1	14	21	0	23	11	17	0	5	17	2	0	455 1487
07:00:00 AM	22	18	0	0	0	18	24	0	20	9	15	1	2	23	2	0	458 1542

07:05:00 AM	11	26	1	0	0	26	21	0	21	11	13	0	2	15	5	0	470	1609
07:10:00 AM	20	41	1	0	1	19	25	0	27	21	12	0	3	36	1	0	513	1713
07:15:00 AM	25	26	1	0	0	20	23	0	49	12	20	0	4	32	5	0	576	1809
07:20:00 AM	12	28	3	0	5	37	28	0	25	6	22	0	5	23	7	0	625	1889
07:25:00 AM	16	26	2	0	2	27	27	0	31	29	24	0	3	19	3	0	627	1977
07:30:00 AM	25	26	1	0	1	32	18	0	45	17	23	0	8	28	3	0	637	2093
07:35:00 AM	26	38	0	0	5	35	23	0	18	18	30	0	5	25	8	0	667	2179
07:40:00 AM	15	34	4	0	1	31	33	0	31	21	33	0	3	30	8	0	702	2297
07:45:00 AM	23	38	2	0	3	40	25	0	45	22	36	0	12	22	13	0	756	2427
07:50:00 AM	23	33	2	0	9	46	14	0	29	24	38	0	6	36	12	0	797	2559
07:55:00 AM	20	53	4	0	10	37	25	0	46	23	30	0	2	28	15	0	846	2688
08:00:00 AM	22	35	2	0	4	32	18	0	59	32	28	0	4	27	15	0	843	2812
08:05:00 AM	18	41	1	0	3	24	25	0	35	34	26	0	9	30	13	0	830	2919
08:10:00 AM	26	42	4	0	4	44	32	0	44	17	20	0	4	40	10	0	824	2999
08:15:00 AM	14	24	1	0	7	43	28	0	41	17	15	0	2	31	2	0	771	3007
08:20:00 AM	13	43	3	0	1	34	19	0	28	18	23	0	2	8	6	0	710	3004
08:25:00 AM	24	46	3	0	2	38	25	0	20	11	13	0	6	18	6	0	635	3007
08:30:00 AM	14	35	2	0	2	33	18	0	25	9	15	0	3	17	4	0	587	2957
08:35:00 AM	12	36	2	0	2	41	24	0	31	20	23	0	4	21	8	0	613	2950
08:40:00 AM	19	52	1	0	0	37	28	0	33	15	21	0	2	17	5	0	631	2936
08:45:00 AM	21	43	3	0	3	44	33	0	34	16	17	0	8	22	5	0	703	2904
08:50:00 AM	7	28	1	1	5	43	22	0	35	15	20	0	9	18	4	0	687	2840
08:55:00 AM	14	44	0	0	3	28	17	0	32	11	32	0	6	20	3	0	667	2757

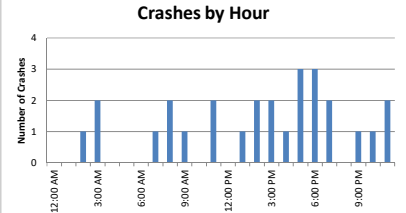
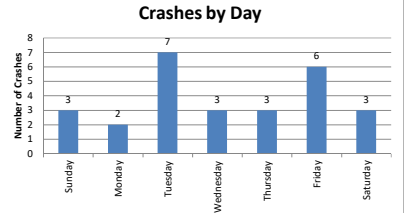
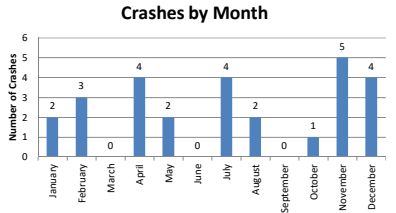
Appendix B

ODOT CARS Crash Records

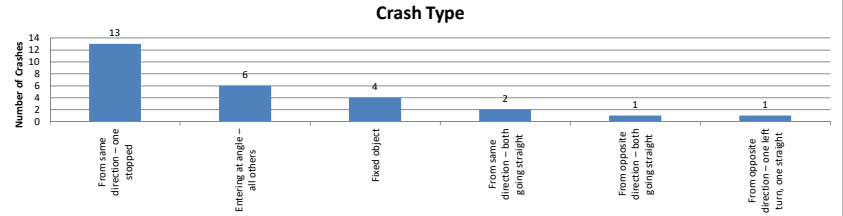
Cordon Rd/
Silverton Rd

Crashes By Year

Year	Number of Crashes
2013	5
2014	7
2015	3
2016	8
2017	4

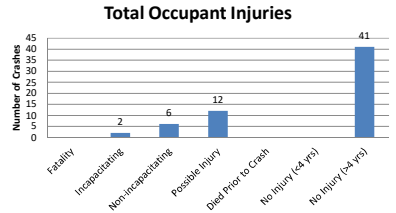


Collision Type	Number of Crashes
Rear-End	13
Turning Movement	4
Fixed-Object or Other-Object	4
Angle	3
Sideswipe-overtaking	2
Head-On	1



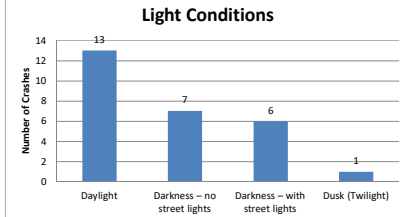
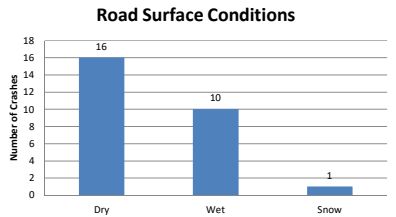
Crash Severity

Crash Severity	Number of Crashes
Fatal crash	0
Non-fatal injury crash	13
Property damage only crash (PDO)	14



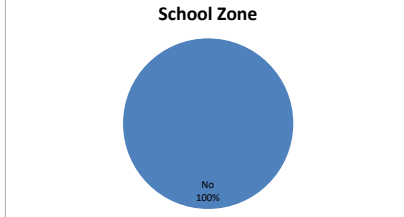
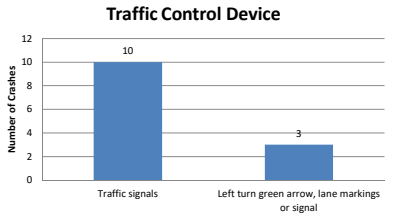
Weather Conditions

Weather Condition	Number of Crashes
Clear	15
Rain	5
Cloudy	4
Fog	2
Snow	1
Unknown	0
Sleet	0
Dust	0
Smoke	0
Ash	0



Crashes By Facility Type

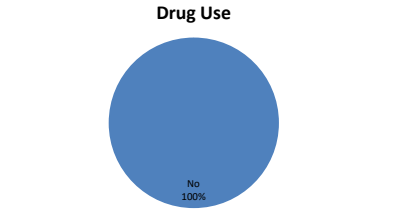
Facility Type	Number of Crashes
Urban Principal Arterial - Other	25
Rural Principal Arterial - Other	2
Urban Principal Arterial - Major	0
Rural Principal Arterial - Major	0
Urban Principal Arterial - Minor	0
Rural Principal Arterial - Minor	0
Urban Principal Collector	0
Rural Principal Collector	0
Urban Principal Local Street	0
Rural Principal Local Street	0
Urban Principal Arterial - Collector	0
Rural Principal Arterial - Collector	0
Urban Principal Arterial - Local Street	0
Rural Principal Arterial - Local Street	0
Urban Principal Collector - Local Street	0
Rural Principal Collector - Local Street	0
Urban Principal Collector - Arterial	0
Rural Principal Collector - Arterial	0
Urban Principal Collector - Collector	0
Rural Principal Collector - Collector	0
Urban Principal Collector - Local Street	0
Rural Principal Collector - Local Street	0



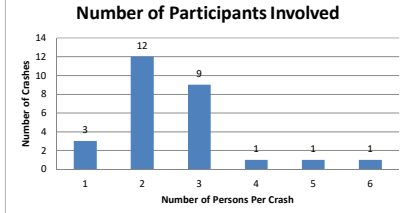
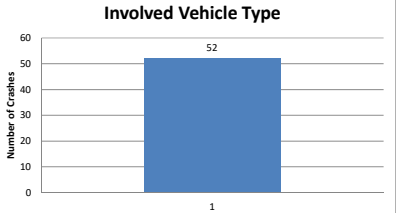
Alcohol Use

A pie chart titled "Alcohol Use" showing the distribution of responses. The chart is divided into two segments: a large blue segment representing "No" at 89%, and a smaller red segment representing "Yes" at 11%.

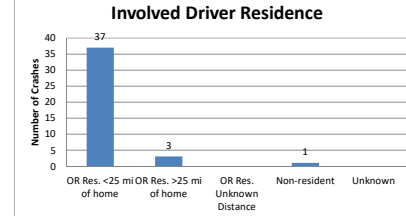
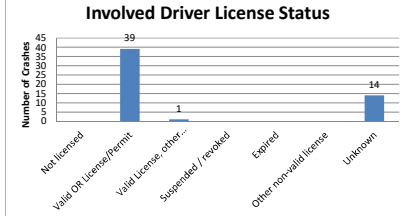
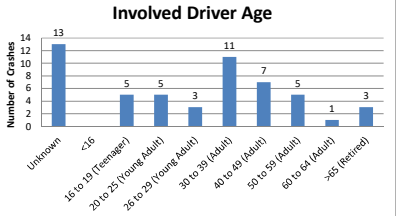
Response	Percentage
Yes	11%
No	89%



Number of Vehicles Per Crash	Number of Crashes
1	4
2	19
3	4

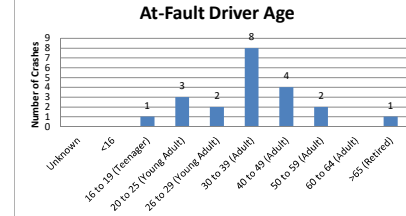
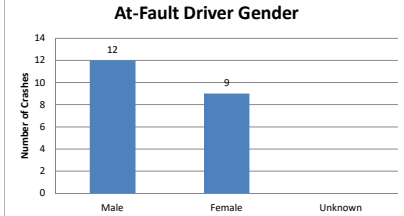


Gender	Number of Crashes
Male	25
Female	18
Unknown	11



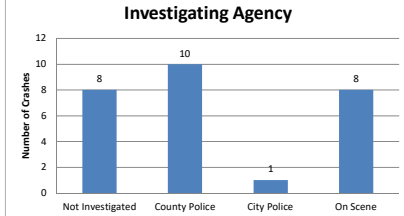
Top Crash Causes

Crash Cause	Number of Crashes
Followed too closely	6
Disregarded R.A.G. traffic signal	4
Inattention	3
Driving in excess of posted speed	3
Speed too fast for conditions (not exceeding limit)	2
Did not yield right-of-way	2
Other improper driving	2
Drove left of center on two-way road	1
Improper change of traffic lanes	1
Disregarded other traffic control device	1
Reckless Driving	1



Safety Equipment Use

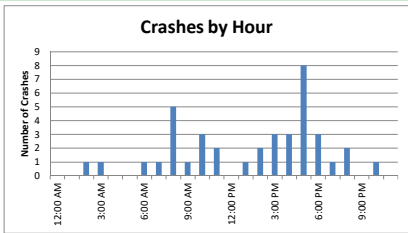
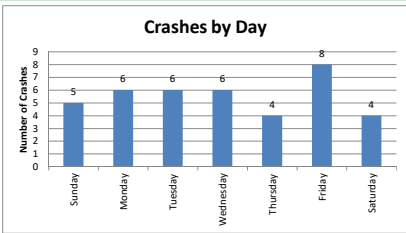
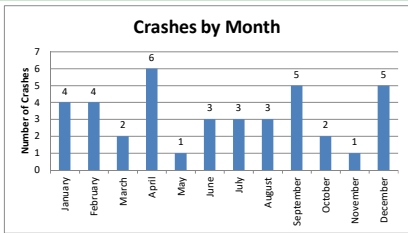
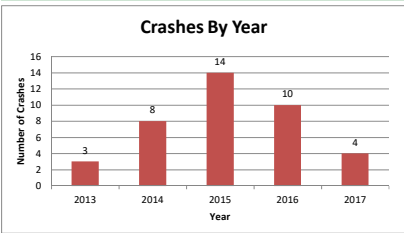
Safety Equipment Use	Number of Crashes
Not applicable (i.e., pedestrian)	0
No safety equipment used	0
Seat belt or harness used improperly	35
Seat belt or harness, fastened	1
Child restraint used properly	0
Child restraint used improperly	0
Helmet used improperly	0
Helmet used properly	0
Equipment used, type unknown	0
Unknown	25



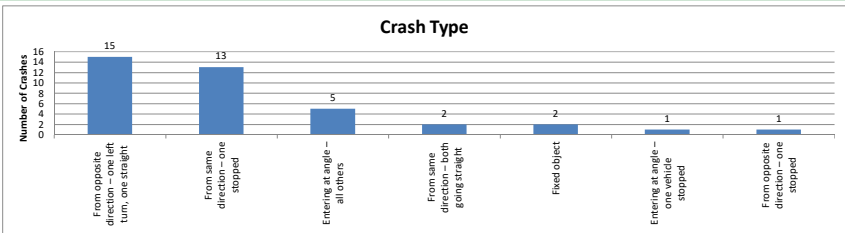
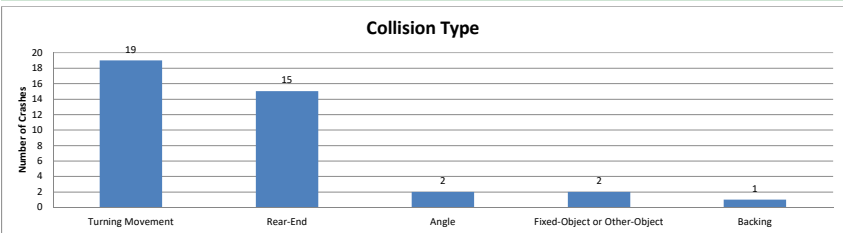
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Sunnyview Rd

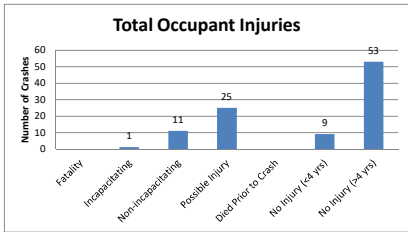
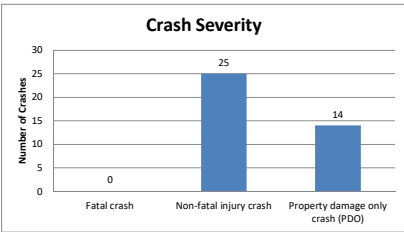
Crash Summary by Date and Time



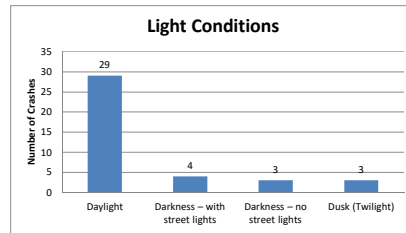
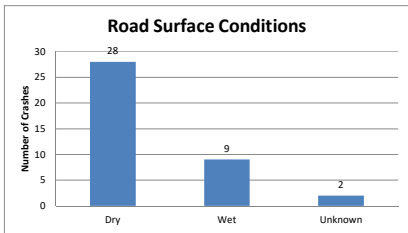
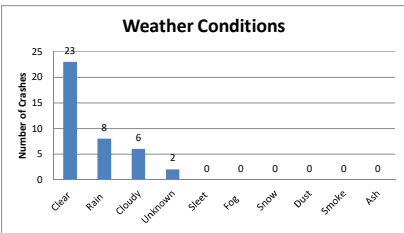
Crash Summary by Type



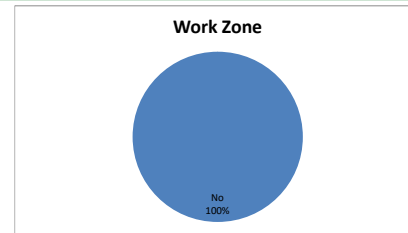
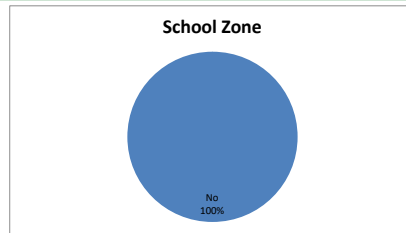
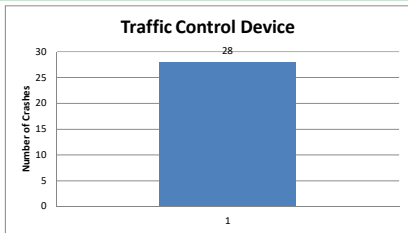
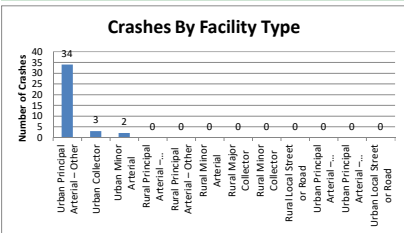
Crash Severity



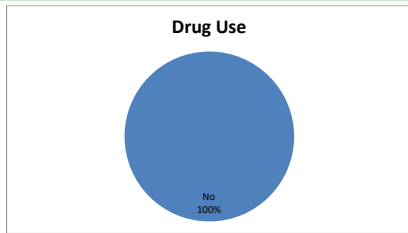
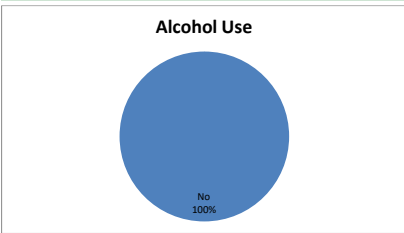
Crash Environment Characteristics



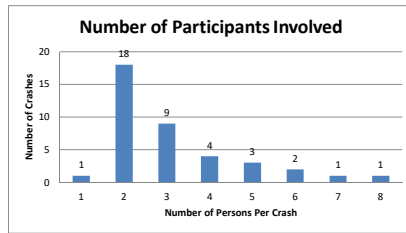
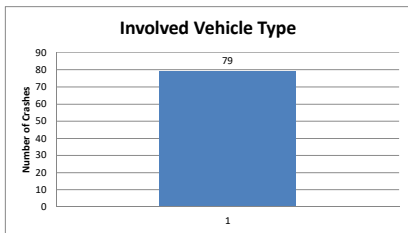
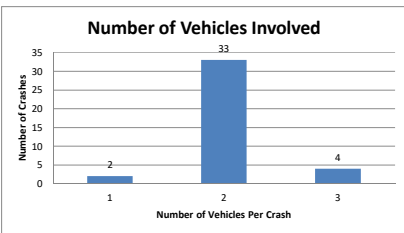
Crash Area Characteristics



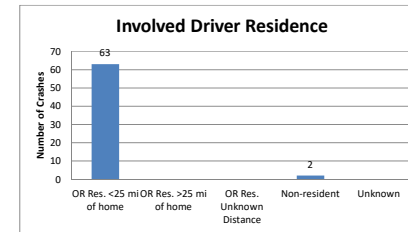
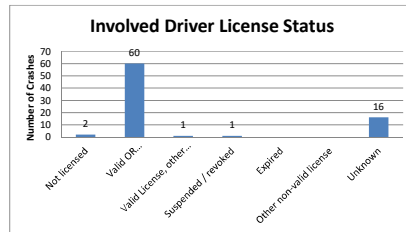
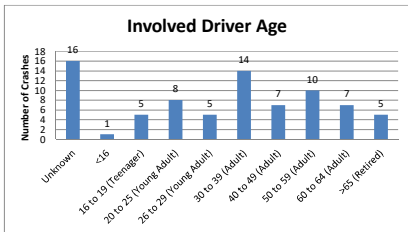
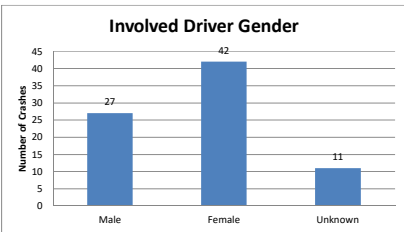
Driving Impairments



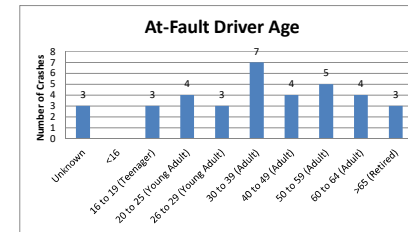
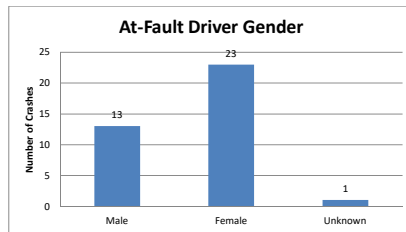
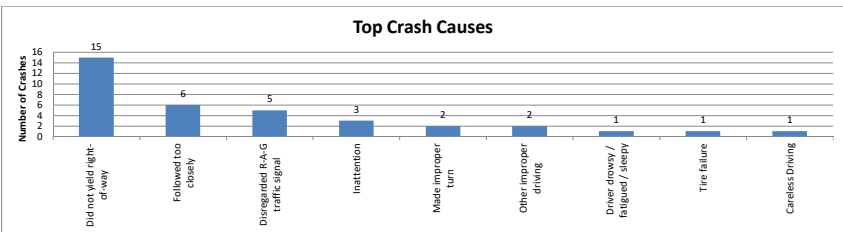
Vehicles and Occupants



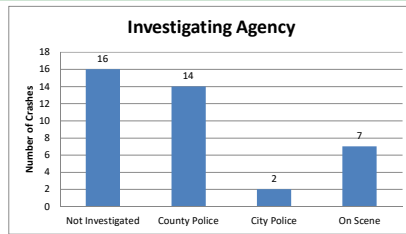
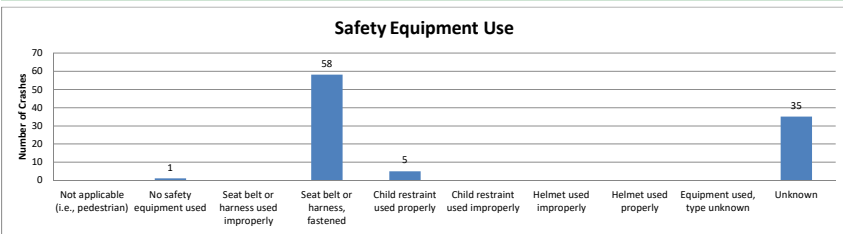
Involved Driver Characteristics



At-Fault Driver Characteristics



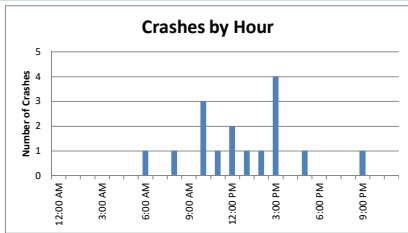
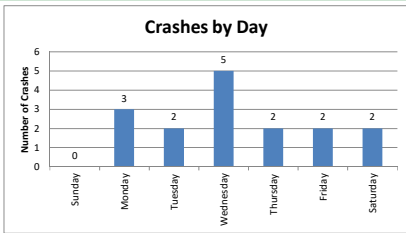
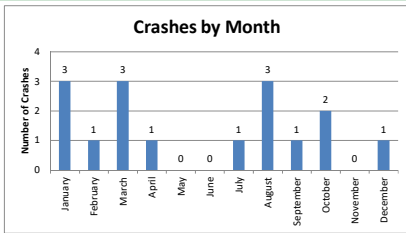
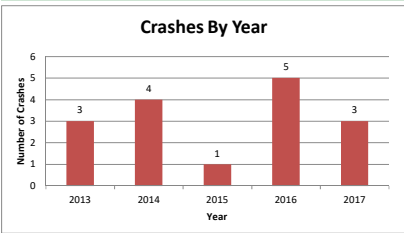
Other Crash Characteristics



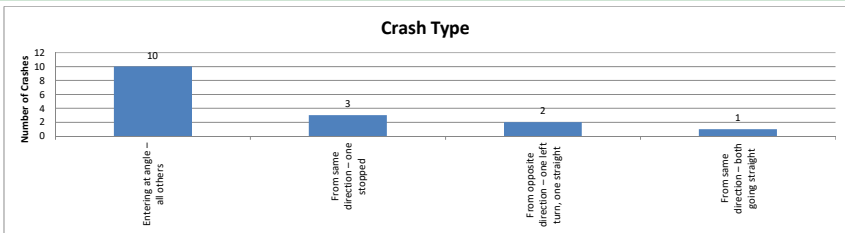
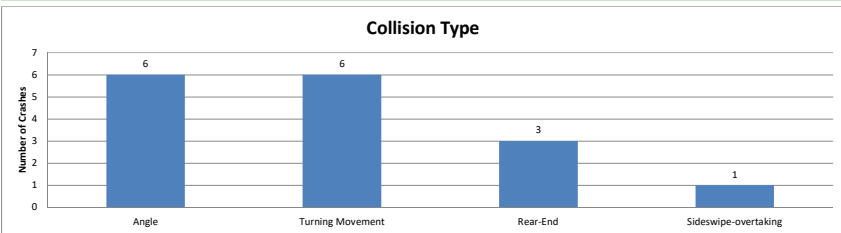
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Swegle Rd

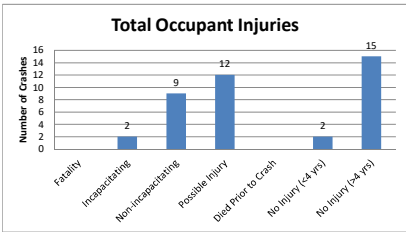
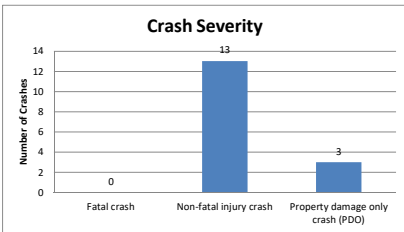
Crash Summary by Date and Time



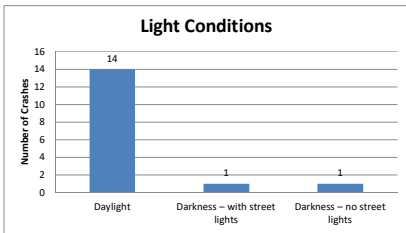
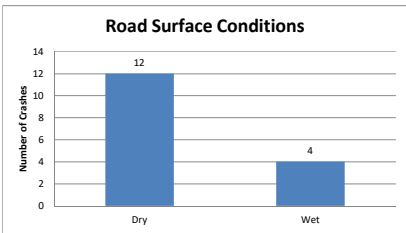
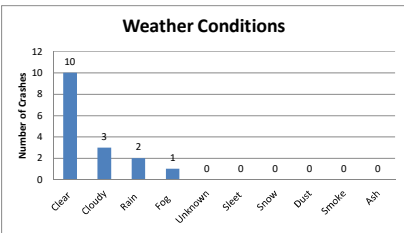
Crash Summary by Type



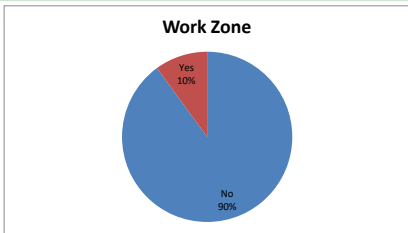
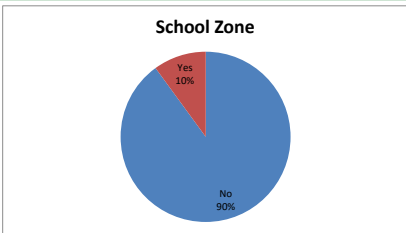
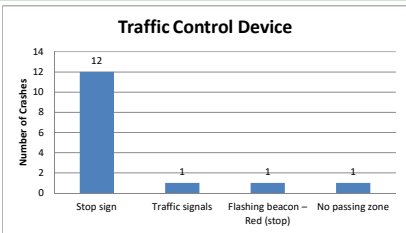
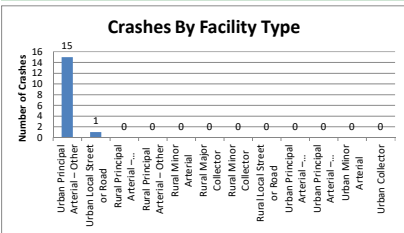
Crash Severity



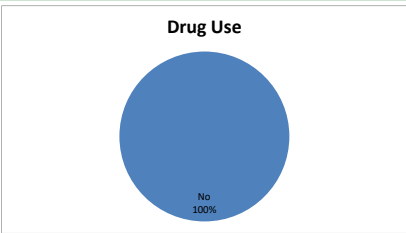
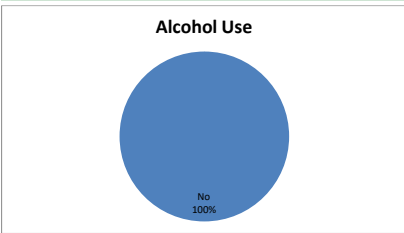
Crash Environment Characteristics



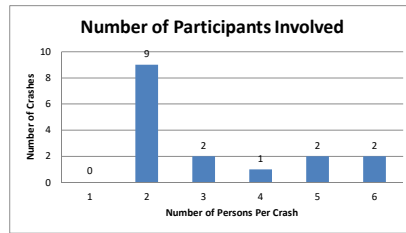
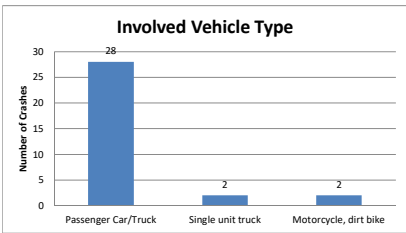
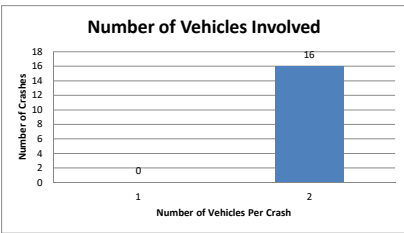
Crash Area Characteristics



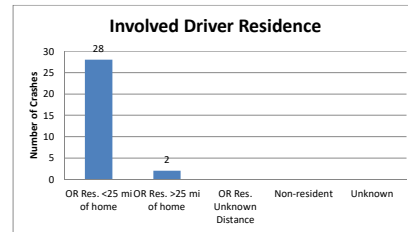
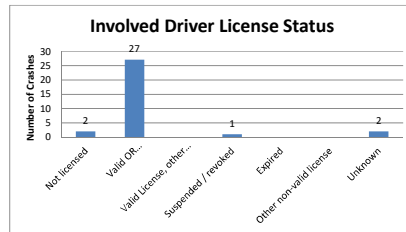
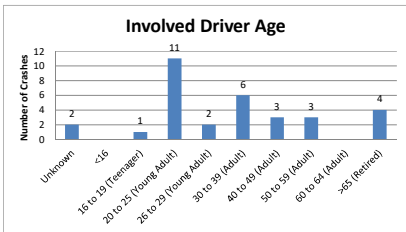
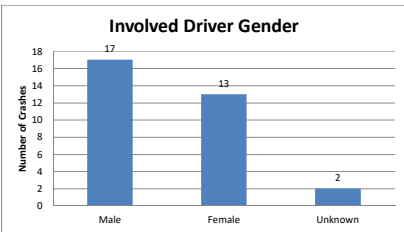
Driving Impairments



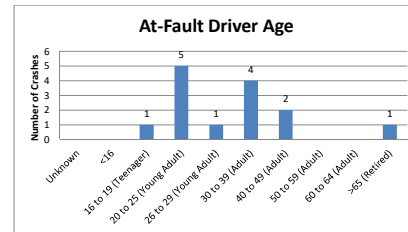
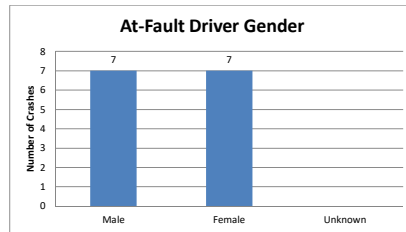
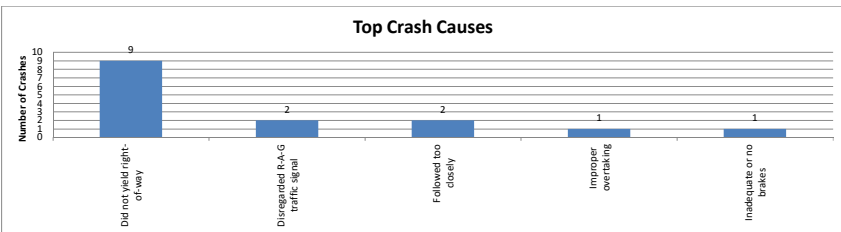
Vehicles and Occupants



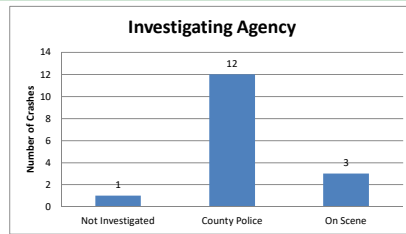
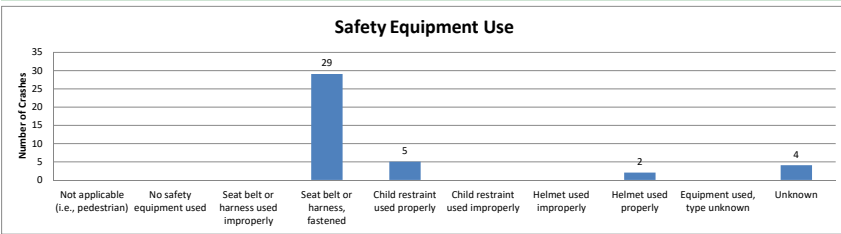
Involved Driver Characteristics



At-Fault Driver Characteristics



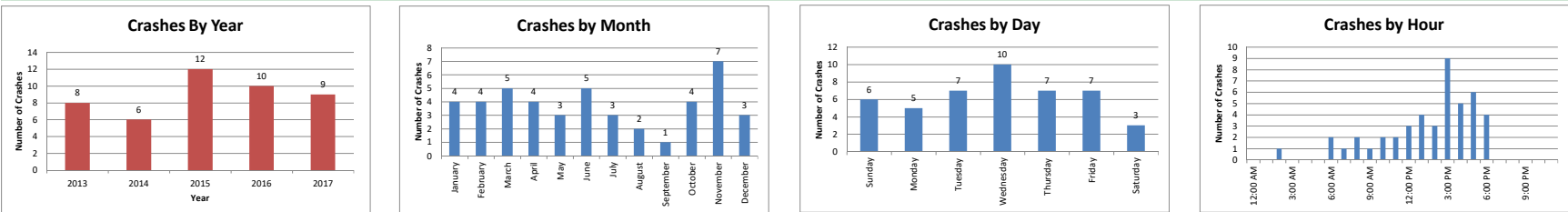
Other Crash Characteristics



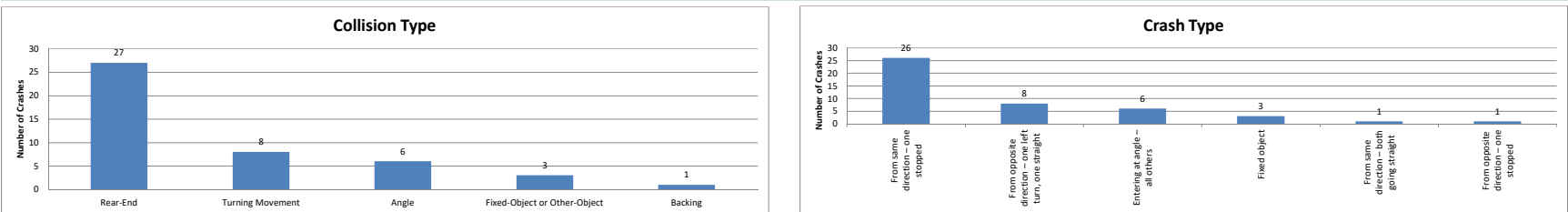
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Center St

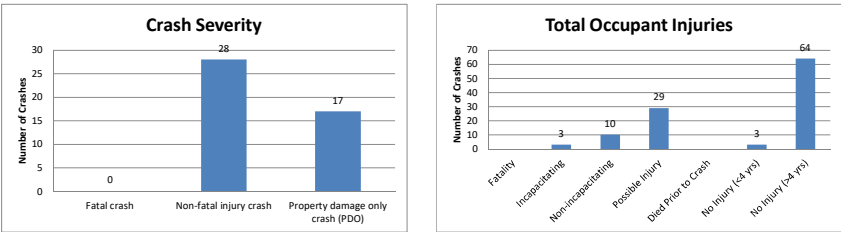
Crash Summary by Date and Time



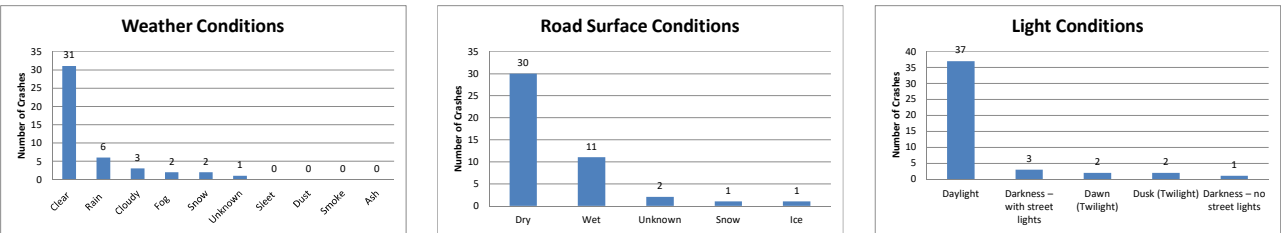
Crash Summary by Type



Crash Severity



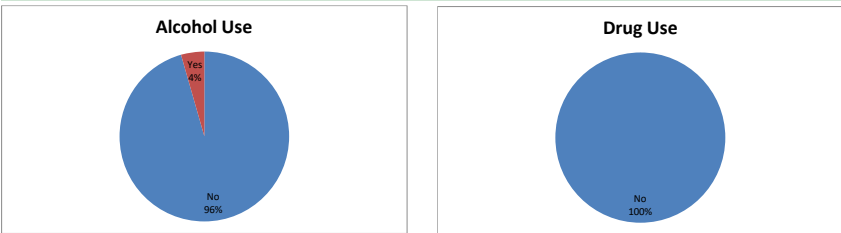
Crash Environment Characteristics



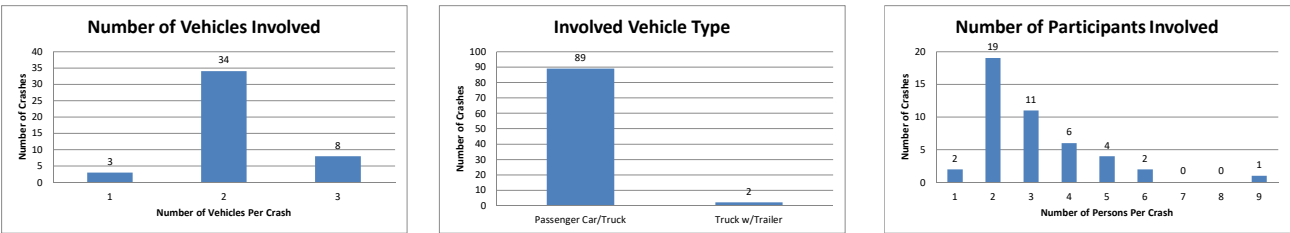
Crash Area Characteristics



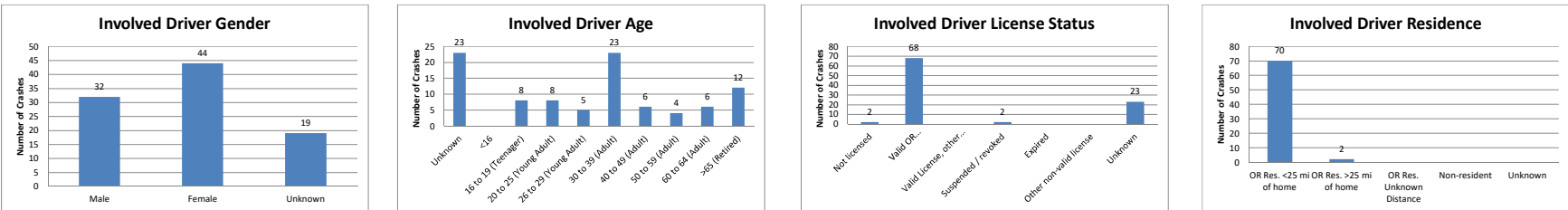
Driving Impairments



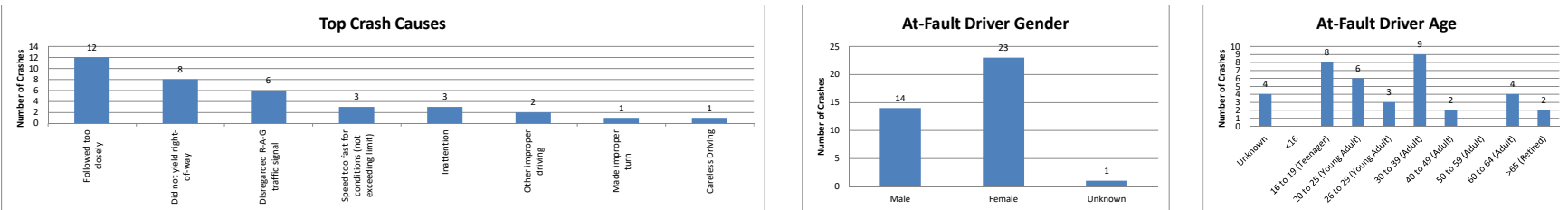
Vehicles and Occupants



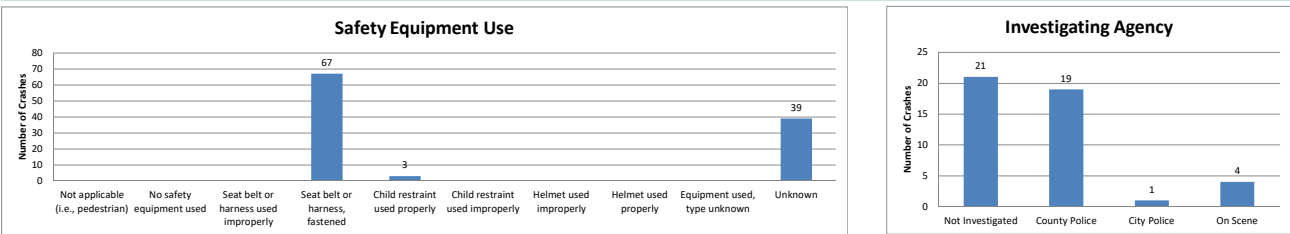
Involved Driver Characteristics



At-Fault Driver Characteristics



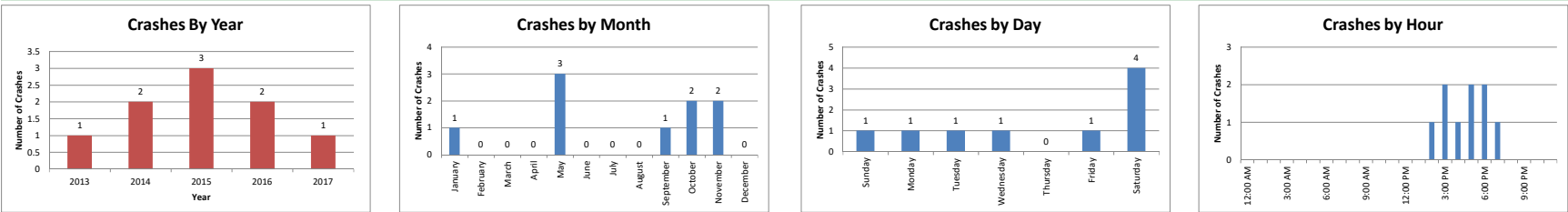
Other Crash Characteristics



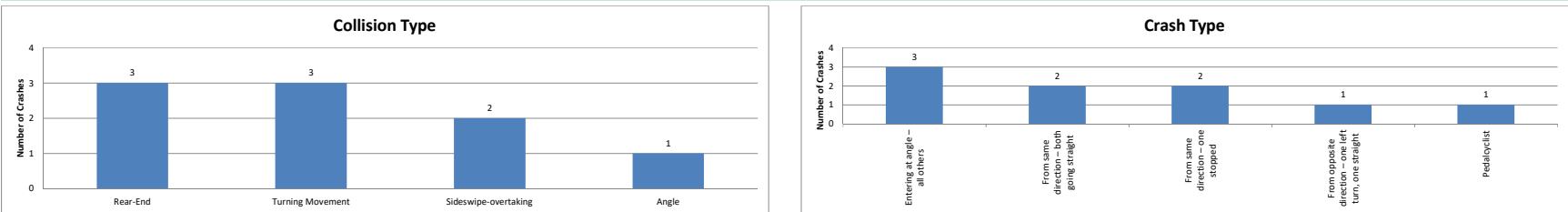
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Auburn Rd

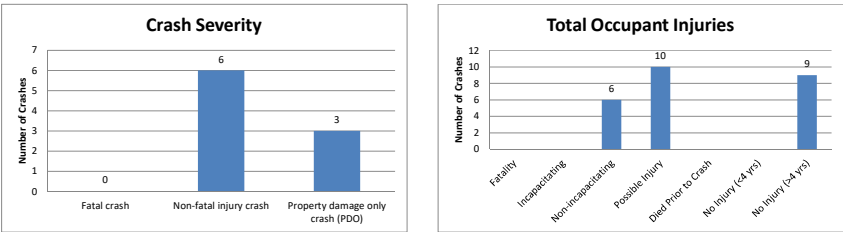
Crash Summary by Date and Time



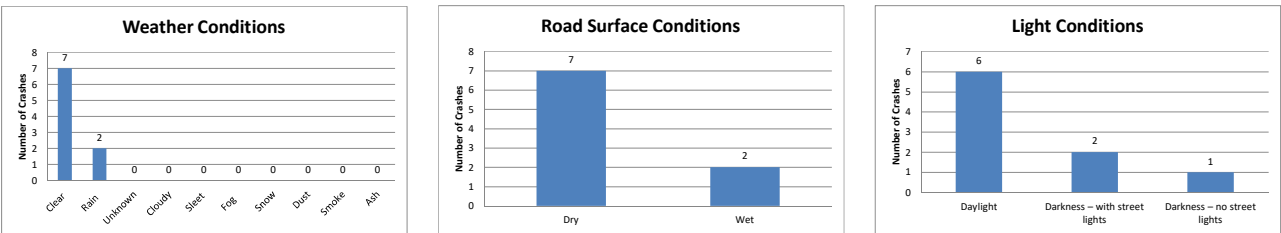
Crash Summary by Type



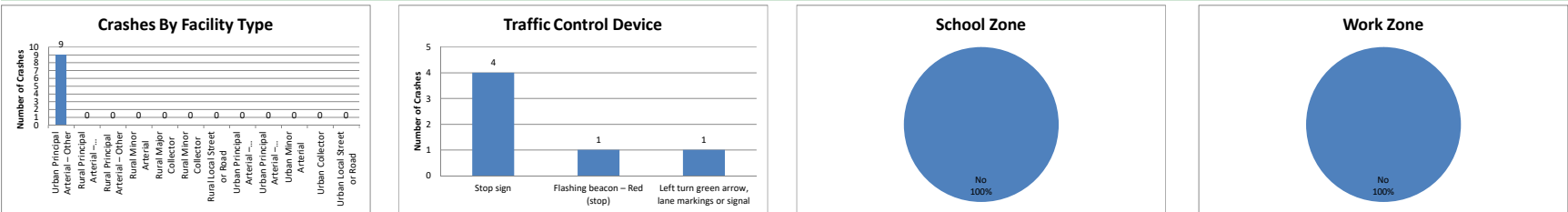
Crash Severity



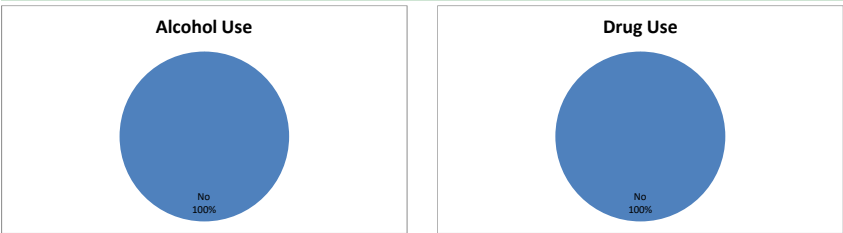
Crash Environment Characteristics



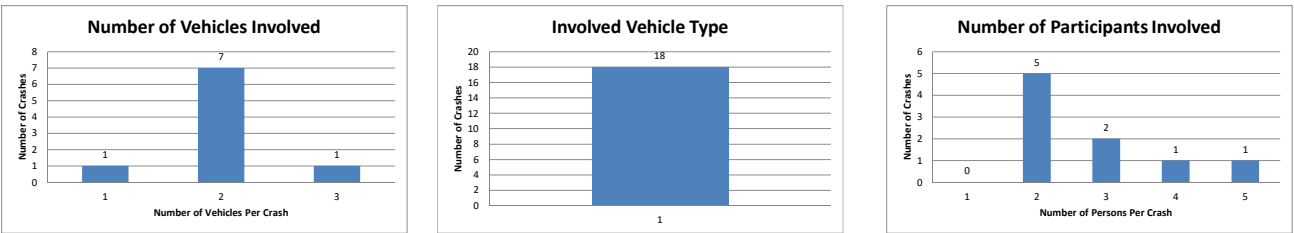
Crash Area Characteristics



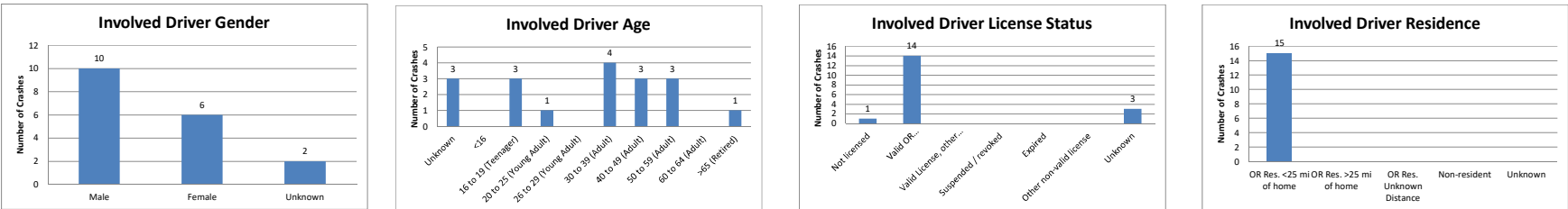
Driving Impairments



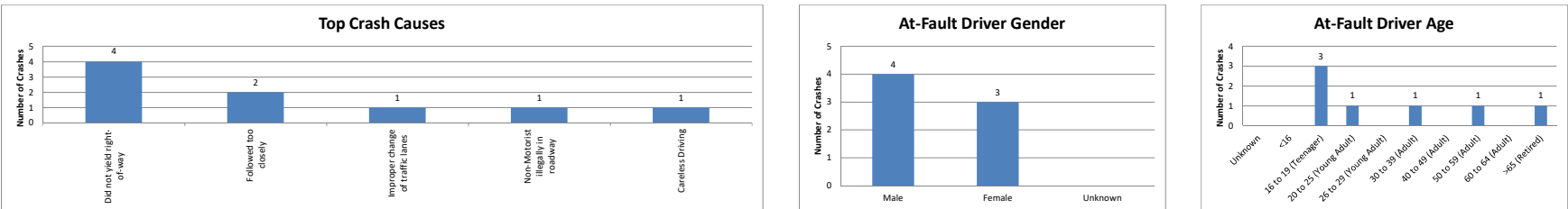
Vehicles and Occupants



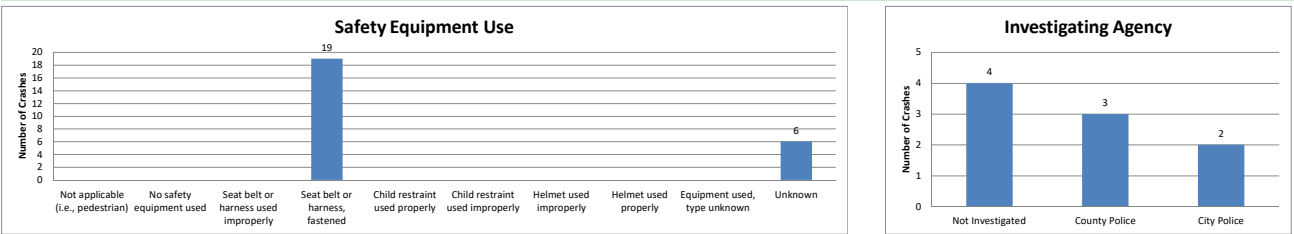
Involved Driver Characteristics



At-Fault Driver Characteristics



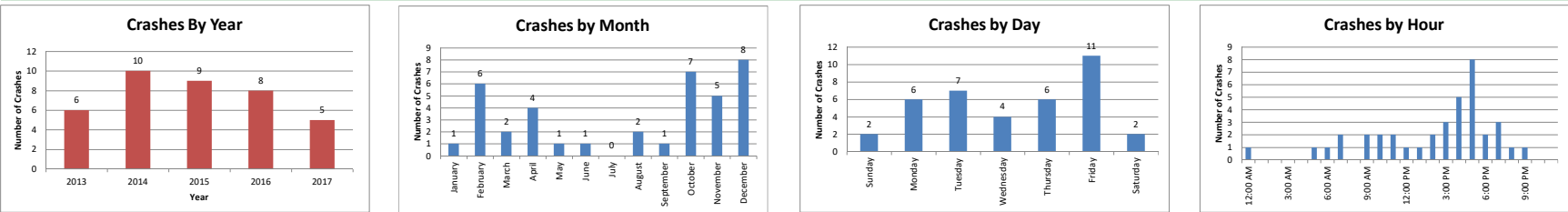
Other Crash Characteristics



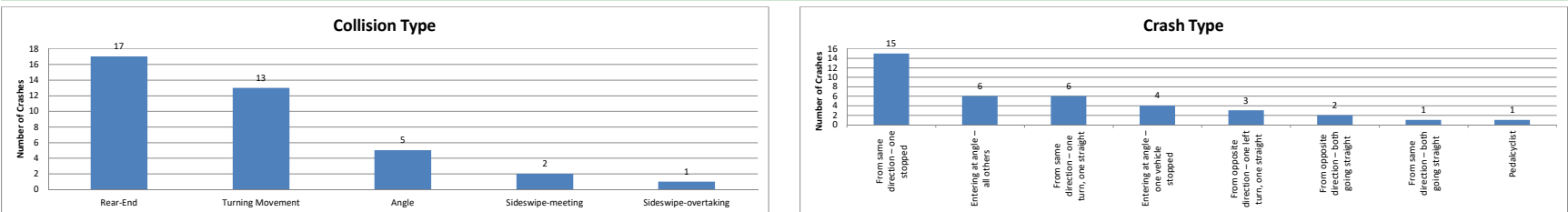
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ State St

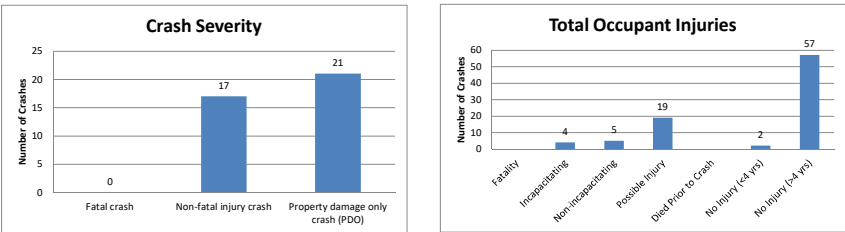
Crash Summary by Date and Time



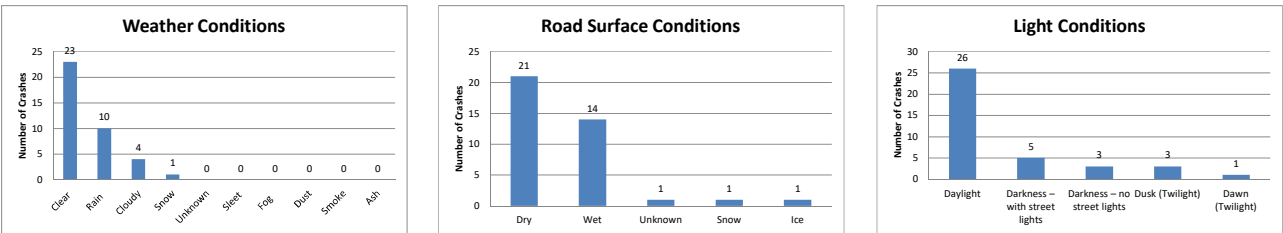
Crash Summary by Type



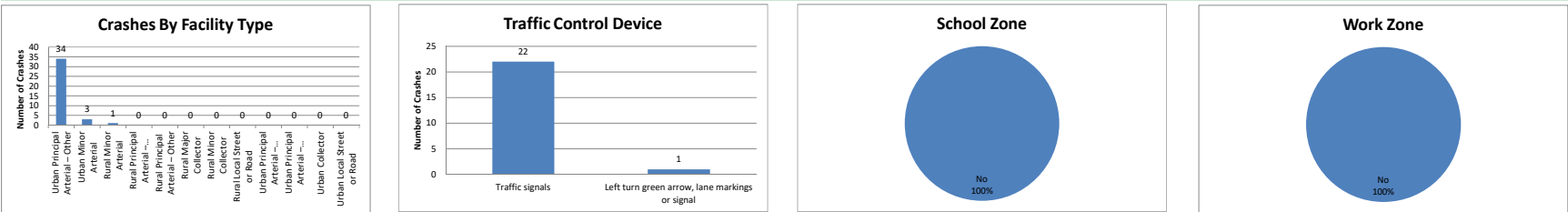
Crash Severity



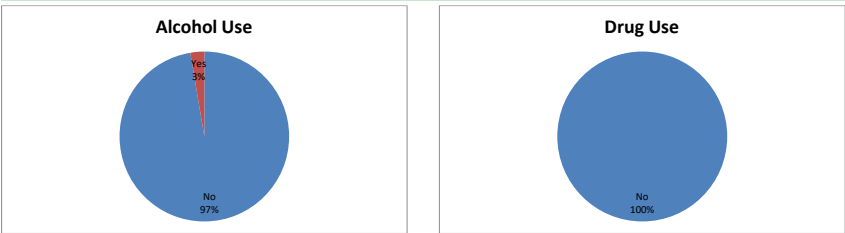
Crash Environment Characteristics



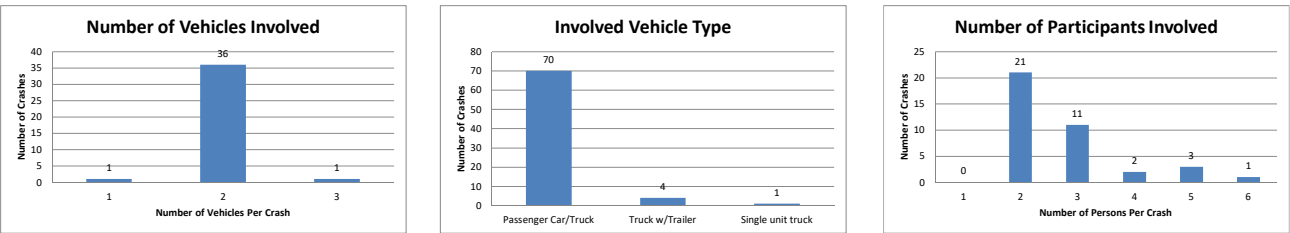
Crash Area Characteristics



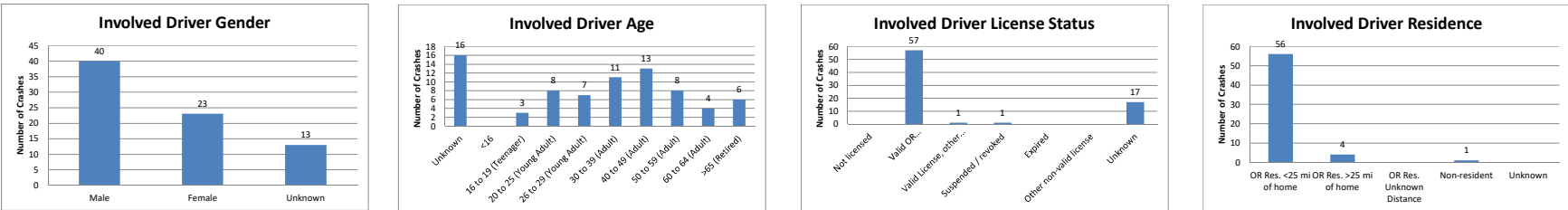
Driving Impairments



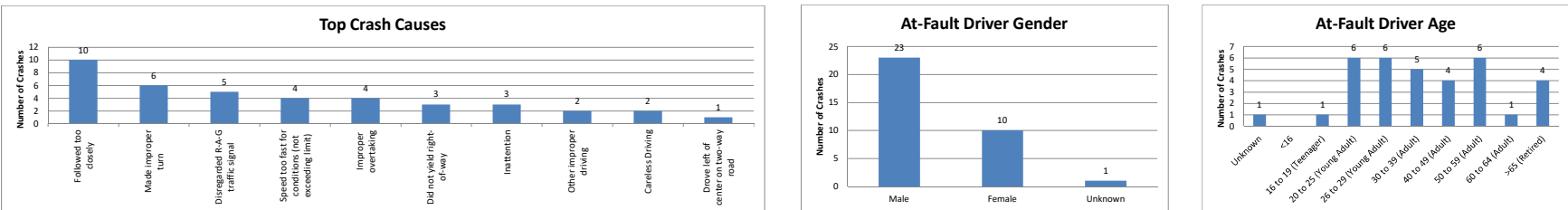
Vehicles and Occupants



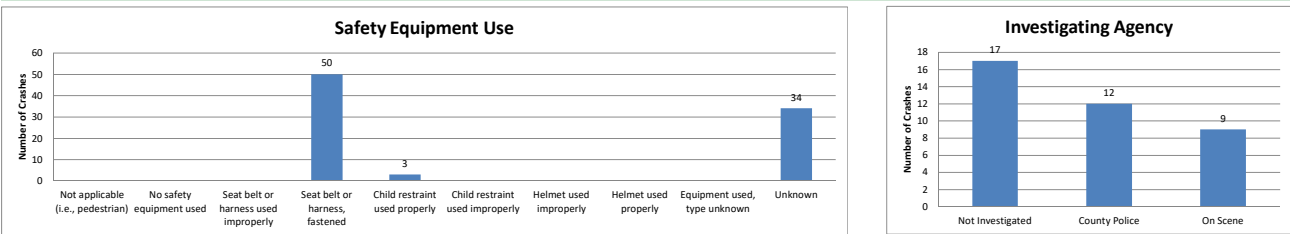
Involved Driver Characteristics



At-Fault Driver Characteristics



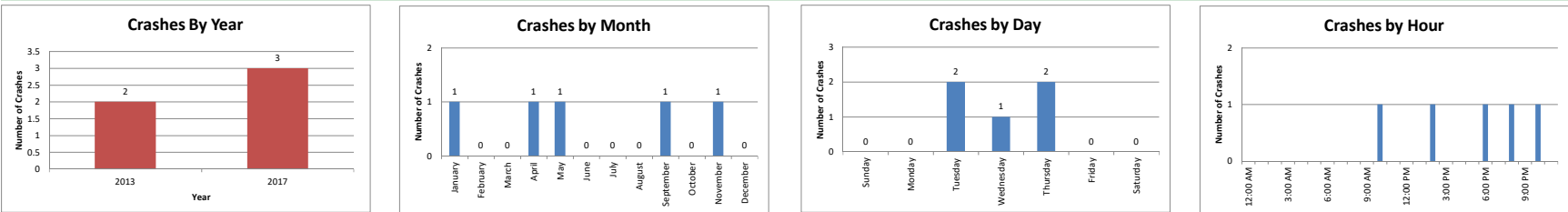
Other Crash Characteristics



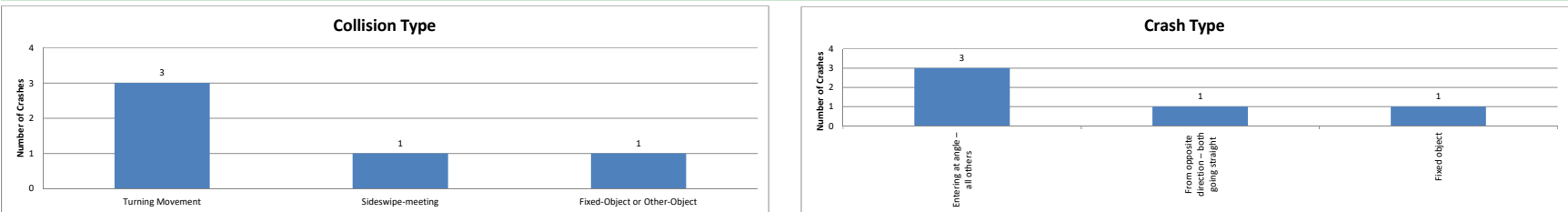
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Pennsylvania St

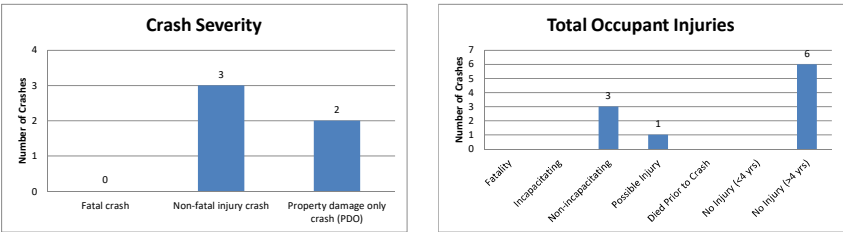
Crash Summary by Date and Time



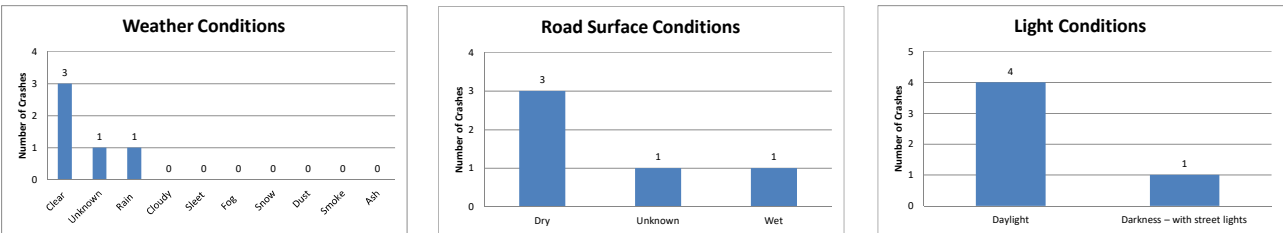
Crash Summary by Type



Crash Severity



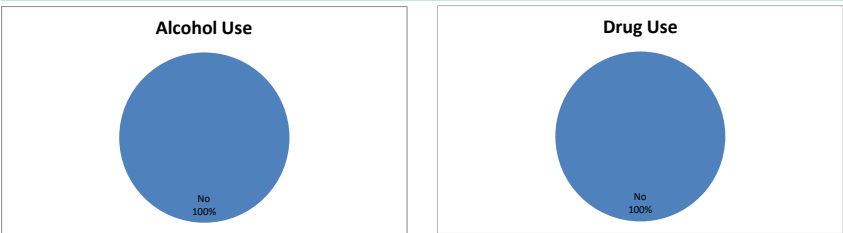
Crash Environment Characteristics



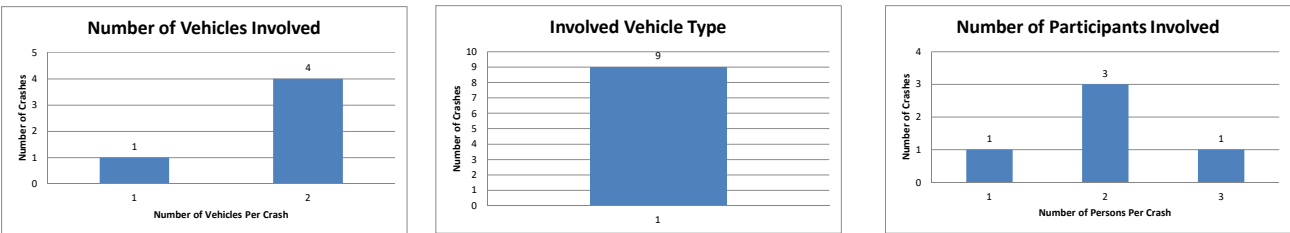
Crash Area Characteristics



Driving Impairments



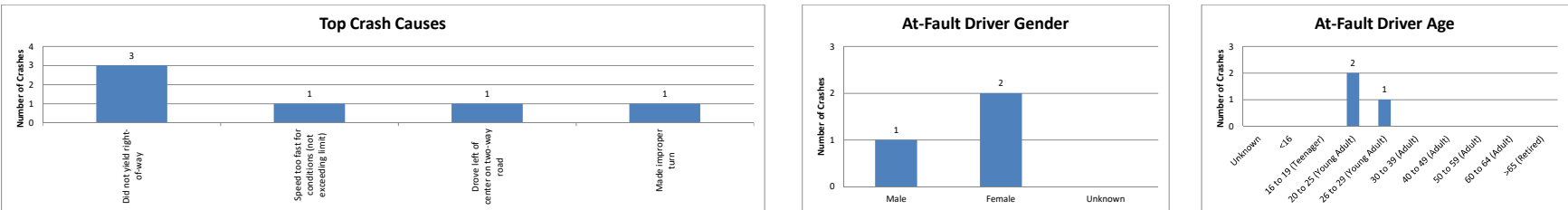
Vehicles and Occupants



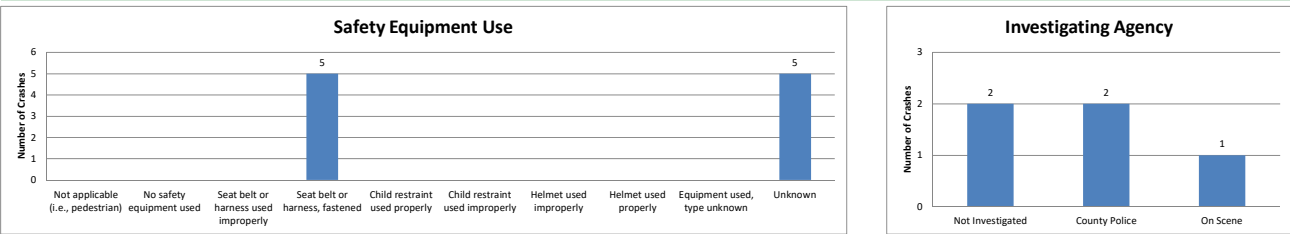
Involved Driver Characteristics



At-Fault Driver Characteristics



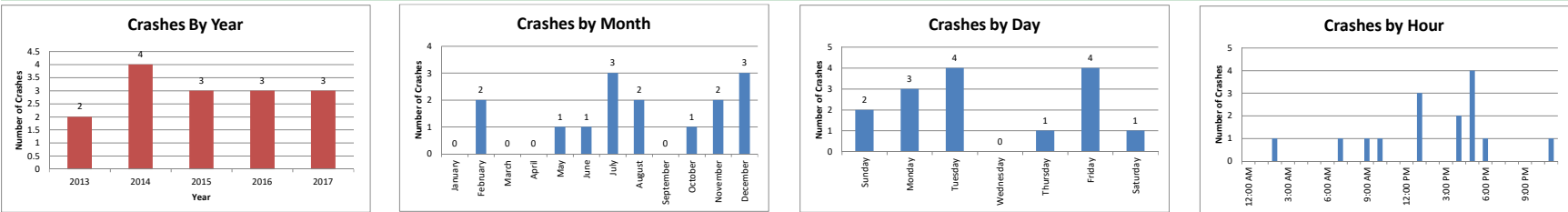
Other Crash Characteristics



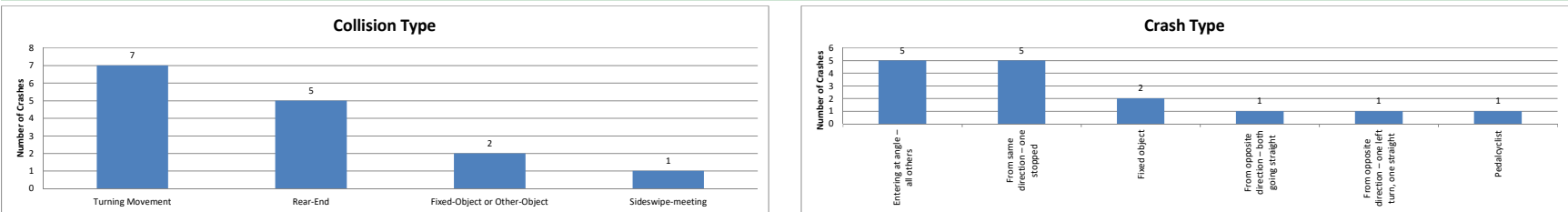
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Caplinger Rd

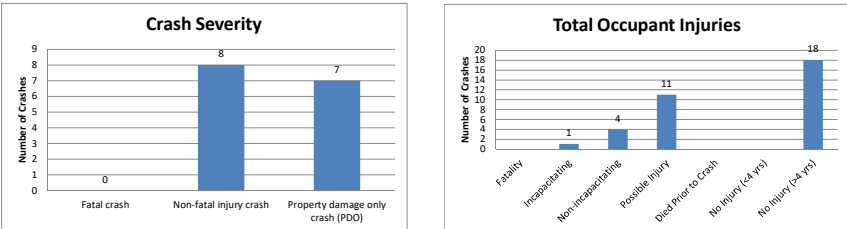
Crash Summary by Date and Time



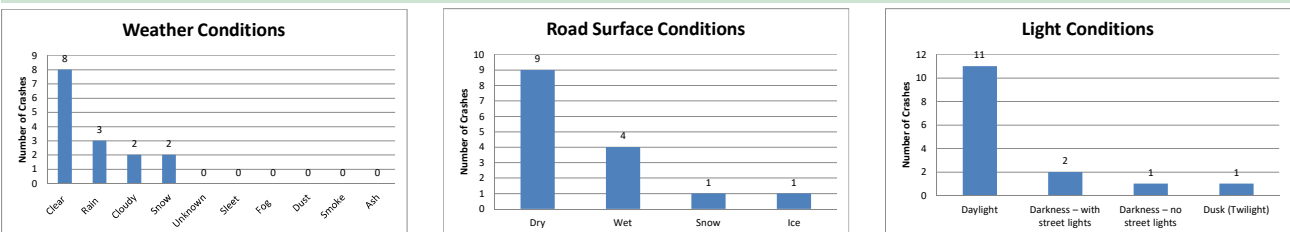
Crash Summary by Type



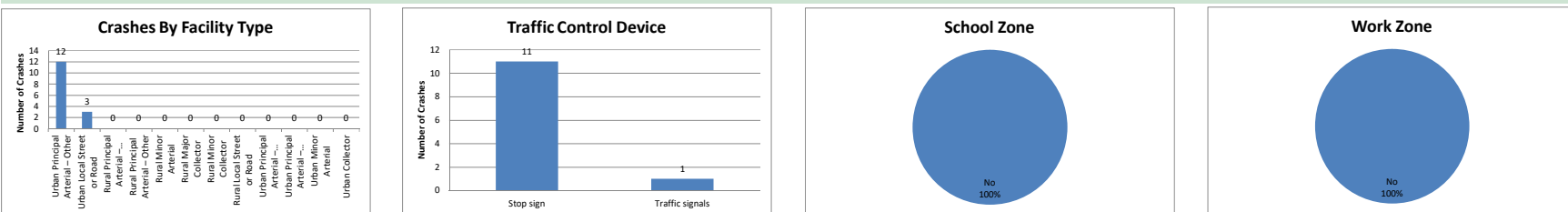
Crash Severity



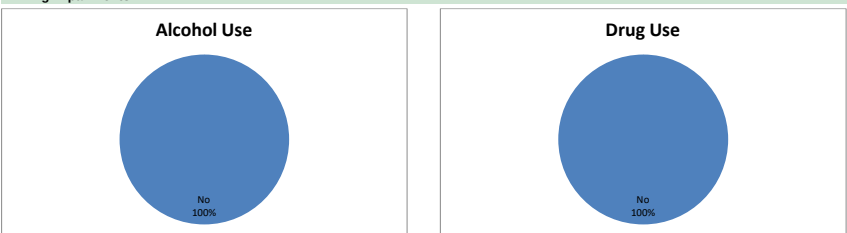
Crash Environment Characteristics



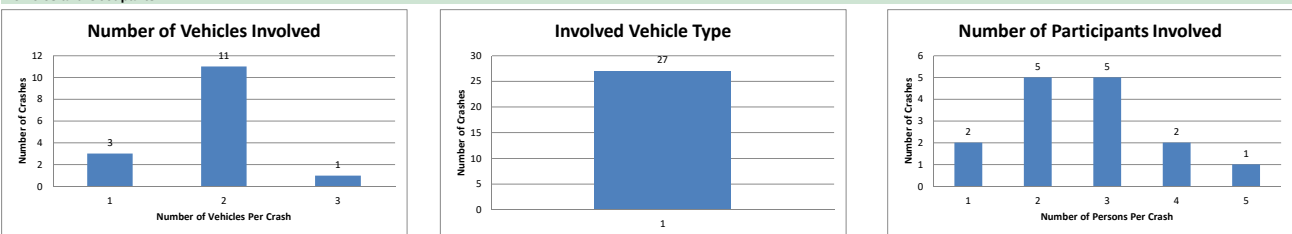
Crash Area Characteristics



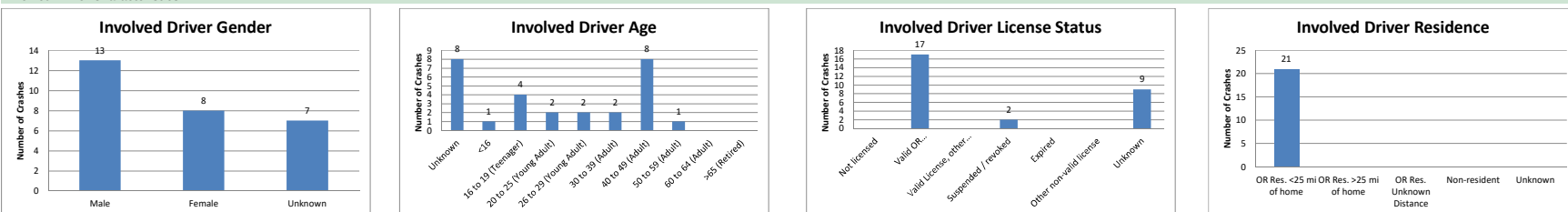
Driving Impairments



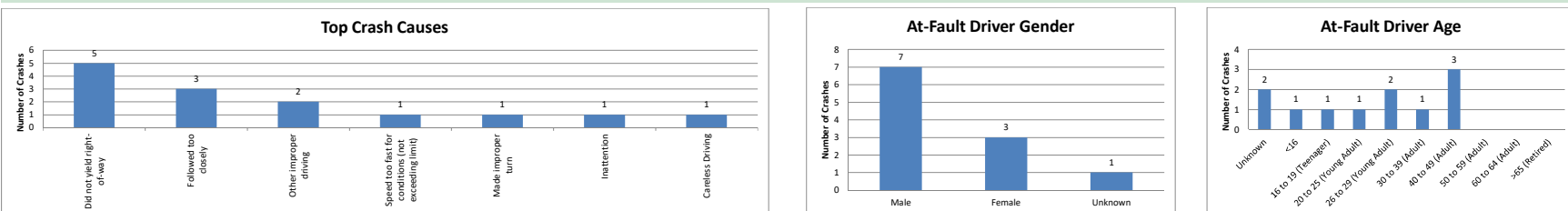
Vehicles and Occupants



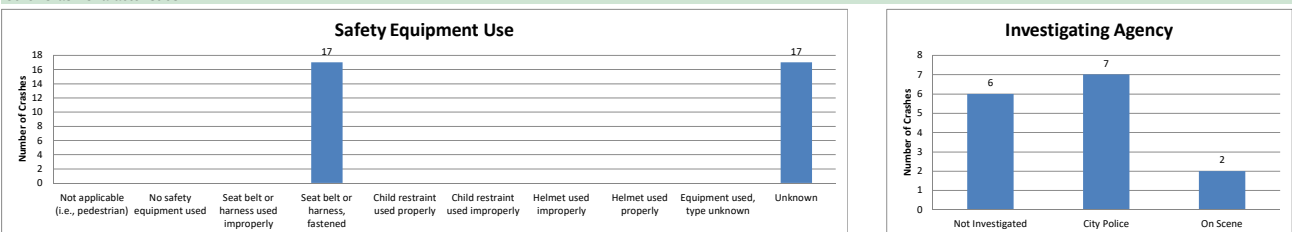
Involved Driver Characteristics



At-Fault Driver Characteristics



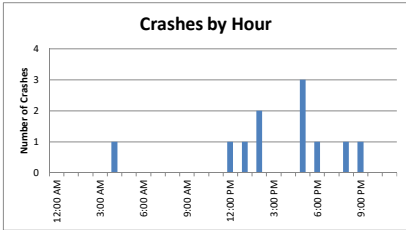
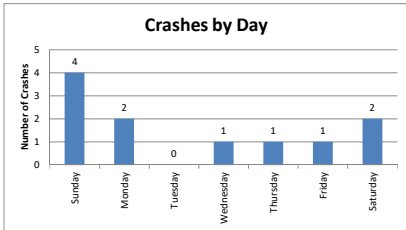
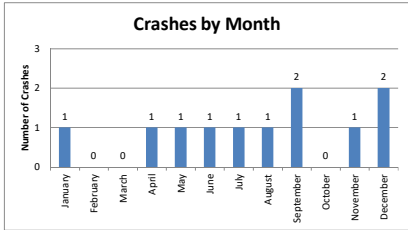
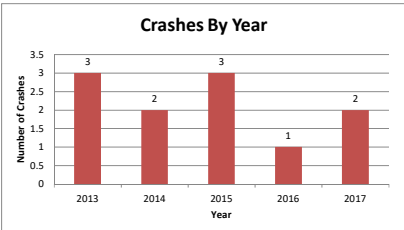
Other Crash Characteristics



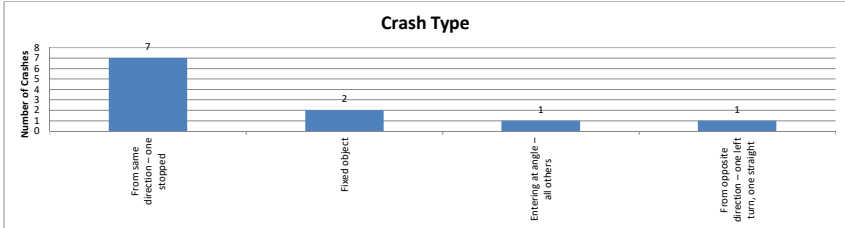
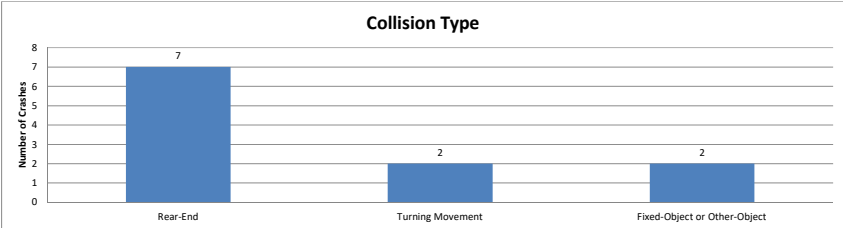
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Macleay Rd

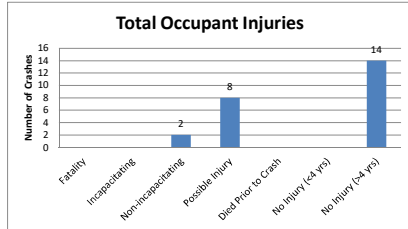
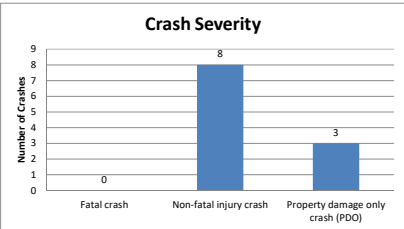
Crash Summary by Date and Time



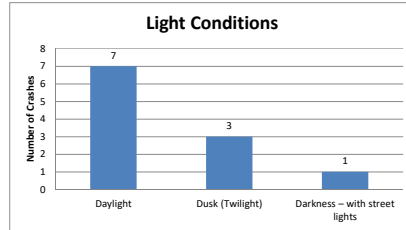
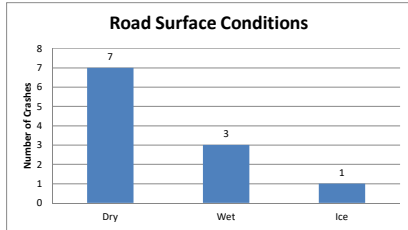
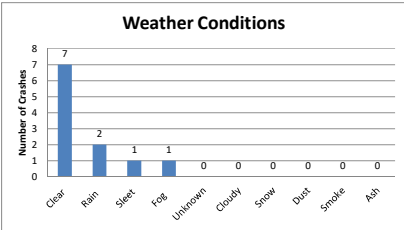
Crash Summary by Type



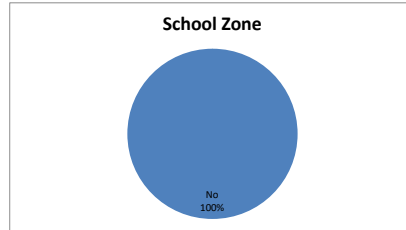
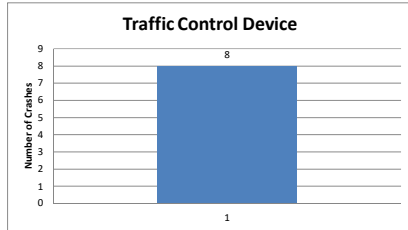
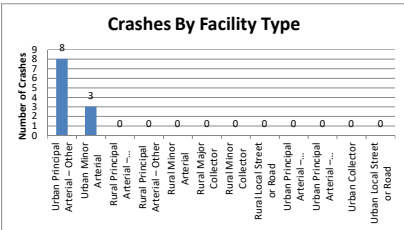
Crash Severity



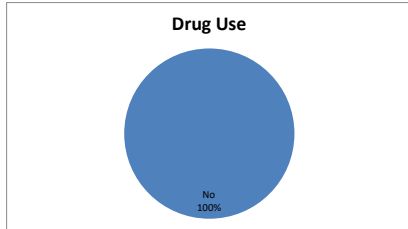
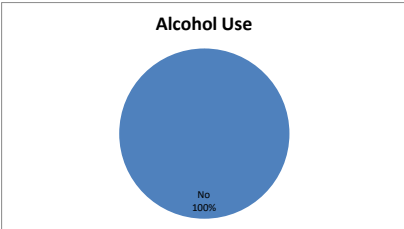
Crash Environment Characteristics



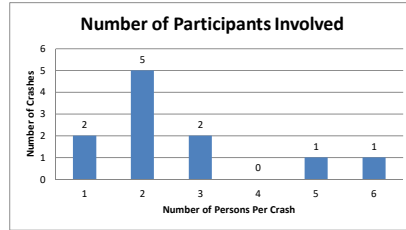
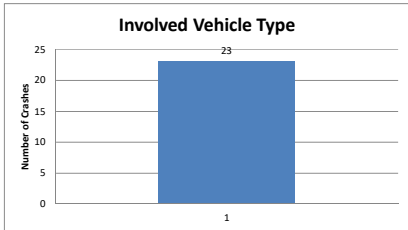
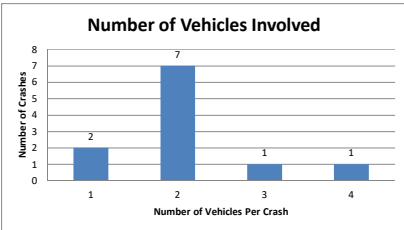
Crash Area Characteristics



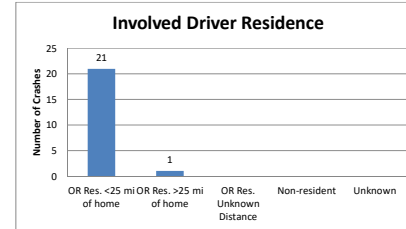
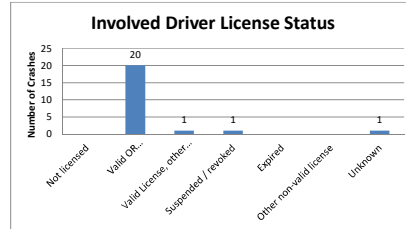
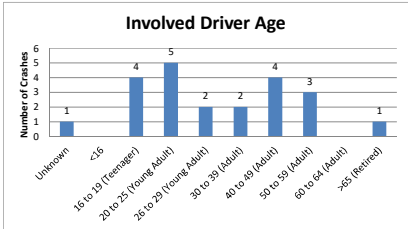
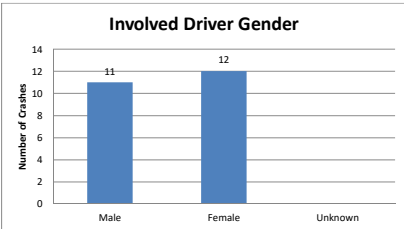
Driving Impairments



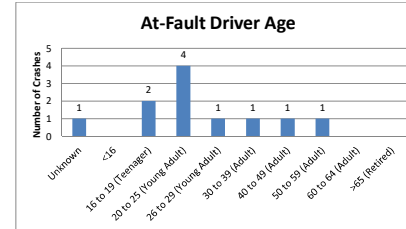
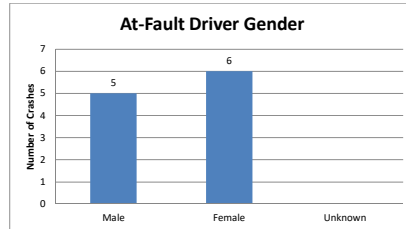
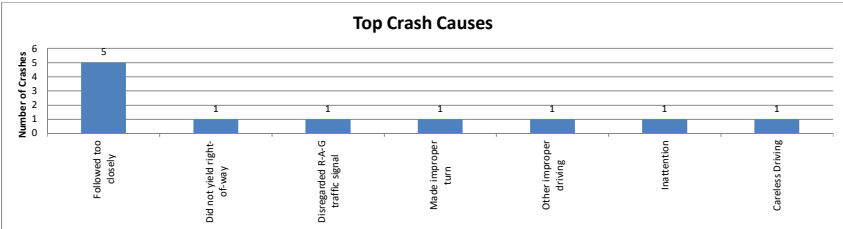
Vehicles and Occupants



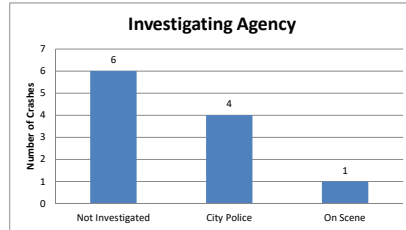
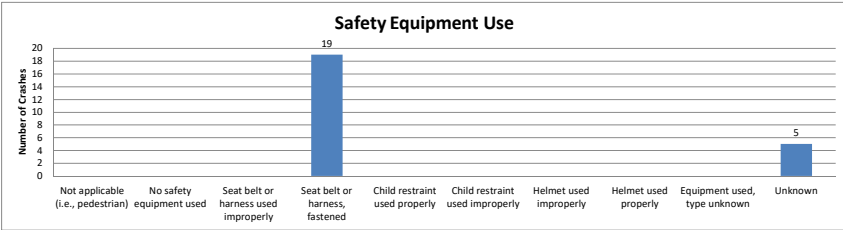
Involved Driver Characteristics



At-Fault Driver Characteristics



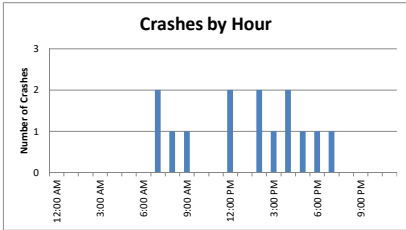
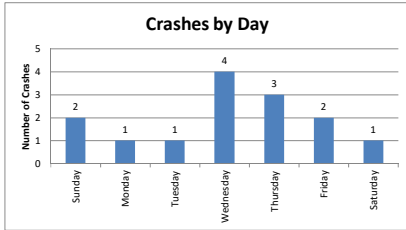
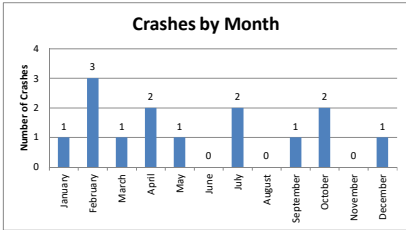
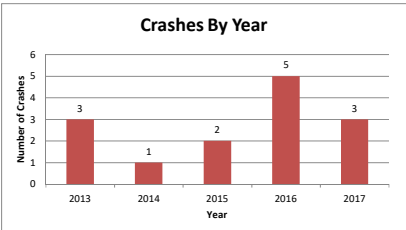
Other Crash Characteristics



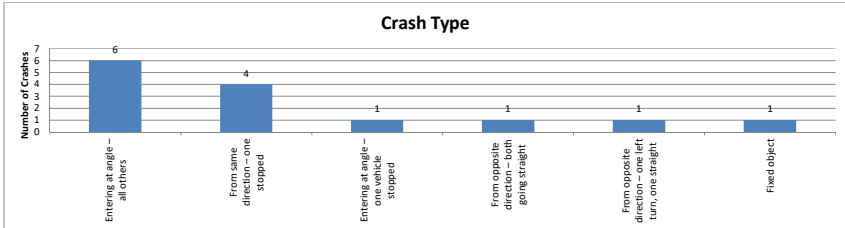
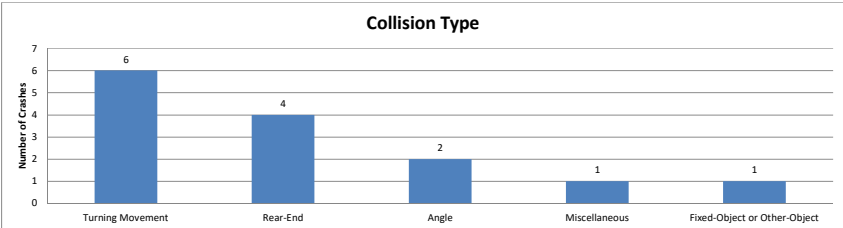
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Cordon Rd/ Gaffin Rd

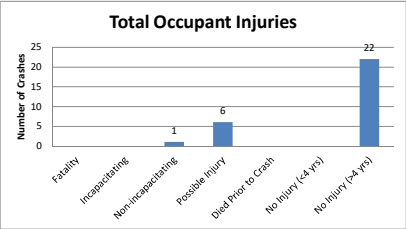
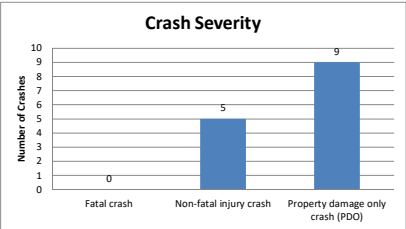
Crash Summary by Date and Time



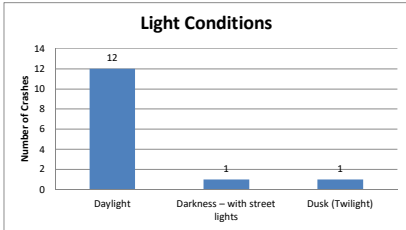
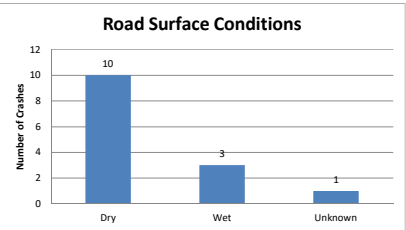
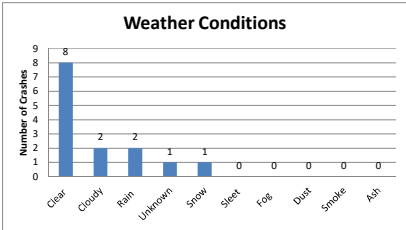
Crash Summary by Type



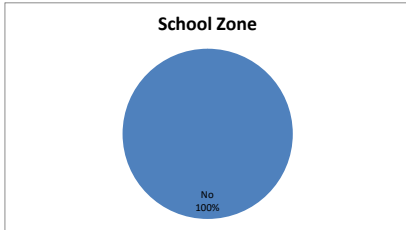
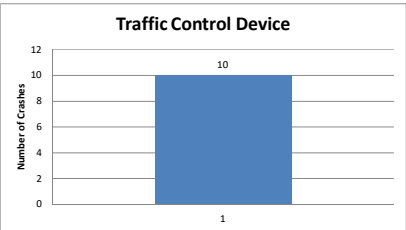
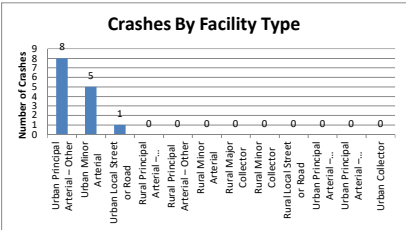
Crash Severity



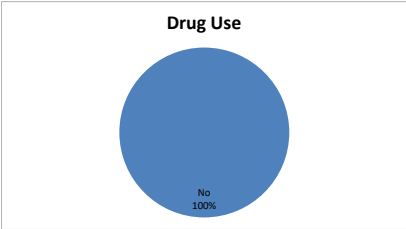
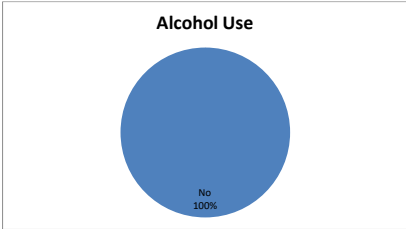
Crash Environment Characteristics



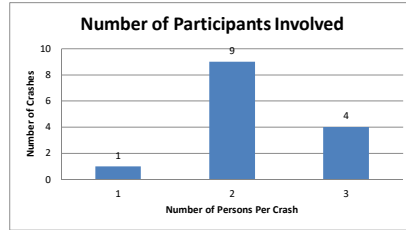
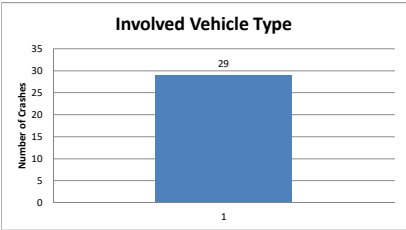
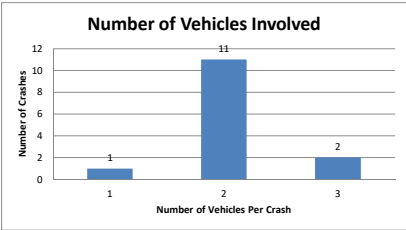
Crash Area Characteristics



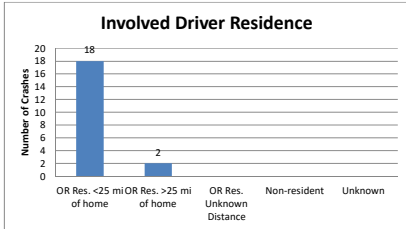
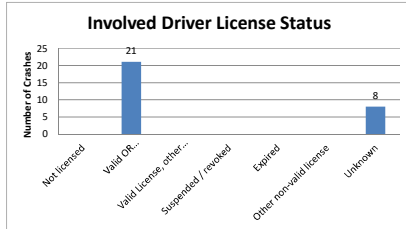
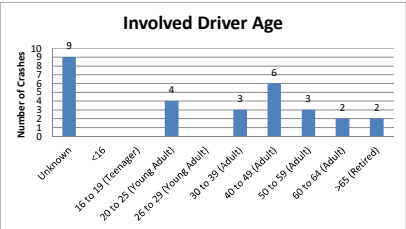
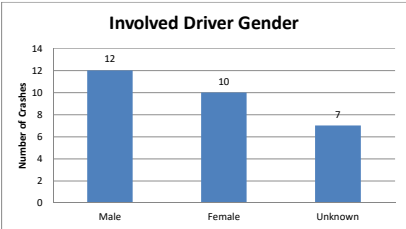
Driving Impairments



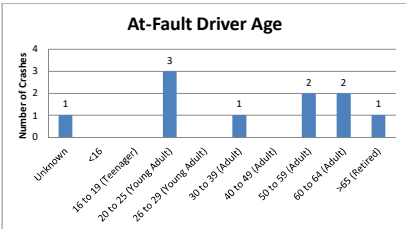
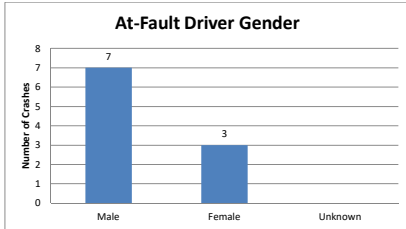
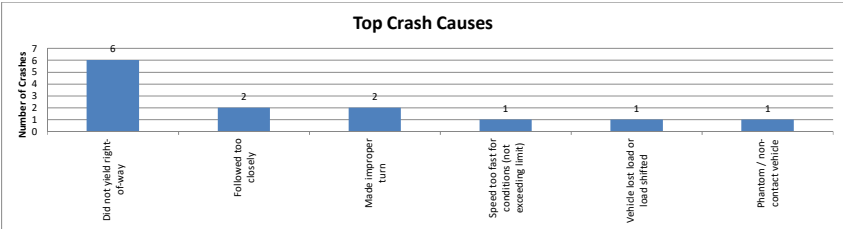
Vehicles and Occupants



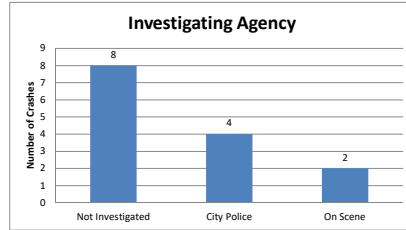
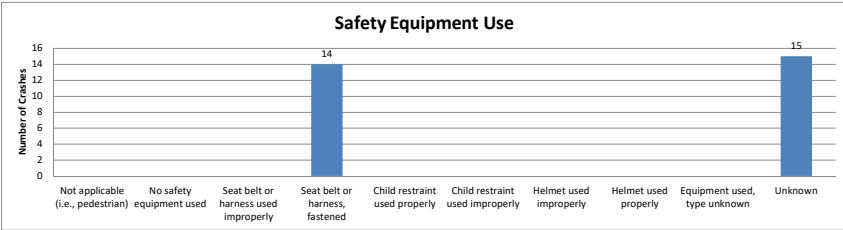
Involved Driver Characteristics



At-Fault Driver Characteristics



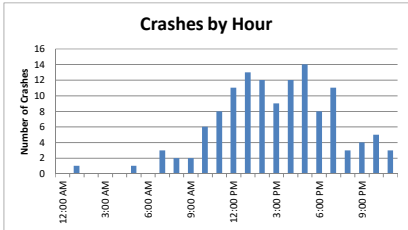
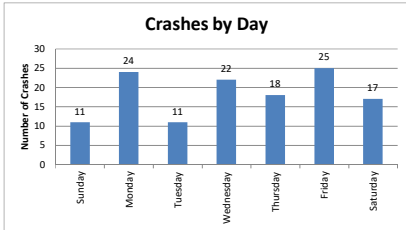
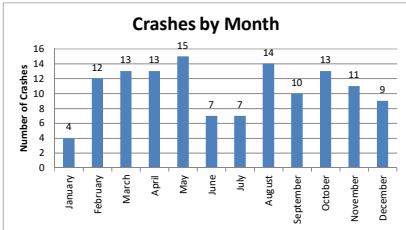
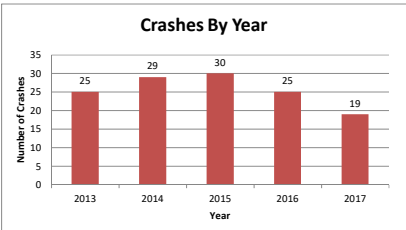
Other Crash Characteristics



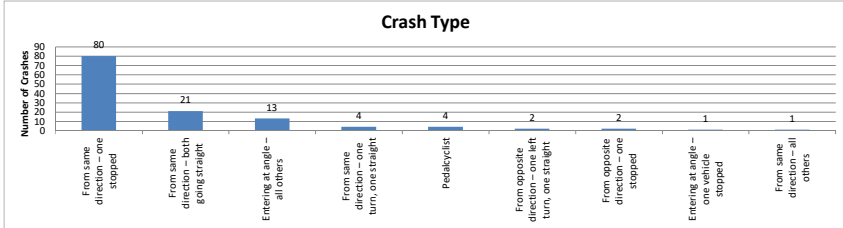
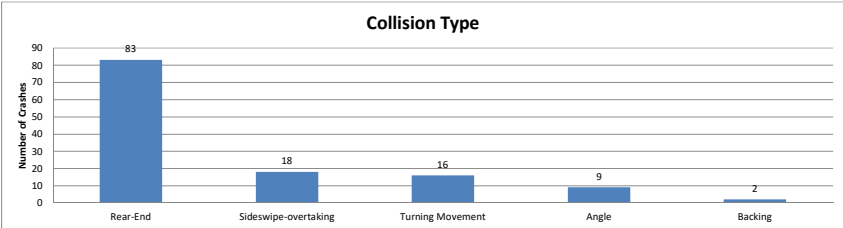
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Lancaster Ave/ Center St

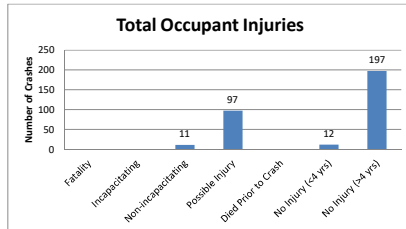
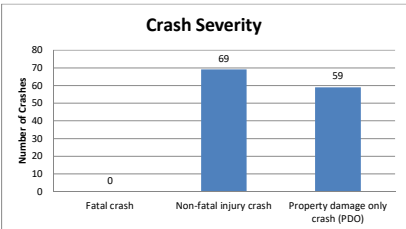
Crash Summary by Date and Time



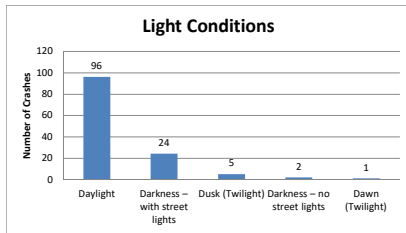
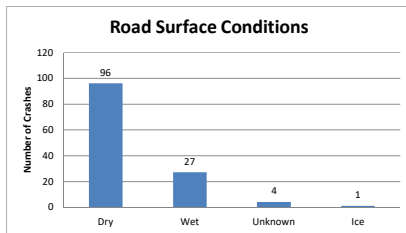
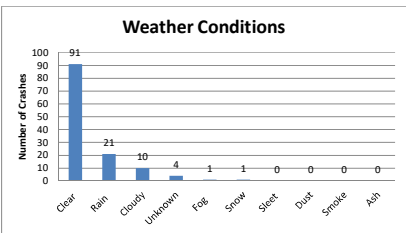
Crash Summary by Type



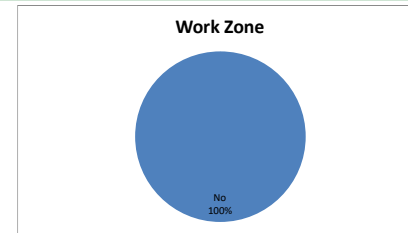
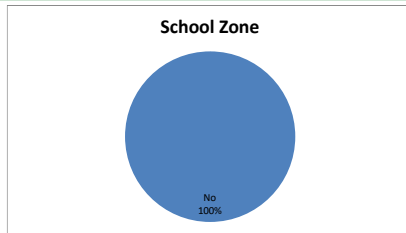
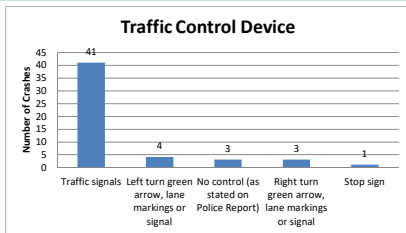
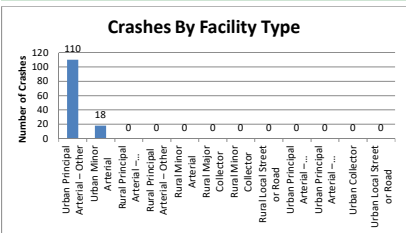
Crash Severity



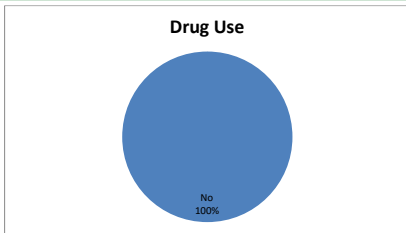
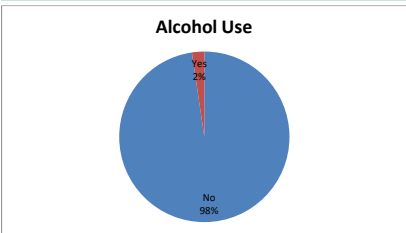
Crash Environment Characteristics



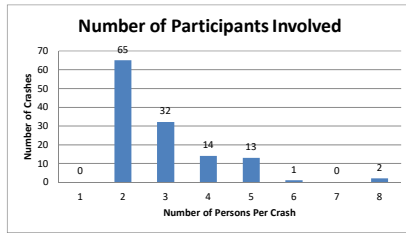
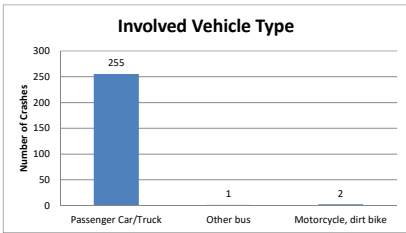
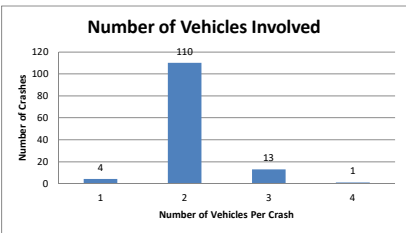
Crash Area Characteristics



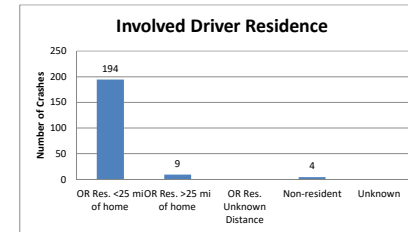
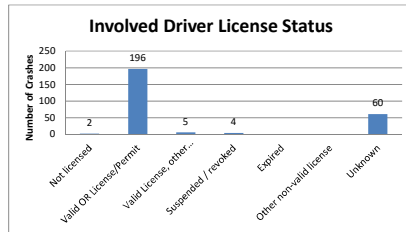
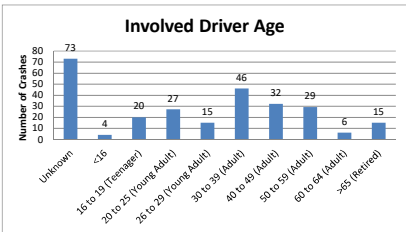
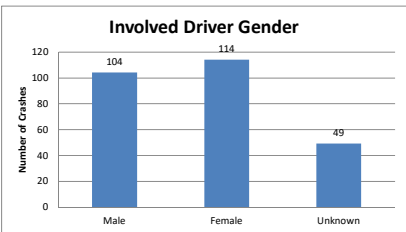
Driving Impairments



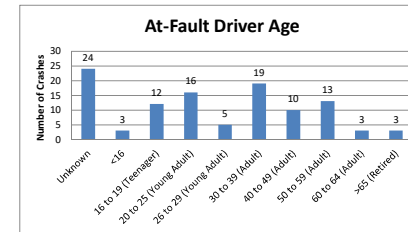
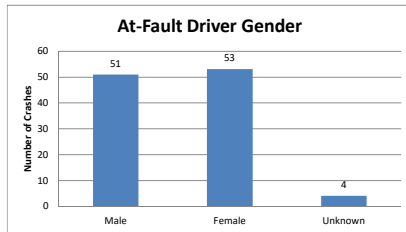
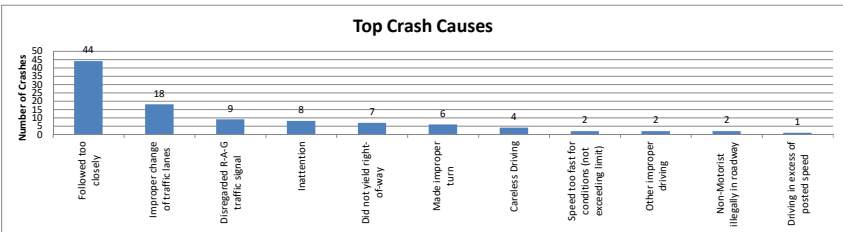
Vehicles and Occupants



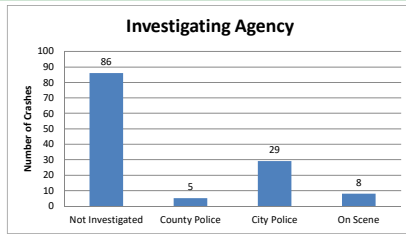
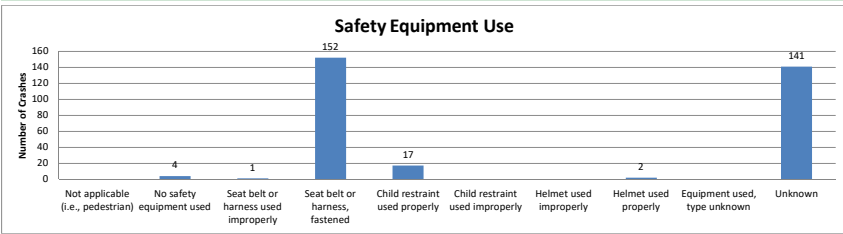
Involved Driver Characteristics



At-Fault Driver Characteristics



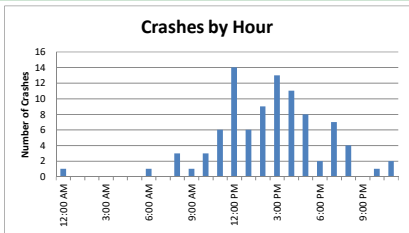
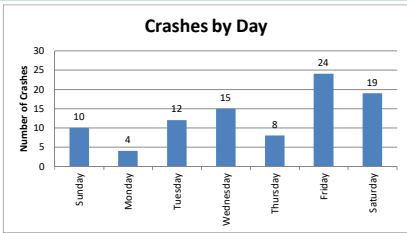
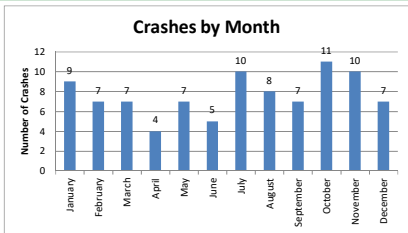
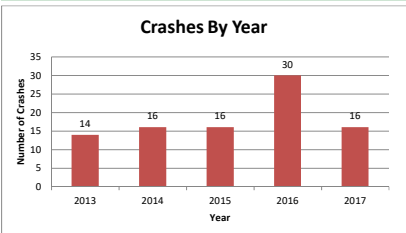
Other Crash Characteristics



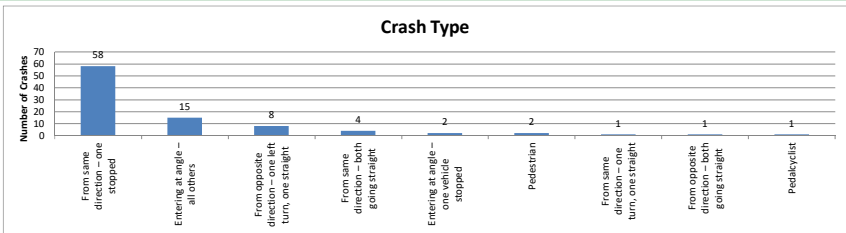
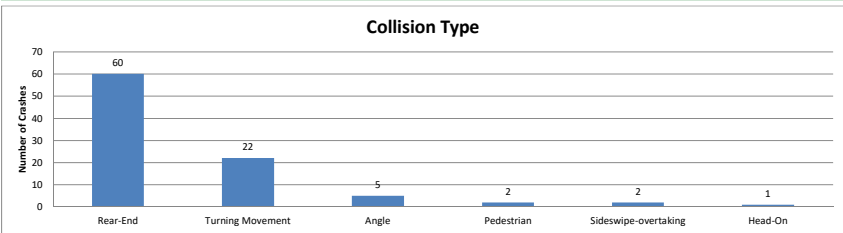
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Lancaster Ave/ Auburn Rd

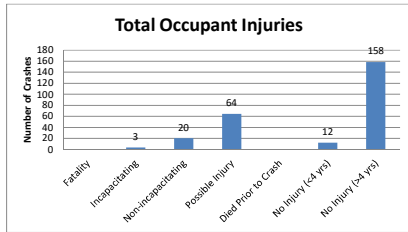
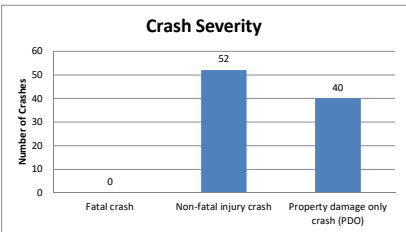
Crash Summary by Date and Time



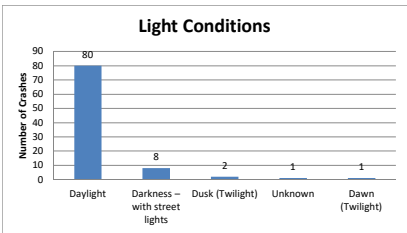
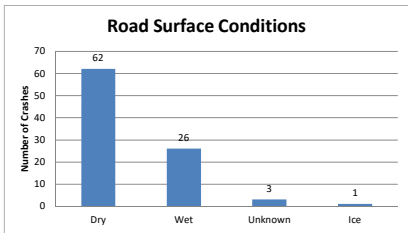
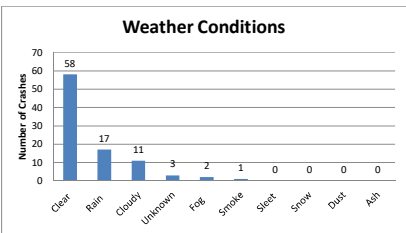
Crash Summary by Type



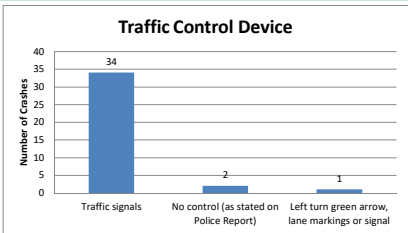
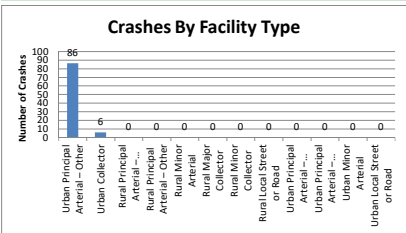
Crash Severity



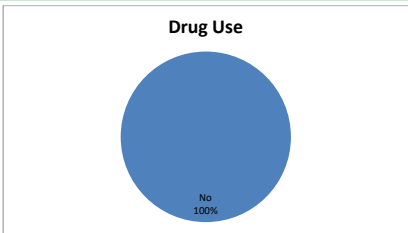
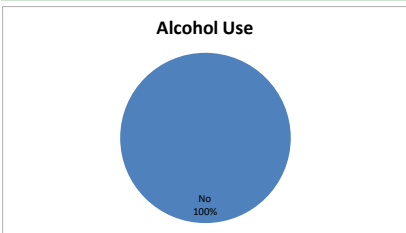
Crash Environment Characteristics



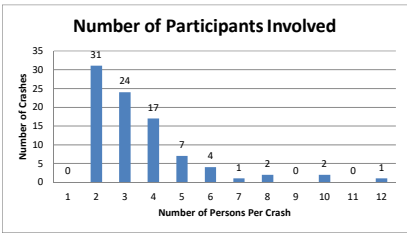
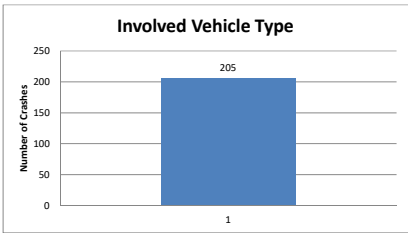
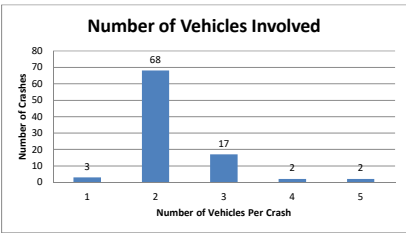
Crash Area Characteristics



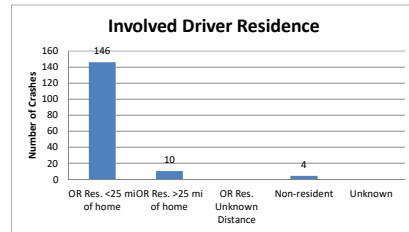
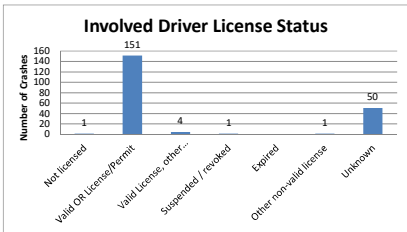
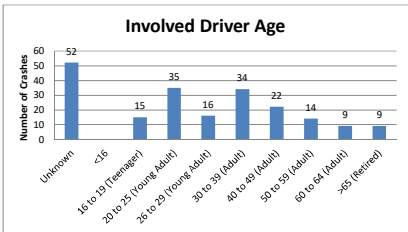
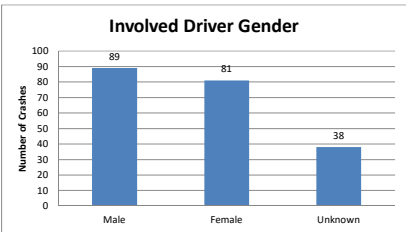
Driving Impairments



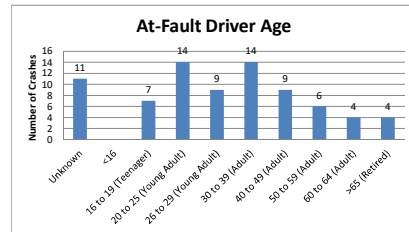
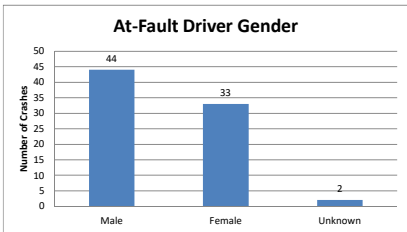
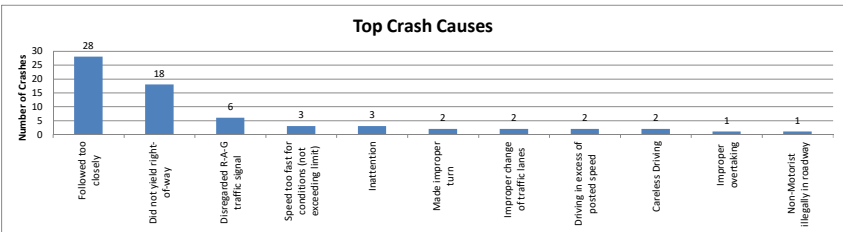
Vehicles and Occupants



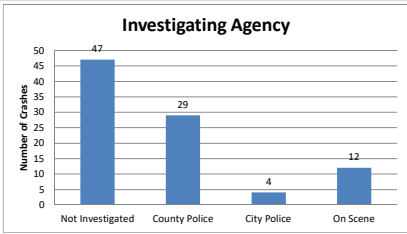
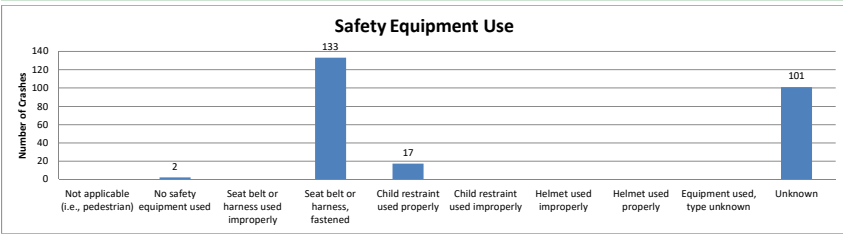
Involved Driver Characteristics



At-Fault Driver Characteristics



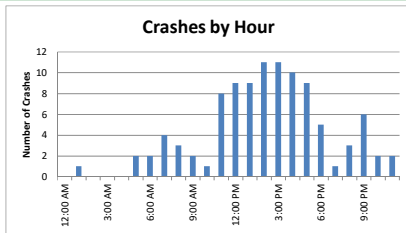
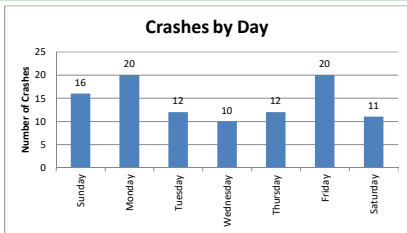
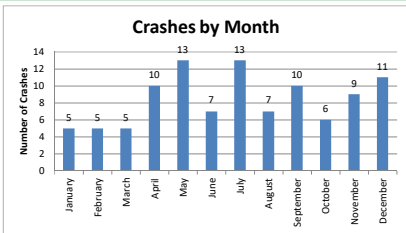
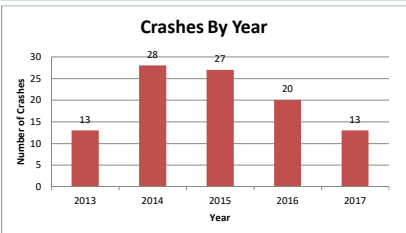
Other Crash Characteristics



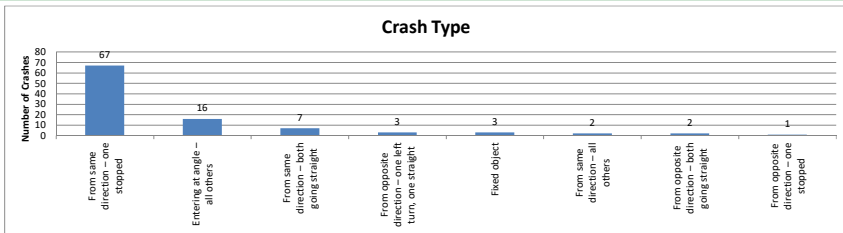
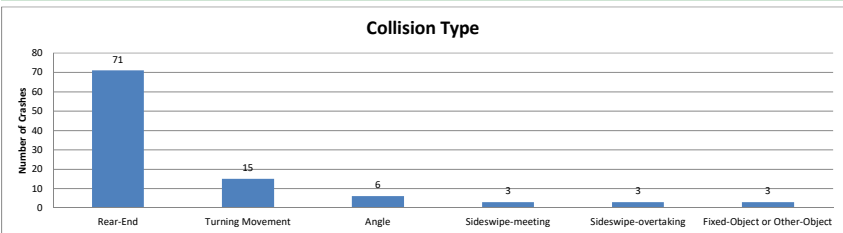
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Lancaster Ave/ State St

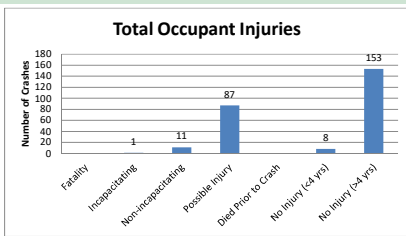
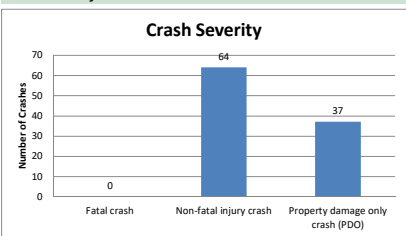
Crash Summary by Date and Time



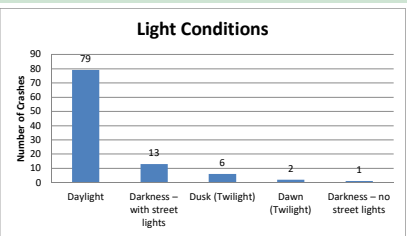
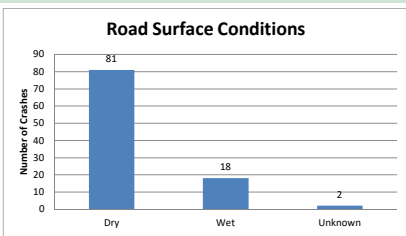
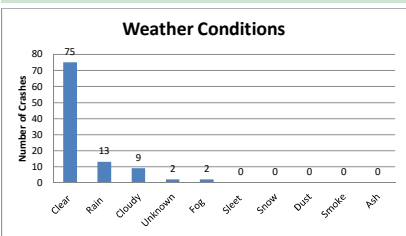
Crash Summary by Type



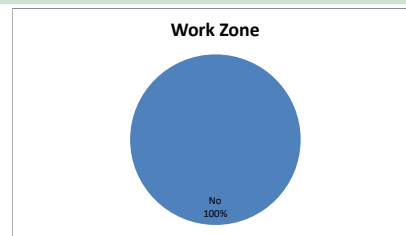
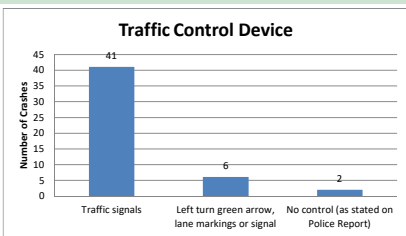
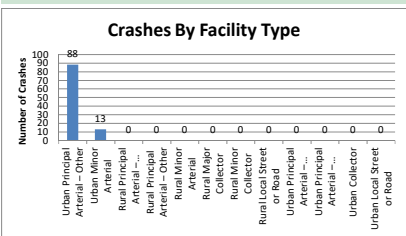
Crash Severity



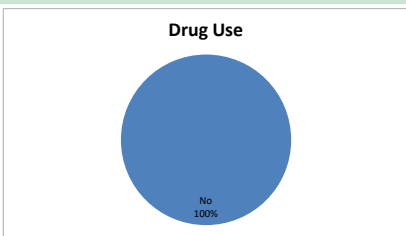
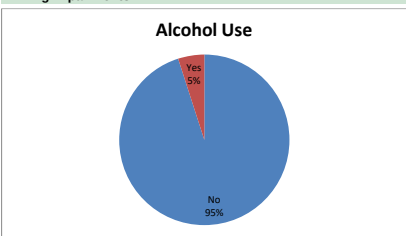
Crash Environment Characteristics



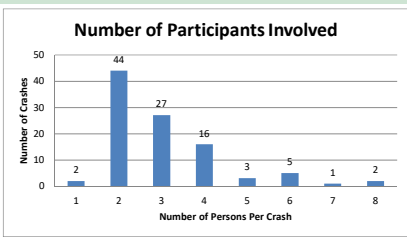
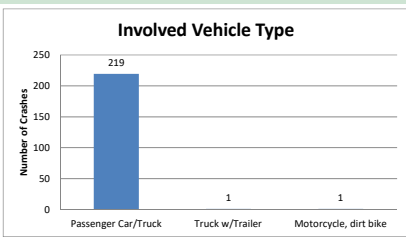
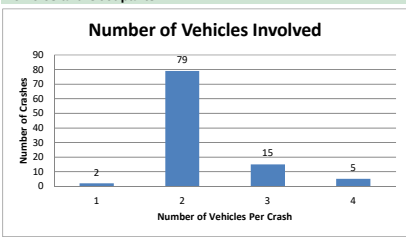
Crash Area Characteristics



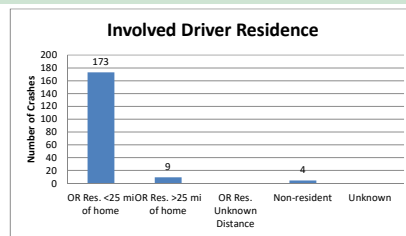
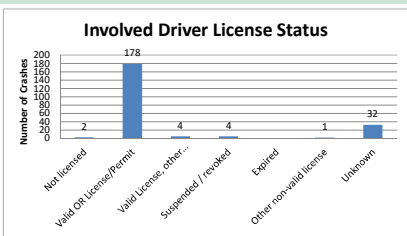
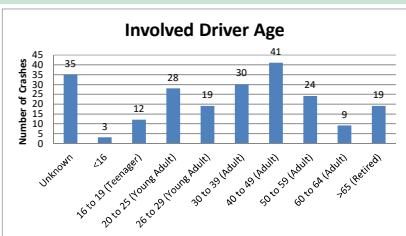
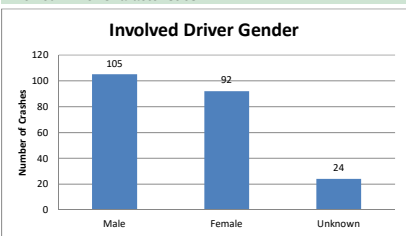
Driving Impairments



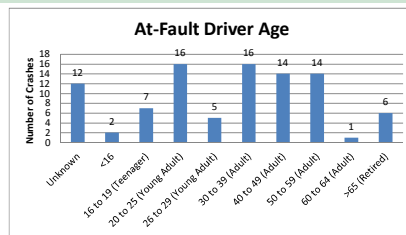
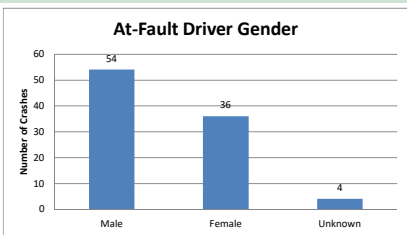
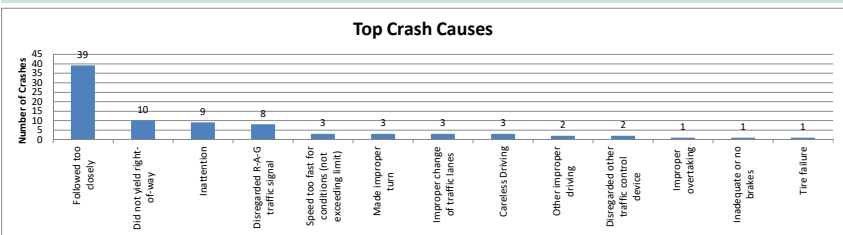
Vehicles and Occupants



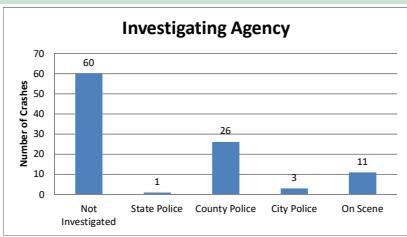
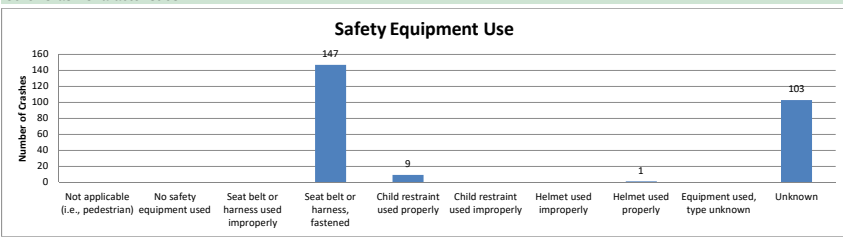
Involved Driver Characteristics



At-Fault Driver Characteristics



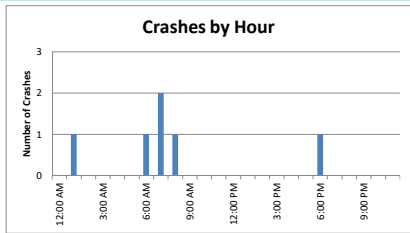
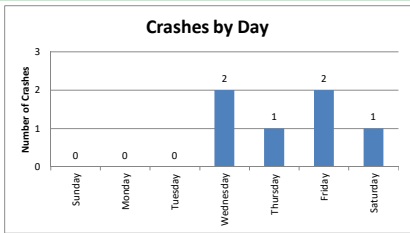
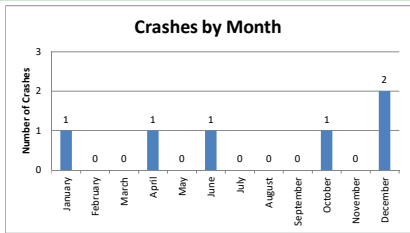
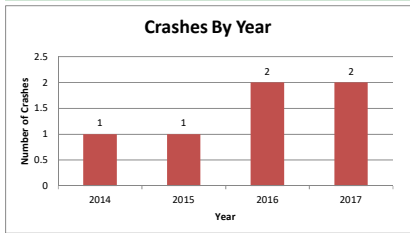
Other Crash Characteristics



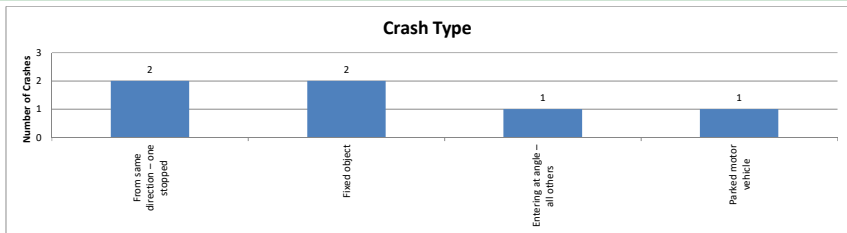
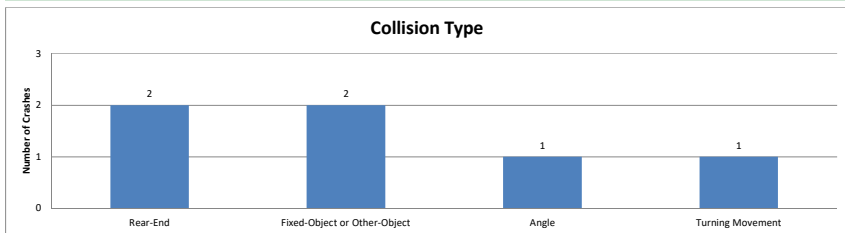
Project Name:	Pictsweet Master Plan
Project Number	1040
Query Information:	
Date Queried:	
Data Provider:	ODOT Crash Analysis Reporting Unit
Analyst:	JWW
Summary Date:	2/25/2019
Text File Name:	
Filters Applied:	: County: Marion

45th Ave/
Center St

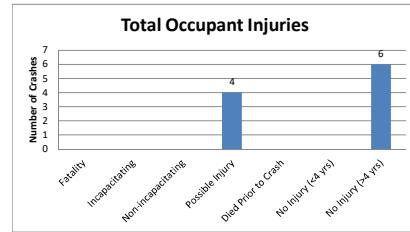
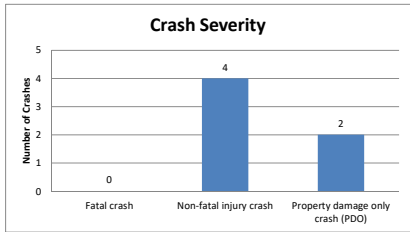
Crash Summary by Date and Time



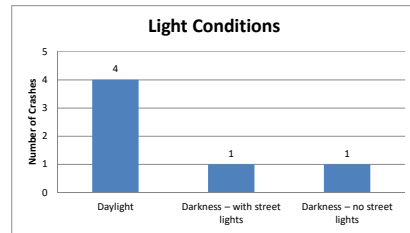
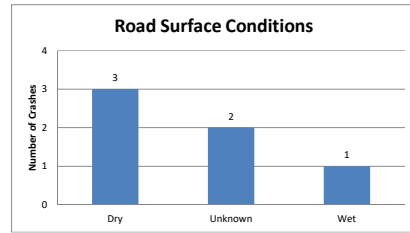
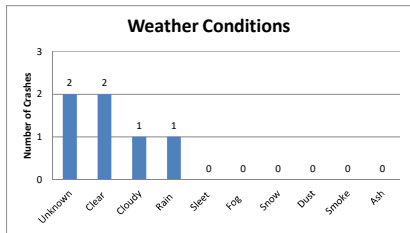
Crash Summary by Type



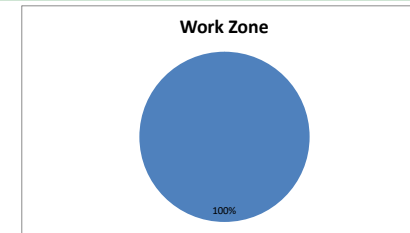
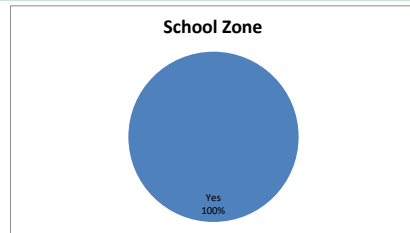
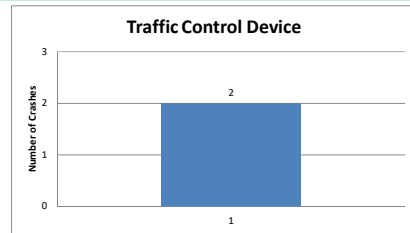
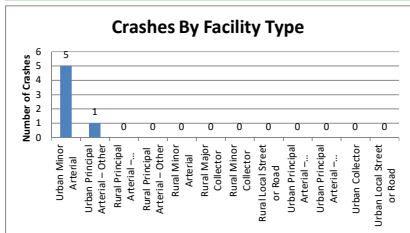
Crash Severity	
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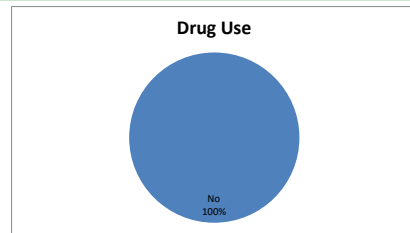
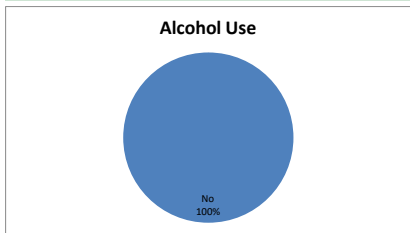
Crash Environment Characteristics



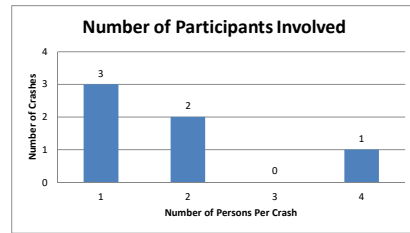
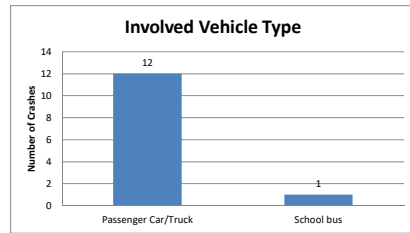
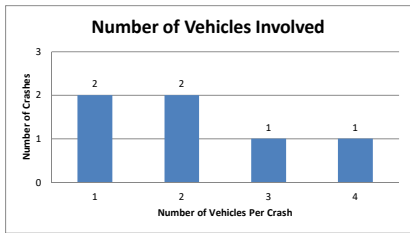
Crash Area Characteristics



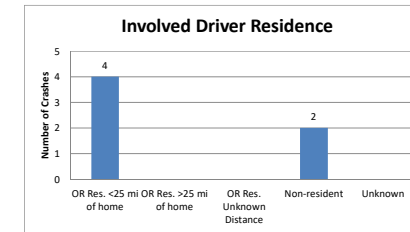
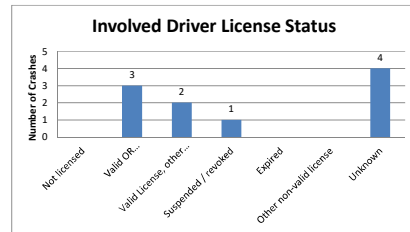
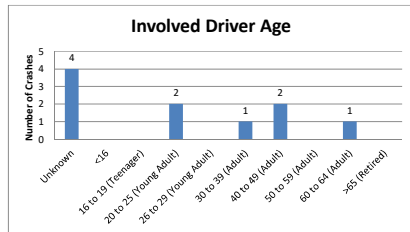
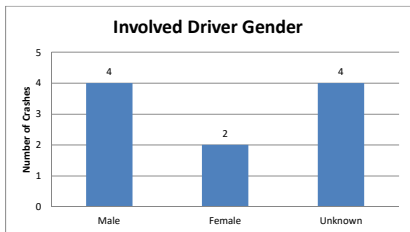
Driving Impairments



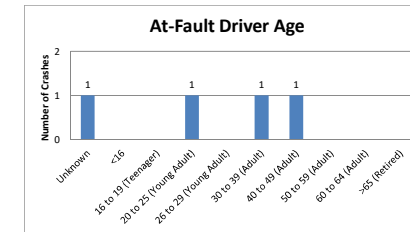
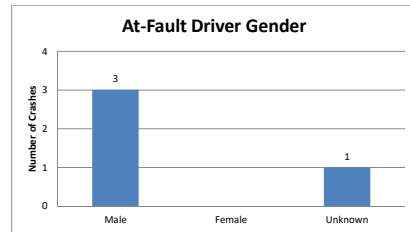
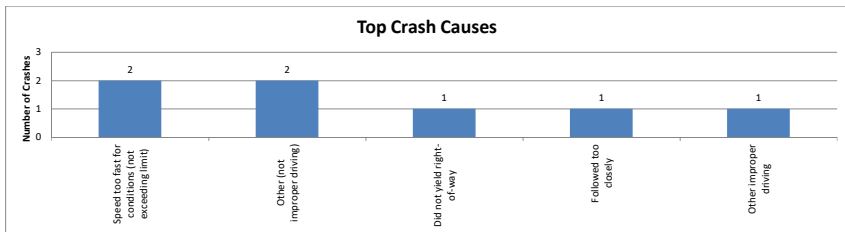
Vehicles and Occupants



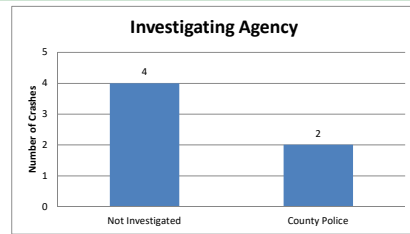
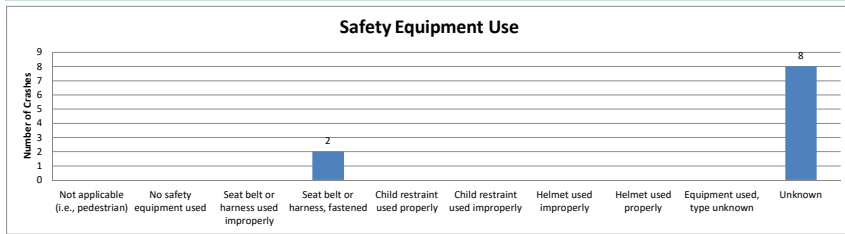
Involved Driver Characteristics	
Age	20-29
Gender	Male
Experience	1-4 years
Education	High school
Occupation	Student
Health	Good
Alcohol	0.02-0.05
Drugs	None
Seatbelt	Worn
Cellphone	Not used
Insurance	Valid
Vehicle	Passenger car
Location	Urban
Time	Daytime
Weather	Clear
Lighting	Good
Signage	Clear
Other	None



At-Fault Driver Characteristics



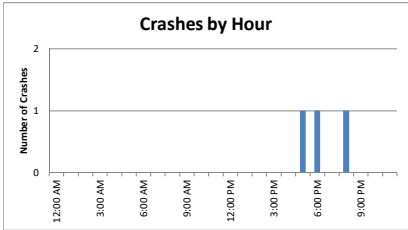
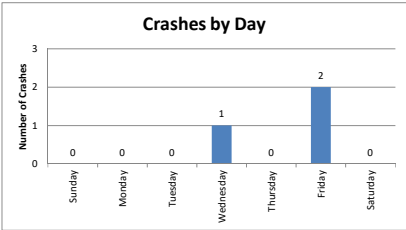
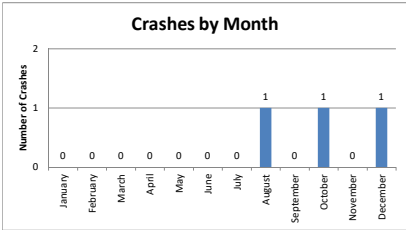
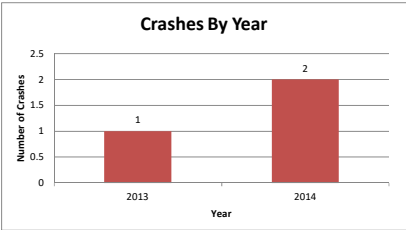
Other Crash Characteristics



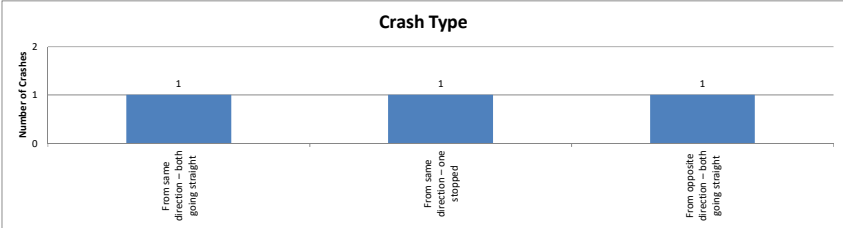
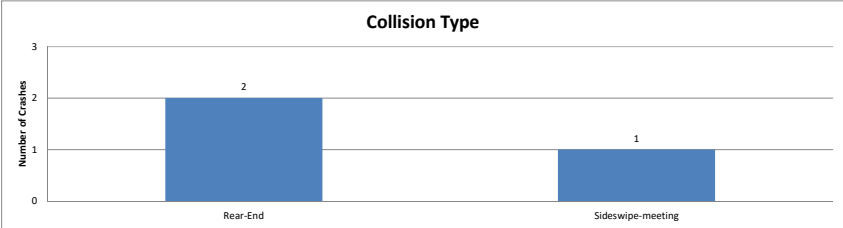
Project Name: Pictsweet Master Plan
Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

Greencrest St/ Auburn Rd

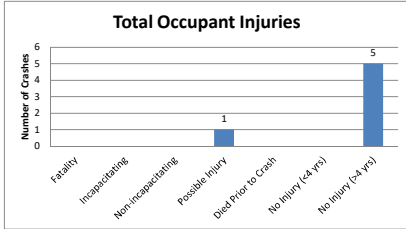
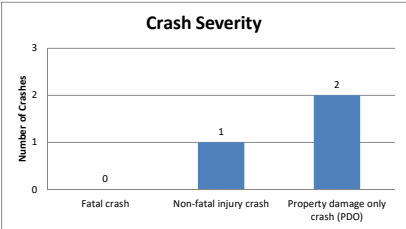
Crash Summary by Date and Time



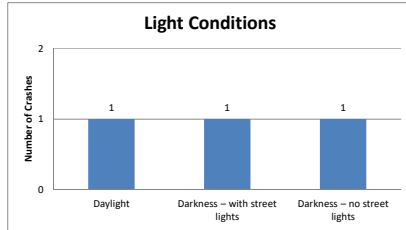
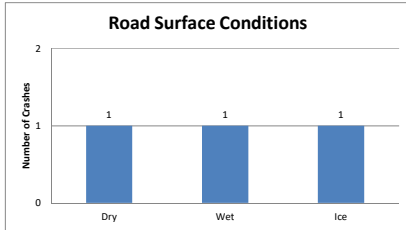
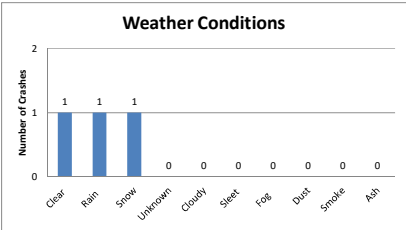
Crash Summary by Type



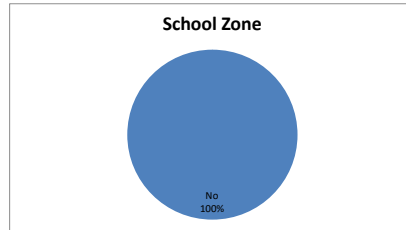
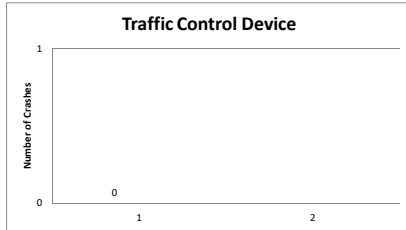
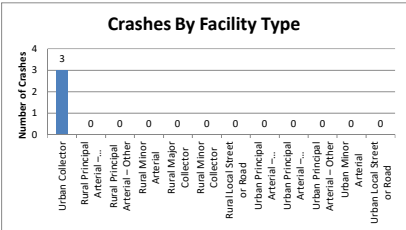
Crash Severity



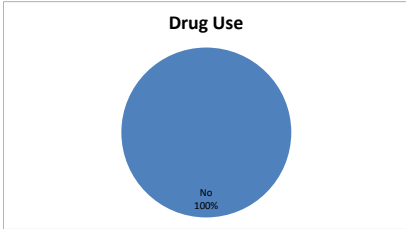
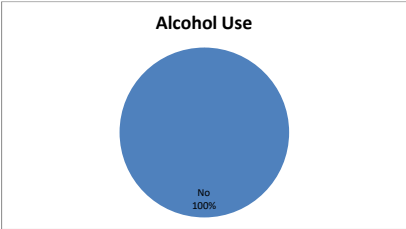
Crash Environment Characteristics



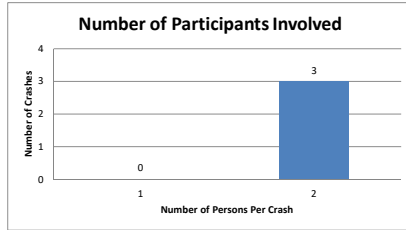
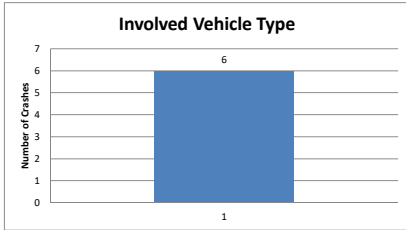
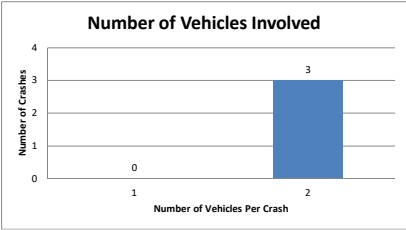
Crash Area Characteristics



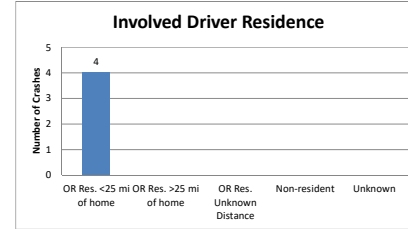
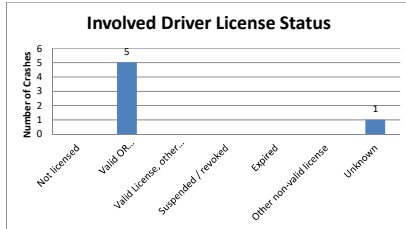
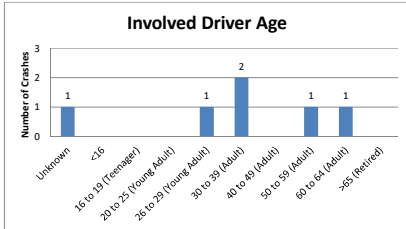
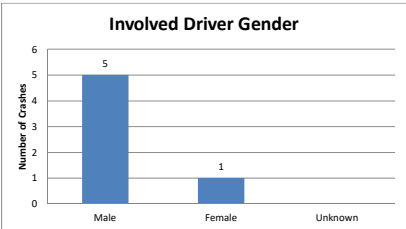
Driving Impairments



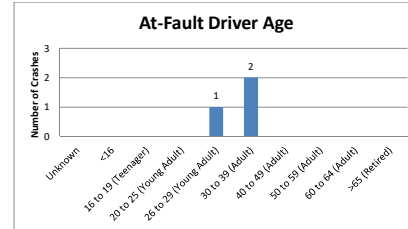
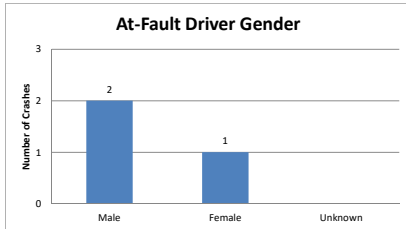
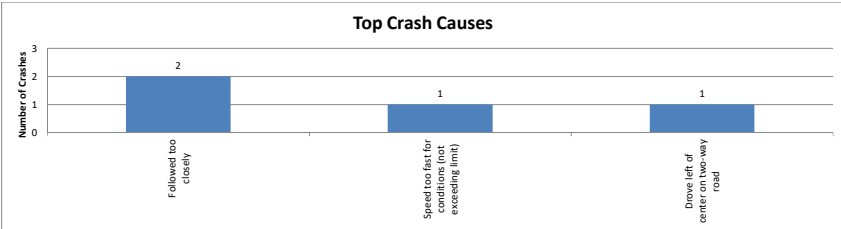
Vehicles and Occupants



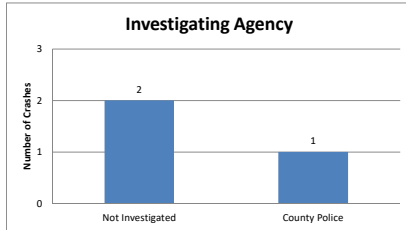
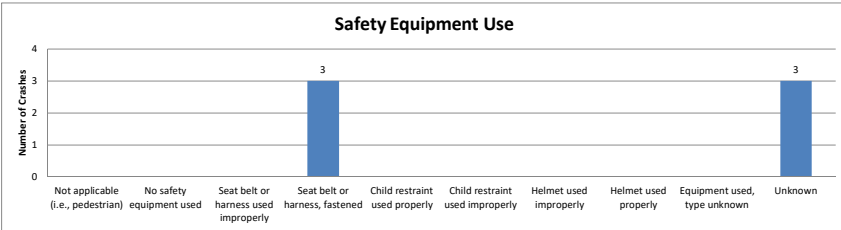
Involved Driver Characteristics



At-Fault Driver Characteristics



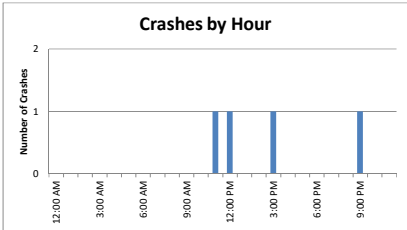
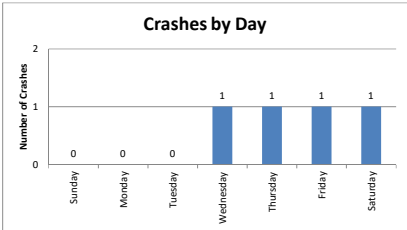
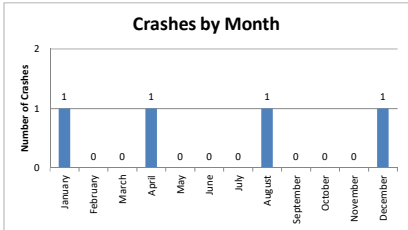
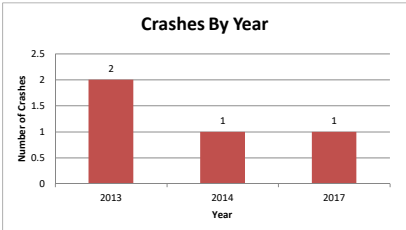
Other Crash Characteristics



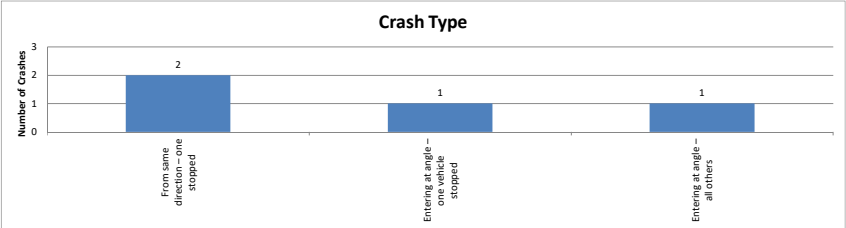
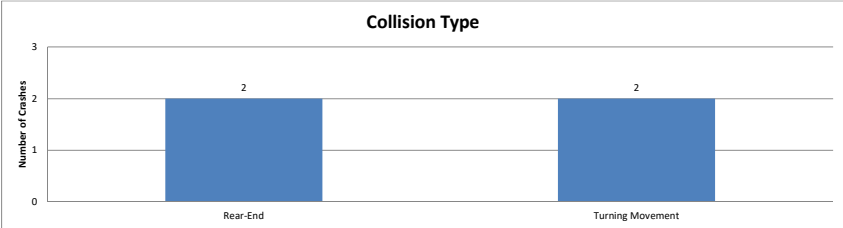
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Project Number: 1040
Query Information:
Data Queried:
Data Provider: ODOT Crash Analysis Reporting Unit
Analyst: JWW
Summary Date: 2/25/2019
Text File Name:
Filters Applied: : County: Marion

49th Ave/ State St

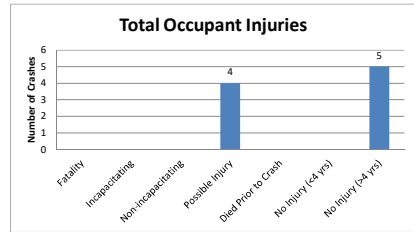
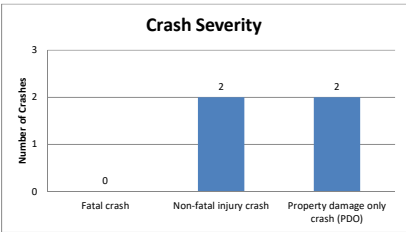
Crash Summary by Date and Time



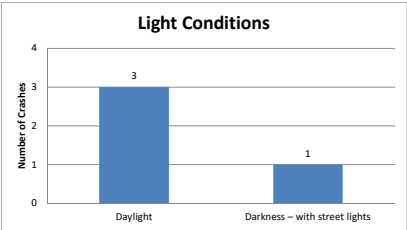
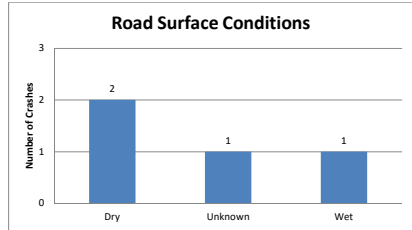
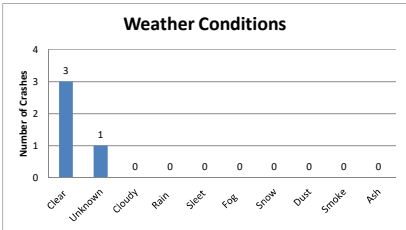
Crash Summary by Type



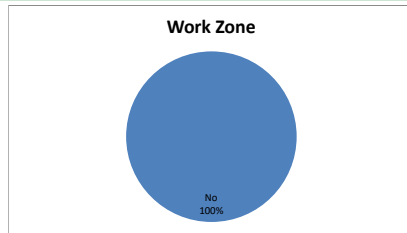
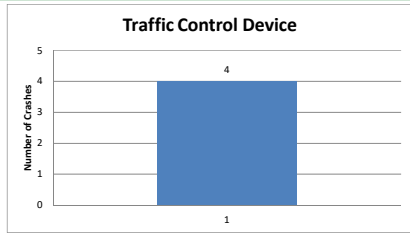
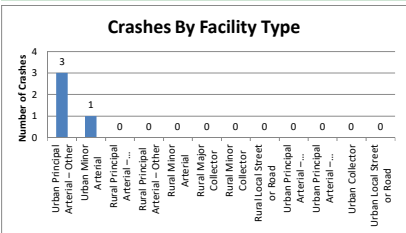
Crash Severity



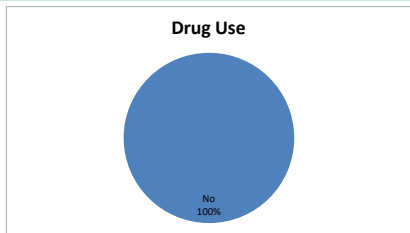
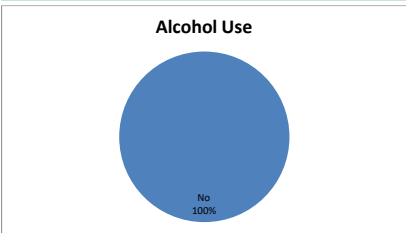
Crash Environment Characteristics



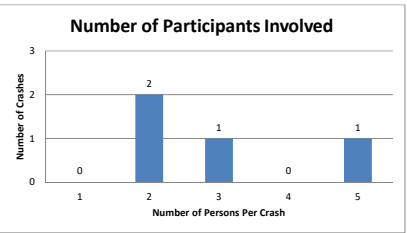
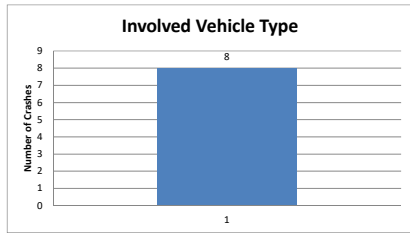
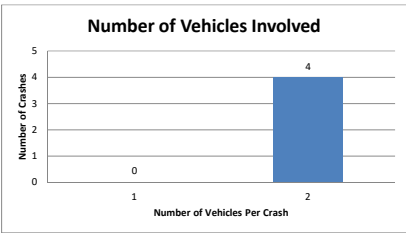
Crash Area Characteristics



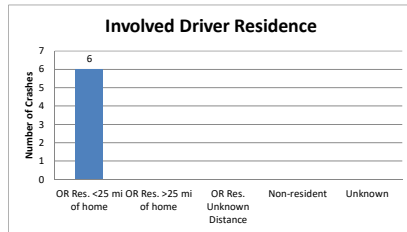
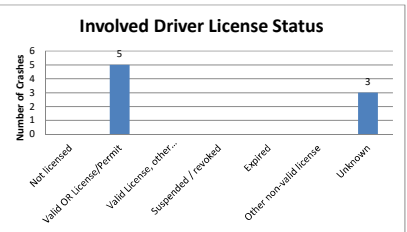
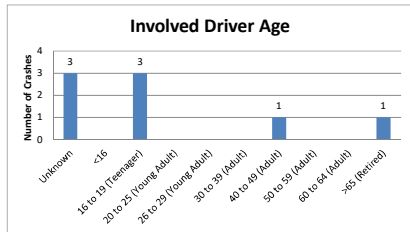
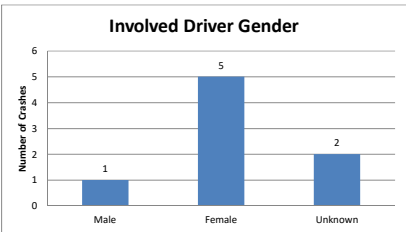
Driving Impairments



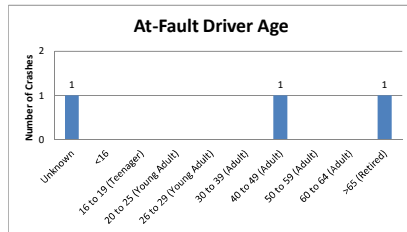
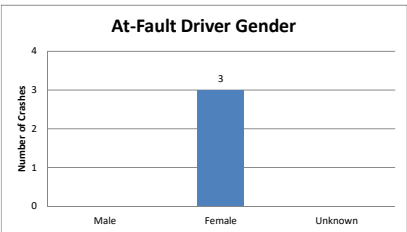
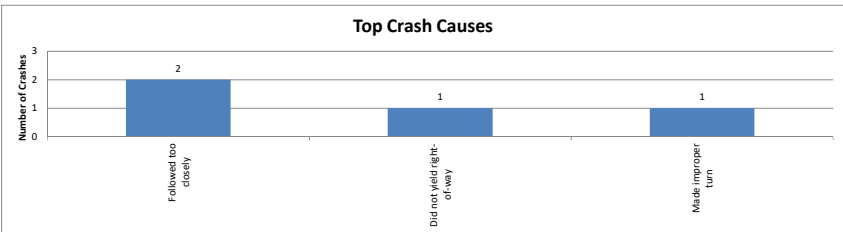
Vehicles and Occupants



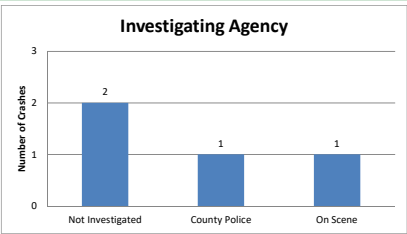
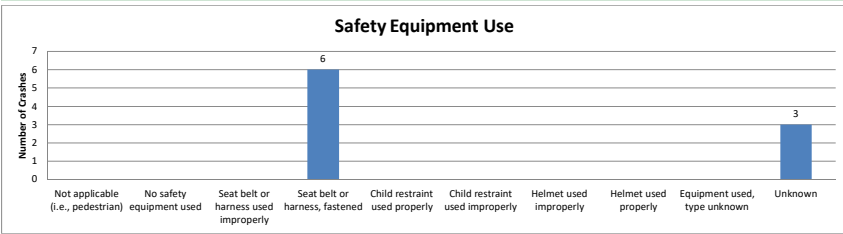
Involved Driver Characteristics



At-Fault Driver Characteristics



Other Crash Characteristics



Appendix C

Description of LOS Methods and Criteria

Appendix D
Year 2019 Existing Traffic Conditions
Operational Worksheets

HCM Signalized Intersection Capacity Analysis

1: Cordon Rd NE & Silverton Rd NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	172	130	215	332	3	175	280	152	11	328	100
Future Volume (vph)	65	172	130	215	332	3	175	280	152	11	328	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1583	2951		1629	3285		1598	1765	1404	1449	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1583	2951		1629	3285		1598	1765	1404	1449	1714	1457
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	198	149	247	382	3	201	322	175	13	377	115
RTOR Reduction (vph)	0	127	0	0	1	0	0	0	63	0	0	64
Lane Group Flow (vph)	75	220	0	247	384	0	201	322	112	13	377	51
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	8%	8%	9%	5%	4%	0%	7%	2%	9%	18%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	6.6	11.0		13.1	17.5		11.1	32.9	46.0	0.9	22.7	29.3
Effective Green, g (s)	6.6	11.0		13.1	17.5		11.1	32.9	46.0	0.9	22.7	29.3
Actuated g/C Ratio	0.09	0.14		0.17	0.23		0.15	0.43	0.61	0.01	0.30	0.39
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	137	427		281	757		233	765	850	17	512	562
v/s Ratio Prot	0.05	0.07		c0.15	c0.12		c0.13	0.18	0.02	0.01	c0.22	0.01
v/s Ratio Perm									0.06			0.03
v/c Ratio	0.55	0.51		0.88	0.51		0.86	0.42	0.13	0.76	0.74	0.09
Uniform Delay, d1	33.2	30.0		30.6	25.4		31.7	14.9	6.4	37.4	23.9	14.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.4		24.6	0.2		25.7	0.1	0.0	99.4	4.7	0.0
Delay (s)	35.6	30.4		55.2	25.6		57.3	15.0	6.4	136.8	28.6	14.9
Level of Service	D	C		E	C		E	B	A	F	C	B
Approach Delay (s)		31.3			37.2			25.0			28.3	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			30.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			75.9			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			65.4%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

1: Cordon Rd NE & Silverton Rd NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	172	130	215	332	3	175	280	152	11	328	100
Future Volume (veh/h)	65	172	130	215	332	3	175	280	152	11	328	100
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	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1688	1688	1688	1730	1744	1744	1702	1772	1674	1547	1730	1730
Adj Flow Rate, veh/h	75	198	149	247	382	3	201	322	175	13	377	115
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	5	4	4	7	2	9	18	5	5
Cap, veh/h	92	288	205	287	938	7	239	682	793	14	428	446
Arrive On Green	0.06	0.16	0.16	0.17	0.28	0.28	0.15	0.38	0.38	0.01	0.25	0.25
Sat Flow, veh/h	1607	1782	1271	1647	3369	26	1621	1772	1418	1474	1730	1466
Grp Volume(v), veh/h	75	177	170	247	188	197	201	322	175	13	377	115
Grp Sat Flow(s),veh/h/ln	1607	1603	1450	1647	1657	1739	1621	1772	1418	1474	1730	1466
Q Serve(g_s), s	3.1	6.9	7.4	9.7	6.1	6.2	8.1	9.1	4.1	0.6	14.0	3.9
Cycle Q Clear(g_c), s	3.1	6.9	7.4	9.7	6.1	6.2	8.1	9.1	4.1	0.6	14.0	3.9
Prop In Lane	1.00		0.88	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	259	234	287	461	484	239	682	793	14	428	446
V/C Ratio(X)	0.82	0.68	0.73	0.86	0.41	0.41	0.84	0.47	0.22	0.92	0.88	0.26
Avail Cap(c_a), veh/h	268	793	717	321	867	910	267	943	1002	122	778	743
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	26.3	26.5	26.8	19.6	19.6	27.7	15.4	7.4	33.0	24.2	17.5
Incr Delay (d2), s/veh	6.4	1.2	1.6	17.5	0.2	0.2	17.6	0.2	0.1	48.5	2.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.6	2.5	5.0	2.2	2.4	4.1	3.4	1.1	0.4	5.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	27.5	28.1	44.3	19.8	19.8	45.3	15.6	7.5	81.5	26.6	17.6
LnGrp LOS	D	C	C	D	B	B	D	B	A	F	C	B
Approach Vol, veh/h	422			632			698			505		
Approach Delay, s/veh	29.5			29.4			22.1			25.9		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.6	15.8	13.8	21.5	7.8	23.6	4.6	30.7				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	13.0	33.0	11.0	30.0	11.1	34.9	5.5	35.5				
Max Q Clear Time (g_c+l1), s	11.7	9.4	10.1	16.0	5.1	8.2	2.6	11.1				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.5	0.0	0.5	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	26.4											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	38	105	48	69	35	116	483	11	30	546	77
Future Volume (vph)	60	38	105	48	69	35	116	483	11	30	546	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	1538		1673	1636		1644	1760		1710	1725	
Flt Permitted	0.73	1.00		0.73	1.00		0.23	1.00		0.39	1.00	
Satd. Flow (perm)	1283	1538		1281	1636		406	1760		695	1725	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	42	117	53	77	39	129	537	12	33	607	86
RTOR Reduction (vph)	0	106	0	0	33	0	0	1	0	0	6	0
Lane Group Flow (vph)	67	53	0	53	83	0	129	548	0	33	687	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	2%	3%	2%	2%	4%	3%	4%	2%	0%	0%	2%	3%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	7.2	5.5		7.2	5.5		33.7	31.4		31.3	30.2	
Effective Green, g (s)	7.2	5.5		7.2	5.5		33.7	31.4		31.3	30.2	
Actuated g/C Ratio	0.12	0.09		0.12	0.09		0.57	0.53		0.53	0.51	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	168	144		168	153		281	941		389	887	
v/s Ratio Prot	c0.01	0.03		0.01	c0.05		c0.02	0.31		0.00	c0.40	
v/s Ratio Perm	0.04			0.03			0.24			0.04		
v/c Ratio	0.40	0.37		0.32	0.54		0.46	0.58		0.08	0.77	
Uniform Delay, d1	23.5	25.0		23.3	25.4		7.6	9.2		6.7	11.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.6		0.4	2.1		0.4	0.6		0.0	3.9	
Delay (s)	24.1	25.5		23.7	27.5		8.0	9.8		6.8	15.4	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		25.1			26.3			9.5			15.0	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			58.7			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			70.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	38	105	48	69	35	116	483	11	30	546	77
Future Volume (veh/h)	60	38	105	48	69	35	116	483	11	30	546	77
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	1.00		0.97	1.00		1.00	1.00		0.98
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	1772	1758	1758	1772	1744	1744	1744	1772	1772	1800	1772	1772
Adj Flow Rate, veh/h	67	42	117	53	77	39	129	537	12	33	607	86
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	3	3	2	4	4	4	2	2	0	2	2
Cap, veh/h	283	57	160	238	141	72	250	792	18	344	645	91
Arrive On Green	0.05	0.14	0.14	0.04	0.13	0.13	0.05	0.46	0.46	0.02	0.43	0.43
Sat Flow, veh/h	1688	408	1136	1688	1079	546	1661	1726	39	1714	1513	214
Grp Volume(v), veh/h	67	0	159	53	0	116	129	0	549	33	0	693
Grp Sat Flow(s),veh/h/ln	1688	0	1544	1688	0	1625	1661	0	1765	1714	0	1728
Q Serve(g_s), s	1.9	0.0	5.5	1.5	0.0	3.7	2.4	0.0	13.5	0.6	0.0	21.2
Cycle Q Clear(g_c), s	1.9	0.0	5.5	1.5	0.0	3.7	2.4	0.0	13.5	0.6	0.0	21.2
Prop In Lane	1.00		0.74	1.00		0.34	1.00		0.02	1.00		0.12
Lane Grp Cap(c), veh/h	283	0	217	238	0	213	250	0	810	344	0	737
V/C Ratio(X)	0.24	0.00	0.73	0.22	0.00	0.55	0.52	0.00	0.68	0.10	0.00	0.94
Avail Cap(c_a), veh/h	299	0	419	271	0	441	250	0	810	400	0	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	0.0	22.8	20.1	0.0	22.5	12.9	0.0	11.8	9.9	0.0	15.2
Incr Delay (d2), s/veh	0.2	0.0	1.8	0.2	0.0	0.8	0.8	0.0	1.9	0.0	0.0	18.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.9	0.6	0.0	1.4	0.8	0.0	4.8	0.2	0.0	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	0.0	24.5	20.3	0.0	23.3	13.7	0.0	13.6	9.9	0.0	33.5
LnGrp LOS	B	A	C	C	A	C	B	A	B	A	A	C
Approach Vol, veh/h	226			169			678			726		
Approach Delay, s/veh	23.1			22.3			13.6			32.4		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	29.6	6.5	12.2	5.2	31.4	5.9	12.8				
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0				
Max Green Setting (Gmax), s	3.0	25.0	3.0	15.0	3.0	25.0	3.0	15.0				
Max Q Clear Time (g_c+I1), s	4.4	23.2	3.9	5.7	2.6	15.5	3.5	7.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.1	0.0	0.7	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	23.2											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	29	8	48	4	3	0	61	581	3	7	635	57
Future Vol, veh/h	29	8	48	4	3	0	61	581	3	7	635	57
Conflicting Peds, #/hr	0	0	1	1	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	0	0	0	2	5	0	0	7	2
Mvmt Flow	32	9	53	4	3	0	67	638	3	8	698	63

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1522	1522	732	1552	1552	640	762	0	0	641	0	0
Stage 1	747	747	-	774	774	-	-	-	-	-	-	-
Stage 2	775	775	-	778	778	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	98	120	415	93	115	479	850	-	-	953	-	-
Stage 1	408	423	-	394	411	-	-	-	-	-	-	-
Stage 2	394	411	-	392	410	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	89	110	414	71	105	479	849	-	-	953	-	-
Mov Cap-2 Maneuver	89	110	-	71	105	-	-	-	-	-	-	-
Stage 1	375	419	-	363	379	-	-	-	-	-	-	-
Stage 2	360	379	-	332	406	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	52	53.4	0.9	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	849	-	-	165	82	953	-
HCM Lane V/C Ratio	0.079	-	-	0.566	0.094	0.008	-
HCM Control Delay (s)	9.6	-	-	52	53.4	8.8	-
HCM Lane LOS	A	-	-	F	F	A	-
HCM 95th %tile Q(veh)	0.3	-	-	2.9	0.3	0	-

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	46	107	46	74	28	104	580	22	34	566	92
Future Volume (vph)	56	46	107	46	74	28	104	580	22	34	566	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1676	1765	1457	1644	1640		1660	1705		1710	1682	1485
Flt Permitted	0.68	1.00	1.00	0.72	1.00		0.31	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1209	1765	1457	1253	1640		534	1705		617	1682	1485
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	62	51	118	51	81	31	114	637	24	37	622	101
RTOR Reduction (vph)	0	0	104	0	23	0	0	1	0	0	0	37
Lane Group Flow (vph)	62	51	14	51	89	0	114	660	0	37	622	64
Heavy Vehicles (%)	2%	2%	5%	4%	3%	11%	3%	5%	5%	0%	7%	3%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	6.6	6.6	6.6	6.6	6.6		35.8	32.4		31.6	30.3	30.3
Effective Green, g (s)	6.6	6.6	6.6	6.6	6.6		35.8	32.4		31.6	30.3	30.3
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12		0.65	0.59		0.57	0.55	0.55
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	144	210	173	149	195		414	998		378	921	813
v/s Ratio Prot		0.03			c0.05		c0.02	c0.39		0.00	0.37	
v/s Ratio Perm	0.05		0.01	0.04			0.16			0.05		0.04
v/c Ratio	0.43	0.24	0.08	0.34	0.46		0.28	0.66		0.10	0.68	0.08
Uniform Delay, d1	22.6	22.1	21.7	22.4	22.7		4.6	7.7		5.4	9.0	5.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.2	0.1	1.0	1.2		0.1	1.3		0.0	1.6	0.0
Delay (s)	23.4	22.3	21.7	23.4	23.9		4.7	9.0		5.5	10.5	5.9
Level of Service	C	C	C	C	C		A	A		A	B	A
Approach Delay (s)		22.3			23.7			8.4			9.7	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			55.3			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			60.0%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 4: Cordon Rd NE & Center St NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	46	107	46	74	28	104	580	22	34	566	92
Future Volume (veh/h)	56	46	107	46	74	28	104	580	22	34	566	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1772	1772	1730	1744	1758	1758	1758	1730	1730	1800	1702	1758
Adj Flow Rate, veh/h	62	51	118	51	81	31	114	637	24	37	622	101
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	5	4	3	3	3	5	5	0	7	3
Cap, veh/h	295	281	232	328	192	73	332	744	28	298	699	612
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.45	0.45	0.03	0.41	0.41
Sat Flow, veh/h	1213	1772	1466	1134	1211	463	1674	1656	62	1714	1702	1490
Grp Volume(v), veh/h	62	51	118	51	0	112	114	0	661	37	622	101
Grp Sat Flow(s),veh/h/ln	1213	1772	1466	1134	0	1674	1674	0	1719	1714	1702	1490
Q Serve(g_s), s	2.0	1.0	3.0	1.7	0.0	2.5	1.6	0.0	14.1	0.5	13.9	1.8
Cycle Q Clear(g_c), s	4.4	1.0	3.0	2.7	0.0	2.5	1.6	0.0	14.1	0.5	13.9	1.8
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	295	281	232	328	0	265	332	0	772	298	699	612
V/C Ratio(X)	0.21	0.18	0.51	0.16	0.00	0.42	0.34	0.00	0.86	0.12	0.89	0.17
Avail Cap(c_a), veh/h	920	1193	987	911	0	1127	451	0	1346	485	1333	1167
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	14.9	15.7	16.1	0.0	15.5	8.9	0.0	10.1	8.7	11.2	7.6
Incr Delay (d2), s/veh	0.1	0.1	0.6	0.2	0.0	0.8	0.2	0.0	1.1	0.1	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.4	0.9	0.4	0.0	0.9	0.4	0.0	3.9	0.1	4.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	15.0	16.4	16.2	0.0	16.3	9.1	0.0	11.2	8.7	12.8	7.7
LnGrp LOS	B	B	B	B	A	B	A	A	B	A	B	A
Approach Vol, veh/h	231				163				775			
Approach Delay, s/veh	16.4				16.3				10.9			
Approach LOS	B				B				B			
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	11.5		6.6	22.8		11.5		5.0	24.3			
Change Period (Y+Rc), s	5.0		4.0	6.0		5.0		4.0	6.0			
Max Green Setting (Gmax), s	27.5		5.5	32.0		27.5		5.5	32.0			
Max Q Clear Time (g_c+I1), s	6.4		3.6	15.9		4.7		2.5	16.1			
Green Ext Time (p_c), s	0.1		0.0	0.9		0.6		0.0	1.0			
Intersection Summary												
HCM 6th Ctrl Delay	12.4											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	2	41	12	1	11	35	681	18	12	683	24
Future Vol, veh/h	14	2	41	12	1	11	35	681	18	12	683	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	14	0	7	0	0	0	0	5	22	0	7	0
Mvmt Flow	16	2	46	13	1	12	39	757	20	13	759	27
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1651	1654	773	1668	1657	767	786	0	0	777	0	0
Stage 1	799	799	-	845	845	-	-	-	-	-	-	-
Stage 2	852	855	-	823	812	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.5	6.27	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4	3.363	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	74	99	391	77	99	405	842	-	-	848	-	-
Stage 1	362	401	-	360	382	-	-	-	-	-	-	-
Stage 2	338	378	-	371	395	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	93	391	64	93	405	842	-	-	848	-	-
Mov Cap-2 Maneuver	68	93	-	64	93	-	-	-	-	-	-	-
Stage 1	345	395	-	343	364	-	-	-	-	-	-	-
Stage 2	312	361	-	321	389	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	37.6		50		0.5		0.2					
HCM LOS	E		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	842	-	-	172	106	848	-	-				
HCM Lane V/C Ratio	0.046	-	-	0.368	0.252	0.016	-	-				
HCM Control Delay (s)	9.5	-	-	37.6	50	9.3	-	-				
HCM Lane LOS	A	-	-	E	F	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.9	0	-	-				

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	68	40	64	163	85	52	514	51	52	480	208
Future Volume (vph)	142	68	40	64	163	85	52	514	51	52	480	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1628	1646		1583	1588		1644	1684		1474	1682	1469
Flt Permitted	0.37	1.00		0.68	1.00		0.27	1.00		0.17	1.00	1.00
Satd. Flow (perm)	629	1646		1131	1588		463	1684		260	1682	1469
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	161	77	45	73	185	97	59	584	58	59	545	236
RTOR Reduction (vph)	0	23	0	0	22	0	0	4	0	0	0	127
Lane Group Flow (vph)	161	99	0	73	260	0	59	638	0	59	545	109
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	5%	1%	5%	8%	6%	8%	4%	5%	10%	16%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	24.4	18.7		20.8	16.9		34.4	31.9		34.8	32.1	32.1
Effective Green, g (s)	24.4	18.7		20.8	16.9		34.4	31.9		34.8	32.1	32.1
Actuated g/C Ratio	0.32	0.24		0.27	0.22		0.45	0.41		0.45	0.42	0.42
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	272	398		327	347		244	695		159	699	610
v/s Ratio Prot	c0.04	0.06		0.01	c0.16		0.01	c0.38		c0.01	0.32	
v/s Ratio Perm	0.14			0.05			0.10			0.15		0.07
v/c Ratio	0.59	0.25		0.22	0.75		0.24	0.92		0.37	0.78	0.18
Uniform Delay, d1	20.5	23.6		21.6	28.2		13.6	21.4		14.8	19.5	14.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1		0.1	7.6		0.2	16.7		0.5	5.0	0.1
Delay (s)	22.8	23.7		21.7	35.7		13.7	38.1		15.3	24.5	14.3
Level of Service	C	C		C	D		B	D		B	C	B
Approach Delay (s)		23.2			32.9			36.1			21.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			28.1			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			77.2			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			74.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	68	40	64	163	85	52	514	51	52	480	208
Future Volume (veh/h)	142	68	40	64	163	85	52	514	51	52	480	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1730	1786	1786	1688	1716	1716	1744	1730	1730	1575	1702	1772
Adj Flow Rate, veh/h	161	77	45	73	185	97	59	584	58	59	545	236
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	1	1	8	6	6	4	5	5	16	7	2
Cap, veh/h	265	244	142	376	215	113	236	623	62	181	687	594
Arrive On Green	0.08	0.23	0.23	0.05	0.20	0.20	0.03	0.40	0.40	0.04	0.40	0.40
Sat Flow, veh/h	1647	1047	612	1607	1059	555	1661	1548	154	1500	1702	1470
Grp Volume(v), veh/h	161	0	122	73	0	282	59	0	642	59	545	236
Grp Sat Flow(s),veh/h/ln	1647	0	1658	1607	0	1614	1661	0	1702	1500	1702	1470
Q Serve(g_s), s	5.5	0.0	4.3	2.5	0.0	12.0	1.5	0.0	25.8	1.6	20.0	8.1
Cycle Q Clear(g_c), s	5.5	0.0	4.3	2.5	0.0	12.0	1.5	0.0	25.8	1.6	20.0	8.1
Prop In Lane	1.00		0.37	1.00		0.34	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	265	0	386	376	0	327	236	0	685	181	687	594
V/C Ratio(X)	0.61	0.00	0.32	0.19	0.00	0.86	0.25	0.00	0.94	0.33	0.79	0.40
Avail Cap(c_a), veh/h	265	0	508	424	0	495	309	0	885	246	887	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	22.6	20.9	0.0	27.4	14.8	0.0	20.4	16.8	18.6	15.1
Incr Delay (d2), s/veh	2.8	0.0	0.2	0.1	0.0	6.5	0.2	0.0	13.3	0.4	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.6	0.9	0.0	5.0	0.5	0.0	11.7	0.5	7.7	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	22.8	21.0	0.0	33.9	15.0	0.0	33.7	17.2	21.4	15.2
LnGrp LOS	C	A	C	C	A	C	B	A	C	B	C	B
Approach Vol, veh/h	283			355			701			840		
Approach Delay, s/veh	23.7			31.2			32.1			19.4		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	22.6	6.4	34.7	9.6	20.4	6.5	34.6				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.6	21.8	5.5	37.1	5.6	21.8	5.6	37.0				
Max Q Clear Time (g_c+l1), s	4.5	6.3	3.5	22.0	7.5	14.0	3.6	27.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	0.8	0.0	0.3	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	26.0											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	28	15	570	532	52
Future Vol, veh/h	47	28	15	570	532	52
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	4	7	5	9	10
Mvmt Flow	52	31	17	633	591	58
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1288	622	649	0	-	0
Stage 1	620	-	-	-	-	-
Stage 2	668	-	-	-	-	-
Critical Hdwy	6.46	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	177	483	914	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	174	482	914	-	-	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	502	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	29.4	0.2		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	914	-	229	-	-	
HCM Lane V/C Ratio	0.018	-	0.364	-	-	
HCM Control Delay (s)	9	-	29.4	-	-	
HCM Lane LOS	A	-	D	-	-	
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-	

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	0	9	4	4	4	2	495	0	4	480	68
Future Vol, veh/h	67	0	9	4	4	4	2	495	0	4	480	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	0	11	0	50	25	0	7	0	0	5	6
Mvmt Flow	78	0	10	5	5	5	2	576	0	5	558	79
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1193	1188	598	1193	1227	576	637	0	0	576	0	0
Stage 1	608	608	-	580	580	-	-	-	-	-	-	-
Stage 2	585	580	-	613	647	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.31	7.1	7	6.45	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.399	3.5	4.45	3.525	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	162	190	486	165	145	476	956	-	-	1007	-	-
Stage 1	479	489	-	504	431	-	-	-	-	-	-	-
Stage 2	494	503	-	483	400	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	155	188	486	160	143	476	956	-	-	1007	-	-
Mov Cap-2 Maneuver	155	188	-	160	143	-	-	-	-	-	-	-
Stage 1	478	485	-	502	430	-	-	-	-	-	-	-
Stage 2	482	501	-	469	397	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	47.5		24.8			0			0.1			
HCM LOS	E		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	956	-	-	169	196	1007	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.523	0.071	0.005	-	-				
HCM Control Delay (s)	8.8	0	-	47.5	24.8	8.6	0	-				
HCM Lane LOS	A	A	-	E	C	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	2.6	0.2	0	-	-				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	35	18	0	51	36	36	7	425	15	29	449	15
Future Volume (vph)	35	18	0	51	36	36	7	425	15	29	449	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1566			1655		1710	1689		1598	1693	
Flt Permitted		0.84			0.84		0.43	1.00		0.42	1.00	
Satd. Flow (perm)		1353			1416		781	1689		703	1693	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	20	0	57	40	40	8	472	17	32	499	17
RTOR Reduction (vph)	0	0	0	0	29	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	59	0	0	108	0	8	487	0	32	515	0
Heavy Vehicles (%)	14%	6%	0%	0%	8%	0%	0%	6%	7%	7%	6%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		5.8			5.8		21.7	21.2		23.3	22.0	
Effective Green, g (s)		5.8			5.8		21.7	21.2		23.3	22.0	
Actuated g/C Ratio		0.13			0.13		0.50	0.49		0.54	0.51	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		181			189		402	826		405	860	
v/s Ratio Prot							0.00	0.29		c0.00	c0.30	
v/s Ratio Perm		0.04			c0.08		0.01			0.04		
v/c Ratio		0.33			0.57		0.02	0.59		0.08	0.60	
Uniform Delay, d1		17.0			17.6		5.4	7.9		4.8	7.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			2.3		0.0	0.8		0.0	0.8	
Delay (s)		17.4			19.9		5.5	8.7		4.9	8.3	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		17.4			19.9			8.6			8.1	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.0									
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			43.3									
Intersection Capacity Utilization			42.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	18	0	51	36	36	7	425	15	29	449	15
Future Volume (veh/h)	35	18	0	51	36	36	7	425	15	29	449	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1716	1716	1716	1688	1688	1688	1800	1716	1716	1702	1716	1716
Adj Flow Rate, veh/h	39	20	0	57	40	0	8	472	17	32	499	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	6	6	6	8	8	8	0	6	6	7	6	6
Cap, veh/h	304	105	0	290	104		320	573	21	342	602	21
Arrive On Green	0.14	0.14	0.00	0.14	0.14	0.00	0.01	0.35	0.35	0.02	0.37	0.37
Sat Flow, veh/h	770	734	0	733	727	0	1714	1646	59	1621	1649	56
Grp Volume(v), veh/h	59	0	0	97	0	0	8	0	489	32	0	516
Grp Sat Flow(s),veh/h/ln	1503	0	0	1461	0	0	1714	0	1705	1621	0	1706
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.0	8.1	0.4	0.0	8.5
Cycle Q Clear(g_c), s	0.9	0.0	0.0	1.8	0.0	0.0	0.1	0.0	8.1	0.4	0.0	8.5
Prop In Lane	0.66		0.00	0.59		0.00	1.00		0.03	1.00		0.03
Lane Grp Cap(c), veh/h	409	0	0	394	0		320	0	594	342	0	623
V/C Ratio(X)	0.14	0.00	0.00	0.25	0.00		0.02	0.00	0.82	0.09	0.00	0.83
Avail Cap(c_a), veh/h	1372	0	0	1374	0		620	0	1291	598	0	1291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	12.1	0.0	0.0	7.5	0.0	9.2	7.3	0.0	8.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0	2.0	0.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	12.2	0.0	0.0	7.5	0.0	10.3	7.4	0.0	10.0
LnGrp LOS	B	A	A	B	A		A	A	B	A	A	B
Approach Vol, veh/h		59			97	A		497			548	
Approach Delay, s/veh		11.8			12.2			10.3			9.9	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.2	17.3		9.4	4.7	16.8		9.4				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.6	23.4		26.0	5.6	23.4		26.0				
Max Q Clear Time (g_c+I1), s	2.1	10.5		3.8	2.4	10.1		2.9				
Green Ext Time (p_c), s	0.0	0.7		0.1	0.0	0.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay 10.3
HCM 6th LOS B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

10: Cordon Rd SE & Gaffin Rd SE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	20	92	35	15	127	27	300	17	54	442	39
Future Volume (vph)	39	20	92	35	15	127	27	300	17	54	442	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	1540		1710	1504		1598	1689		1613	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.34	1.00		0.47	1.00	
Satd. Flow (perm)	1660	1540		1710	1504		568	1689		796	1708	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	48	24	112	43	18	155	33	366	21	66	539	48
RTOR Reduction (vph)	0	98	0	0	136	0	0	2	0	0	3	0
Lane Group Flow (vph)	48	38	0	43	37	0	33	385	0	66	584	0
Heavy Vehicles (%)	3%	0%	3%	0%	0%	4%	7%	6%	0%	6%	4%	5%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	1.9	6.8		1.8	6.7		27.7	26.3		30.3	27.6	
Effective Green, g (s)	1.9	6.8		1.8	6.7		27.7	26.3		30.3	27.6	
Actuated g/C Ratio	0.03	0.12		0.03	0.12		0.50	0.47		0.54	0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	56	188		55	181		308	798		473	847	
v/s Ratio Prot	c0.03	c0.02		0.03	0.02		0.00	0.23		c0.01	c0.34	
v/s Ratio Perm							0.05			0.07		
v/c Ratio	0.86	0.20		0.78	0.20		0.11	0.48		0.14	0.69	
Uniform Delay, d1	26.7	22.0		26.7	22.0		7.5	10.0		6.1	10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	68.3	0.2		47.4	0.2		0.1	0.2		0.0	1.9	
Delay (s)	95.0	22.1		74.1	22.2		7.6	10.2		6.2	12.6	
Level of Service	F	C		E	C		A	B		A	B	
Approach Delay (s)		41.1			32.6			10.0			11.9	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			55.6			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			57.8%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
10: Cordon Rd SE & Gaffin Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	20	92	35	15	127	27	300	17	54	442	39
Future Volume (veh/h)	39	20	92	35	15	127	27	300	17	54	442	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1758	1800	1800	1800	1800	1800	1702	1716	1716	1716	1744	1744
Adj Flow Rate, veh/h	48	24	112	43	18	155	33	366	21	66	539	48
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	0	0	0	0	0	7	6	6	6	4	4
Cap, veh/h	55	44	206	49	25	215	246	588	34	390	603	54
Arrive On Green	0.03	0.16	0.16	0.03	0.16	0.16	0.02	0.37	0.37	0.04	0.38	0.38
Sat Flow, veh/h	1674	277	1291	1714	161	1389	1621	1607	92	1634	1578	141
Grp Volume(v), veh/h	48	0	136	43	0	173	33	0	387	66	0	587
Grp Sat Flow(s),veh/h/ln	1674	0	1568	1714	0	1550	1621	0	1699	1634	0	1719
Q Serve(g_s), s	1.3	0.0	3.5	1.1	0.0	4.7	0.6	0.0	8.3	1.1	0.0	14.2
Cycle Q Clear(g_c), s	1.3	0.0	3.5	1.1	0.0	4.7	0.6	0.0	8.3	1.1	0.0	14.2
Prop In Lane	1.00		0.82	1.00		0.90	1.00		0.05	1.00		0.08
Lane Grp Cap(c), veh/h	55	0	250	49	0	240	246	0	622	390	0	657
V/C Ratio(X)	0.87	0.00	0.55	0.87	0.00	0.72	0.13	0.00	0.62	0.17	0.00	0.89
Avail Cap(c_a), veh/h	208	0	922	213	0	911	411	0	957	533	0	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	17.1	21.4	0.0	17.8	10.6	0.0	11.5	9.0	0.0	12.8
Incr Delay (d2), s/veh	14.3	0.0	0.7	15.5	0.0	1.5	0.1	0.0	0.4	0.1	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.2	0.6	0.0	1.6	0.2	0.0	2.5	0.3	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	0.0	17.8	36.8	0.0	19.3	10.7	0.0	11.9	9.1	0.0	18.4
LnGrp LOS	D	A	B	D	A	B	B	A	B	A	A	B
Approach Vol, veh/h	184			216			420			653		
Approach Delay, s/veh	22.4			22.8			11.8			17.5		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	22.9	5.5	10.9	5.7	22.2	5.3	11.0				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.5	25.0	5.5	26.0	5.6	24.9	5.5	26.0				
Max Q Clear Time (g_c+I1), s	2.6	16.2	3.3	6.7	3.1	10.3	3.1	5.5				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.3	0.0	0.5	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	17.2											
HCM 6th LOS	B											

HCM Signalized Intersection Capacity Analysis

11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	142	90	87	291	120	106	552	35	60	463	108
Future Volume (vph)	99	142	90	87	291	120	106	552	35	60	463	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	3081	1335	1527	3092		1644	3242		1660	3195	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1660	3081	1335	1527	3092		1644	3242		1660	3195	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	114	163	103	100	334	138	122	634	40	69	532	124
RTOR Reduction (vph)	0	0	75	0	45	0	0	3	0	0	12	0
Lane Group Flow (vph)	114	163	28	100	427	0	122	671	0	69	644	0
Confl. Peds. (#/hr)	6		8	8		6	7		9	9		7
Heavy Vehicles (%)	3%	11%	13%	12%	6%	3%	4%	4%	9%	3%	4%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	10.8	19.1	30.5	10.4	18.7		11.4	61.5		7.0	57.1	
Effective Green, g (s)	10.8	19.1	30.5	10.4	18.7		11.4	61.5		7.0	57.1	
Actuated g/C Ratio	0.09	0.17	0.27	0.09	0.16		0.10	0.54		0.06	0.50	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	157	516	404	139	507		164	1748		101	1600	
v/s Ratio Prot	c0.07	0.05	0.01	0.07	c0.14		c0.07	0.21		0.04	c0.20	
v/s Ratio Perm			0.01									
v/c Ratio	0.73	0.32	0.07	0.72	0.84		0.74	0.38		0.68	0.40	
Uniform Delay, d1	50.2	41.7	31.1	50.4	46.2		49.9	15.2		52.4	17.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.2	0.1	0.0	13.8	11.6		14.7	0.6		14.1	0.8	
Delay (s)	63.3	41.8	31.2	64.2	57.8		64.6	15.9		66.5	18.5	
Level of Service	E	D	C	E	E		E	B		E	B	
Approach Delay (s)		45.4			58.9			23.4			23.1	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			34.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			114.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			63.7%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan
02/25/2019

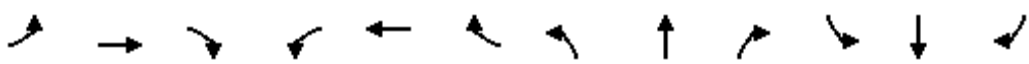
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	142	90	87	291	120	106	552	35	60	463	108
Future Volume (veh/h)	99	142	90	87	291	120	106	552	35	60	463	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
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	1758	1646	1617	1632	1716	1716	1744	1744	1744	1758	1744	1744
Adj Flow Rate, veh/h	114	163	103	100	334	138	122	634	40	69	532	124
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	11	13	12	6	6	4	4	4	3	4	4
Cap, veh/h	138	567	366	126	405	164	146	1726	109	87	1358	315
Arrive On Green	0.08	0.18	0.18	0.08	0.18	0.18	0.09	0.55	0.55	0.05	0.51	0.51
Sat Flow, veh/h	1674	3127	1353	1554	2254	913	1661	3163	199	1674	2666	619
Grp Volume(v), veh/h	114	163	103	100	240	232	122	332	342	69	330	326
Grp Sat Flow(s), veh/h/ln	1674	1563	1353	1554	1630	1537	1661	1657	1706	1674	1657	1629
Q Serve(g_s), s	7.6	5.1	6.9	7.2	16.1	16.7	8.2	13.0	13.0	4.6	13.9	14.0
Cycle Q Clear(g_c), s	7.6	5.1	6.9	7.2	16.1	16.7	8.2	13.0	13.0	4.6	13.9	14.0
Prop In Lane	1.00		1.00	1.00		0.59	1.00		0.12	1.00		0.38
Lane Grp Cap(c), veh/h	138	567	366	126	293	276	146	904	931	87	844	829
V/C Ratio(X)	0.83	0.29	0.28	0.80	0.82	0.84	0.83	0.37	0.37	0.80	0.39	0.39
Avail Cap(c_a), veh/h	235	713	429	273	372	351	262	904	931	162	844	829
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	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	40.3	32.9	51.5	45.0	45.2	51.2	14.7	14.7	53.5	17.1	17.2
Incr Delay (d2), s/veh	4.7	0.1	0.2	4.3	8.6	11.3	4.5	1.1	1.1	6.1	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	2.0	2.3	2.9	7.2	7.2	3.6	5.0	5.2	2.1	5.5	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	40.4	33.1	55.7	53.6	56.5	55.6	15.8	15.8	59.5	18.5	18.6
LnGrp LOS	E	D	C	E	D	E	E	B	B	E	B	B
Approach Vol, veh/h		380			572			796			725	
Approach Delay, s/veh		43.2			55.1			21.9			22.4	
Approach LOS		D			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	62.1	13.4	24.5	9.9	66.2	13.2	24.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	18.0	34.0	16.0	26.0	11.0	41.0	20.0	26.0				
Max Q Clear Time (g_c+I1), s	10.2	16.0	9.6	18.7	6.6	15.0	9.2	8.9				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.5	0.0	1.0	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (vph)	13	3	15	76	7	51	11	653	33	43	603	5
Future Volume (vph)	13	3	15	76	7	51	11	653	33	43	603	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1488			1649	1470	1568	3218		1525	3224	
Flt Permitted		0.86			0.81	1.00	0.40	1.00		0.34	1.00	
Satd. Flow (perm)		1313			1398	1470	656	3218		552	3224	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	3	16	84	8	56	12	718	36	47	663	5
RTOR Reduction (vph)	0	14	0	0	0	50	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	92	6	12	752	0	47	668	0
Confl. Peds. (#/hr)	5		3	3		5	1		4	4		1
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	67%	7%	3%	14%	2%	9%	5%	12%	12%	6%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		11.1			11.1	11.1	83.5	82.8		88.3	85.2	
Effective Green, g (s)		11.1			11.1	11.1	83.5	82.8		88.3	85.2	
Actuated g/C Ratio		0.10			0.10	0.10	0.76	0.75		0.80	0.77	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0	2.0	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		132			141	148	503	2422		470	2497	
v/s Ratio Prot							0.00	c0.23		c0.00	0.21	
v/s Ratio Perm		0.01			c0.07	0.00	0.02			0.08		
v/c Ratio		0.14			0.65	0.04	0.02	0.31		0.10	0.27	
Uniform Delay, d1		45.1			47.6	44.6	3.2	4.4		2.3	3.5	
Progression Factor		1.00			1.00	1.00	0.51	0.52		1.00	1.00	
Incremental Delay, d2		0.2			8.0	0.0	0.0	0.3		0.0	0.3	
Delay (s)		45.3			55.6	44.7	1.6	2.6		2.4	3.8	
Level of Service		D			E	D	A	A		A	A	
Approach Delay (s)		45.3			51.4			2.6			3.7	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		8.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.34										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		44.9%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	3	15	76	7	51	11	653	33	43	603	5
Future Volume (veh/h)	13	3	15	76	7	51	11	653	33	43	603	5
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	859	859	859	1603	1603	1772	1674	1730	1730	1632	1716	1716
Adj Flow Rate, veh/h	14	3	16	84	8	56	12	718	36	47	663	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	67	67	67	14	14	2	9	5	5	12	6	6
Cap, veh/h	59	13	23	181	14	223	529	2261	113	537	2399	18
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	1.00	1.00	0.02	0.72	0.72
Sat Flow, veh/h	82	83	155	786	93	1487	1594	3180	159	1554	3316	25
Grp Volume(v), veh/h	33	0	0	92	0	56	12	371	383	47	326	342
Grp Sat Flow(s),veh/h/ln	321	0	0	879	0	1487	1594	1643	1696	1554	1630	1711
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	3.7	0.2	0.0	0.0	0.9	7.6	7.6
Cycle Q Clear(g_c), s	13.9	0.0	0.0	11.8	0.0	3.7	0.2	0.0	0.0	0.9	7.6	7.6
Prop In Lane	0.42		0.48	0.91		1.00	1.00		0.09	1.00		0.01
Lane Grp Cap(c), veh/h	95	0	0	195	0	223	529	1168	1206	537	1179	1238
V/C Ratio(X)	0.35	0.00	0.00	0.47	0.00	0.25	0.02	0.32	0.32	0.09	0.28	0.28
Avail Cap(c_a), veh/h	172	0	0	333	0	392	631	1168	1206	660	1179	1238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.92	0.92	0.92	0.91	0.91	0.91
Uniform Delay (d), s/veh	44.7	0.0	0.0	44.7	0.0	41.3	4.5	0.0	0.0	4.1	5.3	5.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.7	0.0	0.2	0.0	0.7	0.6	0.0	0.5	0.5
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(50%),veh/ln	0.9	0.0	0.0	2.4	0.0	1.4	0.1	0.2	0.2	0.3	2.4	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	0.0	0.0	45.3	0.0	41.5	4.5	0.7	0.6	4.1	5.8	5.8
LnGrp LOS	D	A	A	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		33			148			766			715	
Approach Delay, s/veh		45.5			43.9			0.7			5.7	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	84.6		20.5	6.3	83.2		20.5				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	8.0	60.0		29.0	11.0	57.0		29.0				
Max Q Clear Time (g_c+I1), s	2.2	9.6		13.8	2.9	2.0		15.9				
Green Ext Time (p_c), s	0.0	0.9		0.3	0.0	1.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				7.6								
HCM 6th LOS				A								

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr NE & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	179	106	38	437	109	207	471	29	51	352	185
Future Volume (vph)	136	179	106	38	437	109	207	471	29	51	352	185
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3016	3031		1541	3226		1660	3240		1527	3055	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3016	3031		1541	3226		1660	3240		1527	3055	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	153	201	119	43	491	122	233	529	33	57	396	208
RTOR Reduction (vph)	0	79	0	0	20	0	0	4	0	0	55	0
Lane Group Flow (vph)	153	241	0	43	593	0	233	558	0	57	549	0
Confl. Peds. (#/hr)	7		6	6		7	2		12	12		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	10%	5%	7%	11%	2%	4%	3%	4%	10%	12%	6%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	8.5	28.5		4.6	24.6		18.1	52.6		6.3	40.8	
Effective Green, g (s)	8.5	28.5		4.6	24.6		18.1	52.6		6.3	40.8	
Actuated g/C Ratio	0.08	0.26		0.04	0.22		0.16	0.48		0.06	0.37	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	233	785		64	721		273	1549		87	1133	
v/s Ratio Prot	c0.05	c0.08		0.03	c0.18		c0.14	0.17		0.04	c0.18	
v/s Ratio Perm												
v/c Ratio	0.66	0.31		0.67	0.82		0.85	0.36		0.66	0.48	
Uniform Delay, d1	49.3	32.8		52.0	40.6		44.7	18.1		50.8	26.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.05	0.80	
Incremental Delay, d2	5.0	0.1		19.6	7.2		21.2	0.7		12.5	1.5	
Delay (s)	54.3	32.9		71.6	47.8		65.9	18.7		65.7	22.8	
Level of Service	D	C		E	D		E	B		E	C	
Approach Delay (s)		39.8			49.3			32.6			26.5	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			36.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			73.5%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr NE & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	136	179	106	38	437	109	207	471	29	51	352	185
Future Volume (veh/h)	136	179	106	38	437	109	207	471	29	51	352	185
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	1.00		0.99	1.00		0.97	1.00		0.99
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	1660	1730	1730	1646	1772	1772	1758	1744	1744	1632	1716	1716
Adj Flow Rate, veh/h	153	201	119	43	491	122	233	529	33	57	396	208
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, %	10	5	5	11	2	2	3	4	4	12	6	6
Cap, veh/h	205	482	272	52	548	135	260	1640	102	70	847	439
Arrive On Green	0.07	0.24	0.24	0.03	0.21	0.21	0.16	0.52	0.52	0.01	0.14	0.14
Sat Flow, veh/h	3066	2017	1139	1567	2669	659	1674	3161	197	1554	2069	1072
Grp Volume(v), veh/h	153	162	158	43	309	304	233	277	285	57	311	293
Grp Sat Flow(s),veh/h/ln	1533	1643	1513	1567	1683	1645	1674	1657	1701	1554	1630	1512
Q Serve(g_s), s	5.4	9.2	9.8	3.0	19.6	19.8	15.0	10.6	10.7	4.0	19.4	19.7
Cycle Q Clear(g_c), s	5.4	9.2	9.8	3.0	19.6	19.8	15.0	10.6	10.7	4.0	19.4	19.7
Prop In Lane	1.00		0.75	1.00		0.40	1.00		0.12	1.00		0.71
Lane Grp Cap(c), veh/h	205	393	361	52	346	338	260	860	883	70	667	618
V/C Ratio(X)	0.75	0.41	0.44	0.83	0.89	0.90	0.90	0.32	0.32	0.81	0.47	0.47
Avail Cap(c_a), veh/h	279	406	374	111	383	374	365	860	883	147	667	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	50.4	35.3	35.6	52.9	42.5	42.6	45.6	15.3	15.3	53.7	36.5	36.6
Incr Delay (d2), s/veh	4.3	0.3	0.3	11.4	19.7	21.5	15.3	1.0	1.0	7.9	2.3	2.5
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(50%),veh/ln	2.2	3.7	3.6	1.3	10.0	10.0	7.3	4.2	4.3	1.8	8.9	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	35.6	35.9	64.3	62.2	64.1	60.9	16.3	16.3	61.6	38.8	39.2
LnGrp LOS	D	D	D	E	E	E	E	B	B	E	D	D
Approach Vol, veh/h	473			656			795			661		
Approach Delay, s/veh	41.9			63.2			29.3			40.9		
Approach LOS	D			E			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.1	50.0	11.3	27.6	9.0	62.1	7.7	31.3				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	24.0	33.0	10.0	25.0	10.4	46.6	7.8	27.2				
Max Q Clear Time (g_c+I1), s	17.0	21.7	7.4	21.8	6.0	12.7	5.0	11.8				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.4	0.0	0.8	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	43.2											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	198	365	44	20	113
Future Vol, veh/h	72	198	365	44	20	113
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	9	4	5	10	8
Mvmt Flow	84	230	424	51	23	131
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	475	0	-	0	848	451
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	4.13	-	-	-	6.5	6.28
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.227	-	-	-	3.59	3.372
Pot Cap-1 Maneuver	1082	-	-	-	321	596
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	661	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1082	-	-	-	296	595
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	661	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		13.6		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1082	-	-	-	296	595
HCM Lane V/C Ratio	0.077	-	-	-	0.079	0.221
HCM Control Delay (s)	8.6	-	-	-	18.2	12.8
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3	0.8

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	54	61	6	5	9
Future Vol, veh/h	9	54	61	6	5	9
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	11	4	0	0	20	0
Mvmt Flow	13	81	91	9	7	13
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	100	0	-	0	204	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	4.21	-	-	-	6.6	6.2
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	2.299	-	-	-	3.68	3.3
Pot Cap-1 Maneuver	1438	-	-	-	746	966
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	873	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1438	-	-	-	739	966
Mov Cap-2 Maneuver	-	-	-	-	739	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	873	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		9.2		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1438	-	-	-	871	
HCM Lane V/C Ratio	0.009	-	-	-	0.024	
HCM Control Delay (s)	7.5	0	-	-	9.2	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	217	29	17	406	51	33
Future Vol, veh/h	217	29	17	406	51	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	7	0	6	2	0	3
Mvmt Flow	241	32	19	451	57	37
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	273	0	746	257
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.16	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.254	-	3.5	3.327
Pot Cap-1 Maneuver	-	-	1267	-	384	779
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1267	-	376	779
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	621	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		14.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	472	-	-	1267	-	
HCM Lane V/C Ratio	0.198	-	-	0.015	-	
HCM Control Delay (s)	14.5	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.7	-	-	0	-	

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

02/25/2019

1: Cordon Rd & Silverton Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	329	217	181	309	5	159	328	217	9	432	141
Future Volume (vph)	105	329	217	181	309	5	159	328	217	9	432	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3184		1660	3344		1693	1782	1496	1710	1765	1511
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1693	3184		1660	3344		1693	1782	1496	1710	1765	1511
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	121	378	249	208	355	6	183	377	249	10	497	162
RTOR Reduction (vph)	0	133	0	0	2	0	0	0	80	0	0	98
Lane Group Flow (vph)	121	494	0	208	359	0	183	377	169	10	497	64
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	3%	2%	0%	1%	1%	1%	0%	2%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.8	15.8		11.1	18.1		10.1	40.0	40.0	0.9	30.8	30.8
Effective Green, g (s)	8.8	15.8		11.1	18.1		10.1	40.0	40.0	0.9	30.8	30.8
Actuated g/C Ratio	0.10	0.18		0.13	0.21		0.12	0.47	0.47	0.01	0.36	0.36
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	173	586		214	705		199	830	697	17	633	542
v/s Ratio Prot	0.07	c0.16		c0.13	0.11		c0.11	0.21		0.01	c0.28	
v/s Ratio Perm									0.11			0.04
v/c Ratio	0.70	0.84		0.97	0.51		0.92	0.45	0.24	0.59	0.79	0.12
Uniform Delay, d1	37.2	33.8		37.2	29.9		37.4	15.5	13.8	42.3	24.5	18.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.5	10.3		53.0	0.2		40.8	0.1	0.1	29.3	5.9	0.0
Delay (s)	46.8	44.1		90.2	30.1		78.2	15.7	13.8	71.5	30.4	18.4
Level of Service	D	D		F	C		E	B	B	E	C	B
Approach Delay (s)		44.5			52.1			29.2			28.1	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			37.7			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			85.8			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			75.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

1: Cordon Rd & Silverton Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	329	217	181	309	5	159	328	217	9	432	141
Future Volume (veh/h)	105	329	217	181	309	5	159	328	217	9	432	141
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	1.00		0.99	1.00		0.99	1.00		0.99
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	1786	1786	1786	1758	1772	1772	1786	1786	1786	1800	1772	1800
Adj Flow Rate, veh/h	121	378	249	208	355	6	183	377	249	10	497	162
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	1	3	2	2	1	1	1	0	2	0
Cap, veh/h	150	455	296	221	931	16	204	739	618	13	534	454
Arrive On Green	0.09	0.23	0.23	0.13	0.27	0.27	0.12	0.41	0.41	0.01	0.30	0.30
Sat Flow, veh/h	1701	1967	1276	1674	3387	57	1701	1786	1495	1714	1772	1506
Grp Volume(v), veh/h	121	325	302	208	176	185	183	377	249	10	497	162
Grp Sat Flow(s),veh/h/ln	1701	1697	1546	1674	1683	1761	1701	1786	1495	1714	1772	1506
Q Serve(g_s), s	5.8	15.2	15.6	10.3	7.1	7.1	8.9	13.1	9.8	0.5	22.7	7.0
Cycle Q Clear(g_c), s	5.8	15.2	15.6	10.3	7.1	7.1	8.9	13.1	9.8	0.5	22.7	7.0
Prop In Lane	1.00		0.83	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	393	358	221	463	484	204	739	618	13	534	454
V/C Ratio(X)	0.81	0.83	0.84	0.94	0.38	0.38	0.90	0.51	0.40	0.78	0.93	0.36
Avail Cap(c_a), veh/h	281	650	593	221	589	616	204	739	618	113	615	523
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	30.5	30.6	35.9	24.5	24.5	36.3	18.2	17.2	41.4	28.3	22.8
Incr Delay (d2), s/veh	3.8	1.7	2.5	44.4	0.2	0.2	35.7	0.3	0.2	31.1	18.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.2	5.8	6.8	2.8	2.9	5.6	5.2	3.2	0.3	11.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	32.3	33.1	80.3	24.7	24.7	71.9	18.4	17.4	72.5	46.7	23.0
LnGrp LOS	D	C	C	F	C	C	E	B	B	E	D	C
Approach Vol, veh/h		748			569			809			669	
Approach Delay, s/veh		34.1			45.0			30.2			41.3	
Approach LOS		C			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	24.3	14.0	30.2	11.4	28.0	4.6	39.6				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	11.0	32.0	10.0	29.0	13.8	29.2	5.5	33.5				
Max Q Clear Time (g_c+l1), s	12.3	17.6	10.9	24.7	7.8	9.1	2.5	15.1				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.4	0.0	0.5	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			36.9									
HCM 6th LOS			D									

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	68	138	48	58	43	127	619	53	43	694	89
Future Volume (vph)	88	68	138	48	58	43	127	619	53	43	694	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1608		1676	1652		1693	1772		1710	1743	
Flt Permitted	0.65	1.00		0.41	1.00		0.12	1.00		0.25	1.00	
Satd. Flow (perm)	1165	1608		724	1652		221	1772		455	1743	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	74	150	52	63	47	138	673	58	47	754	97
RTOR Reduction (vph)	0	73	0	0	27	0	0	3	0	0	5	0
Lane Group Flow (vph)	96	151	0	52	83	0	138	728	0	47	846	0
Confl. Peds. (#/hr)							12		1	1		12
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%	1%	0%	2%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	14.5	12.3		13.1	11.6		49.5	45.6		44.7	43.2	
Effective Green, g (s)	14.5	12.3		13.1	11.6		49.5	45.6		44.7	43.2	
Actuated g/C Ratio	0.18	0.15		0.16	0.15		0.62	0.57		0.56	0.54	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	226	247		136	239		208	1011		278	942	
v/s Ratio Prot	c0.01	c0.09		0.01	0.05		c0.03	0.41		0.00	c0.49	
v/s Ratio Perm	0.07			0.06			0.38			0.09		
v/c Ratio	0.42	0.61		0.38	0.35		0.66	0.72		0.17	0.90	
Uniform Delay, d1	28.8	31.6		30.0	30.7		13.2	12.5		9.5	16.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	3.1		0.7	0.3		6.0	2.1		0.1	10.9	
Delay (s)	29.2	34.7		30.6	31.1		19.3	14.6		9.6	27.3	
Level of Service	C	C		C	C		B	B		A	C	
Approach Delay (s)		33.1			30.9			15.3			26.4	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			79.9				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			83.7%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	68	138	48	58	43	127	619	53	43	694	89
Future Volume (veh/h)	88	68	138	48	58	43	127	619	53	43	694	89
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		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1800	1800	1772	1772	1772	1786	1800	1800	1800	1786	1786
Adj Flow Rate, veh/h	96	74	150	52	63	47	138	673	58	47	754	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	2	2	2	1	0	0	0	1	1
Cap, veh/h	274	86	174	175	150	112	216	888	76	288	788	101
Arrive On Green	0.04	0.16	0.16	0.03	0.16	0.16	0.06	0.54	0.54	0.02	0.51	0.51
Sat Flow, veh/h	1714	531	1076	1688	942	703	1701	1629	140	1714	1543	199
Grp Volume(v), veh/h	96	0	224	52	0	110	138	0	731	47	0	851
Grp Sat Flow(s),veh/h/ln	1714	0	1606	1688	0	1645	1701	0	1769	1714	0	1742
Q Serve(g_s), s	3.0	0.0	11.0	2.1	0.0	4.9	3.0	0.0	26.0	1.1	0.0	37.9
Cycle Q Clear(g_c), s	3.0	0.0	11.0	2.1	0.0	4.9	3.0	0.0	26.0	1.1	0.0	37.9
Prop In Lane	1.00		0.67	1.00		0.43	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	274	0	259	175	0	262	216	0	964	288	0	889
V/C Ratio(X)	0.35	0.00	0.86	0.30	0.00	0.42	0.64	0.00	0.76	0.16	0.00	0.96
Avail Cap(c_a), veh/h	274	0	297	179	0	304	241	0	1309	309	0	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	33.1	27.9	0.0	30.7	18.4	0.0	14.3	12.6	0.0	19.0
Incr Delay (d2), s/veh	0.3	0.0	18.5	0.3	0.0	0.4	3.1	0.0	1.1	0.1	0.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	5.5	0.8	0.0	1.9	1.4	0.0	9.5	0.4	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	51.6	28.3	0.0	31.1	21.5	0.0	15.4	12.7	0.0	31.2
LnGrp LOS	C	A	D	C	A	C	C	A	B	B	A	C
Approach Vol, veh/h	320			162			869			898		
Approach Delay, s/veh	44.9			30.2			16.4			30.2		
Approach LOS	D			C			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	47.4	7.0	17.9	6.0	50.2	6.8	18.1				
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0				
Max Green Setting (Gmax), s	6.0	57.0	3.0	15.0	3.0	60.0	3.0	15.0				
Max Q Clear Time (g_c+I1), s	5.0	39.9	5.0	6.9	3.1	28.0	4.1	13.0				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.1	0.0	1.2	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	26.9											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	25.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↵		↵	↵	
Traffic Vol, veh/h	34	13	90	6	2	9	73	756	20	9	796	75
Future Vol, veh/h	34	13	90	6	2	9	73	756	20	9	796	75
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	0	1	0	0	0	0	1	0	0	2	1
Mvmt Flow	37	14	99	7	2	10	80	831	22	10	875	82
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1947	1952	919	1995	1982	842	960	0	0	853	0	0
Stage 1	939	939	-	1002	1002	-	-	-	-	-	-	-
Stage 2	1008	1013	-	993	980	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.21	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.309	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	48	65	330	46	62	367	725	-	-	795	-	-
Stage 1	316	345	-	295	323	-	-	-	-	-	-	-
Stage 2	289	319	-	298	331	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	57	329	24	54	367	723	-	-	795	-	-
Mov Cap-2 Maneuver	41	57	-	24	54	-	-	-	-	-	-	-
Stage 1	280	339	-	262	287	-	-	-	-	-	-	-
Stage 2	248	284	-	197	326	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s\$	327.6			101			0.9			0.1		
HCM LOS	F			F								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	723	-	-	103	55	795	-	-				
HCM Lane V/C Ratio	0.111	-	-	1.462	0.34	0.012	-	-				
HCM Control Delay (s)	10.6	-	-	\$ 327.6	101	9.6	-	-				
HCM Lane LOS	B	-	-	F	F	A	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	11.1	1.2	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

4: Cordon Rd & Center St

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	75	177	26	47	24	153	702	30	27	752	119
Future Volume (vph)	130	75	177	26	47	24	153	702	30	27	752	119
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1748	1500	1710	1686		1676	1755		1583	1765	1466
Flt Permitted	0.71	1.00	1.00	0.70	1.00		0.17	1.00		0.27	1.00	1.00
Satd. Flow (perm)	1272	1748	1500	1267	1686		302	1755		446	1765	1466
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	82	192	28	51	26	166	763	33	29	817	129
RTOR Reduction (vph)	0	0	163	0	22	0	0	1	0	0	0	31
Lane Group Flow (vph)	141	82	29	28	55	0	166	795	0	29	817	98
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	2%	0%	8%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	11.2	11.2	11.2	11.2	11.2		53.2	47.7		44.8	43.3	43.3
Effective Green, g (s)	11.2	11.2	11.2	11.2	11.2		53.2	47.7		44.8	43.3	43.3
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.71	0.63		0.59	0.57	0.57
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	188	259	222	188	250		320	1110		287	1013	841
v/s Ratio Prot		0.05			0.03		c0.04	0.45		0.00	c0.46	
v/s Ratio Perm	c0.11		0.02	0.02			0.32			0.06		0.07
v/c Ratio	0.75	0.32	0.13	0.15	0.22		0.52	0.72		0.10	0.81	0.12
Uniform Delay, d1	30.8	28.7	27.9	28.0	28.3		9.1	9.3		7.3	12.7	7.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	13.8	0.3	0.1	0.3	0.3		0.6	1.9		0.1	4.5	0.0
Delay (s)	44.6	28.9	28.0	28.2	28.6		9.7	11.2		7.3	17.2	7.3
Level of Service	D	C	C	C	C		A	B		A	B	A
Approach Delay (s)		33.8			28.5			10.9			15.6	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			75.4			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			77.5%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

4: Cordon Rd & Center St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	75	177	26	47	24	153	702	30	27	752	119
Future Volume (veh/h)	130	75	177	26	47	24	153	702	30	27	752	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1772	1800	1772	1772	1772	1772	1772	1688	1772	1772
Adj Flow Rate, veh/h	141	82	192	28	51	26	166	763	33	29	817	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	2	0	2	2	2	2	2	8	2	2
Cap, veh/h	303	321	274	273	202	103	277	920	40	257	870	736
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.07	0.55	0.55	0.02	0.49	0.49
Sat Flow, veh/h	1272	1758	1502	1064	1106	564	1688	1686	73	1607	1772	1499
Grp Volume(v), veh/h	141	82	192	28	0	77	166	0	796	29	817	129
Grp Sat Flow(s),veh/h/ln	1272	1758	1502	1064	0	1670	1688	0	1759	1607	1772	1499
Q Serve(g_s), s	6.3	2.4	7.1	1.4	0.0	2.3	2.7	0.0	22.3	0.5	25.9	2.8
Cycle Q Clear(g_c), s	8.7	2.4	7.1	3.8	0.0	2.3	2.7	0.0	22.3	0.5	25.9	2.8
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	303	321	274	273	0	305	277	0	960	257	870	736
V/C Ratio(X)	0.46	0.26	0.70	0.10	0.00	0.25	0.60	0.00	0.83	0.11	0.94	0.18
Avail Cap(c_a), veh/h	671	829	708	580	0	787	323	0	1229	375	1223	1034
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	20.8	22.8	22.4	0.0	20.8	13.1	0.0	11.2	10.5	14.3	8.4
Incr Delay (d2), s/veh	0.4	0.2	1.2	0.1	0.0	0.3	1.0	0.0	3.1	0.1	9.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.9	2.4	0.3	0.0	0.9	1.0	0.0	7.5	0.2	10.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	21.0	24.0	22.5	0.0	21.1	14.2	0.0	14.3	10.5	23.6	8.5
LnGrp LOS	C	C	C	C	A	C	B	A	B	B	C	A
Approach Vol, veh/h		415			105			962			975	
Approach Delay, s/veh		23.7			21.5			14.3			21.2	
Approach LOS		C			C			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		15.8	8.4	35.2		15.8	5.1	38.4				
Change Period (Y+Rc), s		5.0	4.0	6.0		5.0	4.0	6.0				
Max Green Setting (Gmax), s		28.0	6.0	41.0		28.0	5.5	41.5				
Max Q Clear Time (g_c+I1), s		10.7	4.7	27.9		5.8	2.5	24.3				
Green Ext Time (p_c), s		0.2	0.0	1.3		0.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↵	↵		↵	↵	
Traffic Vol, veh/h	15	2	96	6	2	9	52	860	24	6	909	41
Future Vol, veh/h	15	2	96	6	2	9	52	860	24	6	909	41
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	3	0
Mvmt Flow	16	2	104	7	2	10	57	935	26	7	988	45
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2096	2103	1014	2140	2112	948	1036	0	0	961	0	0
Stage 1	1028	1028	-	1062	1062	-	-	-	-	-	-	-
Stage 2	1068	1075	-	1078	1050	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	39	52	292	36	52	319	679	-	-	724	-	-
Stage 1	285	314	-	273	303	-	-	-	-	-	-	-
Stage 2	271	298	-	267	307	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	34	47	291	21	47	319	677	-	-	724	-	-
Mov Cap-2 Maneuver	34	47	-	21	47	-	-	-	-	-	-	-
Stage 1	260	310	-	250	278	-	-	-	-	-	-	-
Stage 2	239	273	-	168	303	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	109.5		120.9		0.6		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	677	-	-	139	48	724	-	-				
HCM Lane V/C Ratio	0.083	-	-	0.884	0.385	0.009	-	-				
HCM Control Delay (s)	10.8	-	-	109.5	120.9	10	-	-				
HCM Lane LOS	B	-	-	F	F	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	5.9	1.4	0	-	-				

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	230	85	83	141	112	59	552	100	121	623	184
Future Volume (vph)	279	230	85	83	141	112	59	552	100	121	623	184
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1670		1691	1647		1710	1702		1660	1782	1483
Flt Permitted	0.31	1.00		0.40	1.00		0.19	1.00		0.12	1.00	1.00
Satd. Flow (perm)	562	1670		714	1647		342	1702		209	1782	1483
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	291	240	89	86	147	117	61	575	104	126	649	192
RTOR Reduction (vph)	0	15	0	0	34	0	0	7	0	0	0	80
Lane Group Flow (vph)	291	314	0	86	230	0	61	672	0	126	649	112
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	7%	1%	2%	2%	0%	3%	3%	3%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	28.1	20.1		20.5	16.3		38.6	35.0		42.4	36.9	36.9
Effective Green, g (s)	28.1	20.1		20.5	16.3		38.6	35.0		42.4	36.9	36.9
Actuated g/C Ratio	0.33	0.24		0.24	0.19		0.46	0.41		0.50	0.44	0.44
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	294	395		220	316		213	702		198	775	645
v/s Ratio Prot	c0.09	0.19		0.02	0.14		0.01	c0.39		c0.04	0.36	
v/s Ratio Perm	c0.23			0.07			0.12			0.28		0.08
v/c Ratio	0.99	0.79		0.39	0.73		0.29	0.96		0.64	0.84	0.17
Uniform Delay, d1	26.6	30.4		25.8	32.2		15.4	24.2		16.3	21.3	14.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	49.0	9.9		0.4	6.9		0.3	23.5		4.9	7.5	0.0
Delay (s)	75.7	40.3		26.2	39.1		15.7	47.7		21.2	28.8	14.7
Level of Service	E	D		C	D		B	D		C	C	B
Approach Delay (s)		56.9			35.9			45.0			25.0	
Approach LOS		E			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			39.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			84.8				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			92.2%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	279	230	85	83	141	112	59	552	100	121	623	184
Future Volume (veh/h)	279	230	85	83	141	112	59	552	100	121	623	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.98
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	1800	1786	1786	1786	1772	1772	1800	1758	1758	1758	1786	1786
Adj Flow Rate, veh/h	291	240	89	86	147	117	61	575	104	126	649	192
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	1	2	2	0	3	3	3	1	1
Cap, veh/h	287	283	105	224	171	136	220	593	107	207	786	652
Arrive On Green	0.10	0.23	0.23	0.06	0.19	0.19	0.03	0.41	0.41	0.06	0.44	0.44
Sat Flow, veh/h	1714	1232	457	1701	910	724	1714	1443	261	1674	1786	1482
Grp Volume(v), veh/h	291	0	329	86	0	264	61	0	679	126	649	192
Grp Sat Flow(s),veh/h/ln	1714	0	1688	1701	0	1635	1714	0	1704	1674	1786	1482
Q Serve(g_s), s	8.0	0.0	15.4	3.3	0.0	12.9	1.7	0.0	32.3	3.5	26.5	6.9
Cycle Q Clear(g_c), s	8.0	0.0	15.4	3.3	0.0	12.9	1.7	0.0	32.3	3.5	26.5	6.9
Prop In Lane	1.00		0.27	1.00		0.44	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	287	0	387	224	0	308	220	0	700	207	786	652
V/C Ratio(X)	1.01	0.00	0.85	0.38	0.00	0.86	0.28	0.00	0.97	0.61	0.83	0.29
Avail Cap(c_a), veh/h	287	0	502	245	0	438	276	0	700	219	786	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	30.5	25.9	0.0	32.5	17.1	0.0	23.9	19.2	20.4	14.9
Incr Delay (d2), s/veh	56.9	0.0	8.5	0.4	0.0	8.4	0.3	0.0	26.6	2.9	6.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	7.0	1.3	0.0	5.7	0.6	0.0	17.2	1.4	11.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.0	0.0	39.1	26.3	0.0	40.9	17.4	0.0	50.5	22.2	27.2	15.0
LnGrp LOS	F	A	D	C	A	D	B	A	D	C	C	B
Approach Vol, veh/h	620			350			740			967		
Approach Delay, s/veh	61.1			37.3			47.8			24.1		
Approach LOS	E			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	25.0	6.8	42.4	12.0	21.6	9.2	40.0				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.6	24.6	5.5	34.3	8.0	22.2	5.8	34.0				
Max Q Clear Time (g_c+I1), s	5.3	17.4	3.7	28.5	10.0	14.9	5.5	34.3				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.7	0.0	0.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	41.0											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	28	52	681	724	67
Future Vol, veh/h	30	28	52	681	724	67
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	7	4	4	4	3	5
Mvmt Flow	37	34	63	830	883	82
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1880	924	965	0	-	0
Stage 1	924	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Critical Hdwy	6.47	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	76	324	706	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	69	324	706	-	-	-
Mov Cap-2 Maneuver	69	-	-	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	82.2	0.8		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	706	-	111	-	-	
HCM Lane V/C Ratio	0.09	-	0.637	-	-	
HCM Control Delay (s)	10.6	-	82.2	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.3	-	3.2	-	-	

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	64	3	5	5	4	6	8	693	4	5	661	133
Future Vol, veh/h	64	3	5	5	4	6	8	693	4	5	661	133
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	12	3	0	0	4	2
Mvmt Flow	69	3	5	5	4	6	9	745	4	5	711	143
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1563	1560	783	1562	1629	747	854	0	0	749	0	0
Stage 1	793	793	-	765	765	-	-	-	-	-	-	-
Stage 2	770	767	-	797	864	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.22	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.308	-	-	2.2	-	-
Pot Cap-1 Maneuver	92	113	397	92	103	416	744	-	-	869	-	-
Stage 1	385	403	-	399	415	-	-	-	-	-	-	-
Stage 2	396	414	-	383	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	85	109	397	87	100	416	744	-	-	869	-	-
Mov Cap-2 Maneuver	85	109	-	87	100	-	-	-	-	-	-	-
Stage 1	377	399	-	391	406	-	-	-	-	-	-	-
Stage 2	378	405	-	371	370	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	138.5		35.5		0.1		0.1					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	744	-	-	91	134	869	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.851	0.12	0.006	-	-				
HCM Control Delay (s)	9.9	0	-	138.5	35.5	9.2	0	-				
HCM Lane LOS	A	A	-	F	E	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	4.6	0.4	0	-	-				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	53	0	25	35	37	17	635	78	74	575	21
Future Volume (vph)	34	53	0	25	35	37	17	635	78	74	575	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1766			1579		1710	1706		1660	1740	
Flt Permitted		0.88			0.93		0.37	1.00		0.24	1.00	
Satd. Flow (perm)		1583			1480		674	1706		415	1740	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	37	58	0	27	38	41	19	698	86	81	632	23
RTOR Reduction (vph)	0	0	0	0	32	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	95	0	0	74	0	19	780	0	81	654	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						2			2			
Heavy Vehicles (%)	0%	0%	0%	5%	0%	11%	0%	4%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		6.0			6.0		40.0	39.4		44.8	41.8	
Effective Green, g (s)		6.0			6.0		40.0	39.4		44.8	41.8	
Actuated g/C Ratio		0.09			0.09		0.63	0.62		0.71	0.66	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		149			140		435	1060		352	1147	
v/s Ratio Prot							0.00	c0.46		c0.01	0.38	
v/s Ratio Perm		c0.06			0.05		0.03			0.15		
v/c Ratio		0.64			0.53		0.04	0.74		0.23	0.57	
Uniform Delay, d1		27.7			27.4		4.5	8.4		4.9	5.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.4			1.9		0.0	2.3		0.1	0.4	
Delay (s)		34.1			29.3		4.5	10.7		5.0	6.3	
Level of Service		C			C		A	B		A	A	
Approach Delay (s)		34.1			29.3			10.5			6.2	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			63.4				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			65.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	53	0	25	35	37	17	635	78	74	575	21
Future Volume (veh/h)	34	53	0	25	35	37	17	635	78	74	575	21
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	1800	1800	1800	1800	1800	1800	1800	1744	1744	1758	1758	1758
Adj Flow Rate, veh/h	37	58	0	27	38	0	19	698	86	81	632	23
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	4	3	3	3
Cap, veh/h	170	140	0	172	142		370	759	94	282	892	32
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.01	0.50	0.50	0.04	0.53	0.53
Sat Flow, veh/h	481	1152	0	475	1173	0	1714	1518	187	1674	1685	61
Grp Volume(v), veh/h	95	0	0	65	0	0	19	0	784	81	0	655
Grp Sat Flow(s),veh/h/ln	1633	0	0	1649	0	0	1714	0	1705	1674	0	1747
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.2	0.0	19.0	1.0	0.0	12.6
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.5	0.0	0.0	0.2	0.0	19.0	1.0	0.0	12.6
Prop In Lane	0.39		0.00	0.42		0.00	1.00		0.11	1.00		0.04
Lane Grp Cap(c), veh/h	310	0	0	314	0		370	0	853	282	0	924
V/C Ratio(X)	0.31	0.00	0.00	0.21	0.00		0.05	0.00	0.92	0.29	0.00	0.71
Avail Cap(c_a), veh/h	1033	0	0	1025	0		560	0	1655	419	0	1695
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	17.9	0.0	0.0	6.8	0.0	10.3	9.5	0.0	7.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.8	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.6	0.0	0.0	0.1	0.0	5.3	0.3	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	0.0	0.0	18.0	0.0	0.0	6.8	0.0	12.2	9.7	0.0	8.3
LnGrp LOS	B	A	A	B	A		A	A	B	A	A	A
Approach Vol, veh/h		95			65	A		803			736	
Approach Delay, s/veh		18.5			18.0			12.0			8.5	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	28.4		10.4	4.6	29.7		10.4				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.6	43.4		26.0	5.6	43.4		26.0				
Max Q Clear Time (g_c+I1), s	3.0	21.0		4.3	2.2	14.6		3.5				
Green Ext Time (p_c), s	0.0	1.3		0.1	0.0	1.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay 11.1
HCM 6th LOS B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	24	52	32	20	150	83	573	21	121	444	73
Future Volume (vph)	53	24	52	32	20	150	83	573	21	121	444	73
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1616		1710	1513		1710	1752		1644	1732	
Flt Permitted	0.95	1.00		0.95	1.00		0.36	1.00		0.25	1.00	
Satd. Flow (perm)	1710	1616		1710	1513		643	1752		426	1732	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	57	26	56	34	22	161	89	616	23	130	477	78
RTOR Reduction (vph)	0	48	0	0	142	0	0	1	0	0	5	0
Lane Group Flow (vph)	57	34	0	34	41	0	89	638	0	130	550	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	3%	0%	2%	5%	4%	2%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	2.9	8.8		1.8	7.7		35.0	31.6		37.8	33.0	
Effective Green, g (s)	2.9	8.8		1.8	7.7		35.0	31.6		37.8	33.0	
Actuated g/C Ratio	0.04	0.14		0.03	0.12		0.54	0.49		0.58	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	76	218		47	179		402	851		337	879	
v/s Ratio Prot	c0.03	0.02		0.02	c0.03		0.01	c0.36		c0.03	0.32	
v/s Ratio Perm							0.11			0.20		
v/c Ratio	0.75	0.15		0.72	0.23		0.22	0.75		0.39	0.63	
Uniform Delay, d1	30.7	24.8		31.4	26.0		7.7	13.5		8.0	11.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.2	0.1		37.1	0.2		0.1	3.2		0.3	1.0	
Delay (s)	60.9	24.9		68.4	26.2		7.8	16.7		8.2	12.5	
Level of Service	E	C		E	C		A	B		A	B	
Approach Delay (s)		39.7			32.8			15.6			11.7	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			69.5%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	24	52	32	20	150	83	573	21	121	444	73
Future Volume (veh/h)	53	24	52	32	20	150	83	573	21	121	444	73
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	1800	1800	1800	1800	1730	1730	1800	1772	1772	1744	1772	1772
Adj Flow Rate, veh/h	57	26	56	34	22	161	89	616	23	130	477	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	5	5	0	2	2	4	2	2
Cap, veh/h	69	89	192	39	28	207	337	674	25	290	622	102
Arrive On Green	0.04	0.18	0.18	0.02	0.16	0.16	0.05	0.40	0.40	0.07	0.42	0.42
Sat Flow, veh/h	1714	508	1095	1714	180	1314	1714	1696	63	1661	1485	243
Grp Volume(v), veh/h	57	0	82	34	0	183	89	0	639	130	0	555
Grp Sat Flow(s),veh/h/ln	1714	0	1603	1714	0	1493	1714	0	1759	1661	0	1728
Q Serve(g_s), s	1.8	0.0	2.4	1.1	0.0	6.3	1.6	0.0	18.5	2.4	0.0	14.8
Cycle Q Clear(g_c), s	1.8	0.0	2.4	1.1	0.0	6.3	1.6	0.0	18.5	2.4	0.0	14.8
Prop In Lane	1.00		0.68	1.00		0.88	1.00		0.04	1.00		0.14
Lane Grp Cap(c), veh/h	69	0	281	39	0	236	337	0	700	290	0	724
V/C Ratio(X)	0.83	0.00	0.29	0.87	0.00	0.78	0.26	0.00	0.91	0.45	0.00	0.77
Avail Cap(c_a), veh/h	178	0	772	178	0	719	429	0	1095	382	0	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	19.3	26.3	0.0	21.8	10.6	0.0	15.4	12.1	0.0	13.4
Incr Delay (d2), s/veh	8.9	0.0	0.2	19.1	0.0	2.1	0.2	0.0	5.6	0.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.8	0.6	0.0	2.2	0.5	0.0	7.3	0.7	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	19.5	45.4	0.0	23.9	10.8	0.0	20.9	12.5	0.0	14.1
LnGrp LOS	C	A	B	D	A	C	B	A	C	B	A	B
Approach Vol, veh/h	139			217			728			685		
Approach Delay, s/veh	25.7			27.3			19.7			13.8		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	28.6	6.2	12.5	7.8	27.5	5.2	13.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.6	34.8	5.6	26.0	6.8	33.6	5.6	26.0				
Max Q Clear Time (g_c+l1), s	3.6	16.8	3.8	8.3	4.4	20.5	3.1	4.4				
Green Ext Time (p_c), s	0.0	0.8	0.0	0.3	0.0	0.9	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	18.8											
HCM 6th LOS	B											

HCM Signalized Intersection Capacity Analysis

11: Lancaster Dr & Center St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	507	223	125	293	133	232	879	86	164	814	140
Future Volume (vph)	196	507	223	125	293	133	232	879	86	164	814	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1693	3353	1439	1693	3137		1676	3281		1676	3298	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1693	3353	1439	1693	3137		1676	3281		1676	3298	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	200	517	228	128	299	136	237	897	88	167	831	143
RTOR Reduction (vph)	0	0	97	0	43	0	0	5	0	0	9	0
Lane Group Flow (vph)	200	517	131	128	392	0	237	980	0	167	965	0
Confl. Peds. (#/hr)	17		18	18		17	10		21	21		10
Confl. Bikes (#/hr)			1						1			4
Heavy Vehicles (%)	1%	2%	2%	1%	3%	2%	2%	2%	4%	2%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	17.6	24.4	24.4	12.5	19.3		20.8	61.8		15.3	56.3	
Effective Green, g (s)	17.6	24.4	24.4	12.5	19.3		20.8	61.8		15.3	56.3	
Actuated g/C Ratio	0.14	0.19	0.19	0.10	0.15		0.16	0.48		0.12	0.43	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	229	629	270	162	465		268	1559		197	1428	
v/s Ratio Prot	c0.12	c0.15		0.08	0.12		c0.14	0.30		0.10	c0.29	
v/s Ratio Perm			0.09									
v/c Ratio	0.87	0.82	0.48	0.79	0.84		0.88	0.63		0.85	0.68	
Uniform Delay, d1	55.1	50.7	47.2	57.5	53.9		53.4	25.5		56.2	29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.34	0.63		0.74	1.14	
Incremental Delay, d2	27.9	8.1	0.5	21.2	12.5		22.7	1.6		22.7	2.2	
Delay (s)	83.0	58.8	47.7	78.7	66.4		94.4	17.6		64.1	35.7	
Level of Service	F	E	D	E	E		F	B		E	D	
Approach Delay (s)		61.2			69.2			32.5			39.9	
Approach LOS		E			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			47.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			83.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 11: Lancaster Dr & Center St

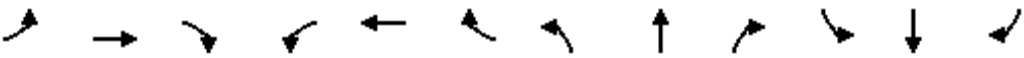
Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	196	507	223	125	293	133	232	879	86	164	814	140
Future Volume (veh/h)	196	507	223	125	293	133	232	879	86	164	814	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1772	1772	1786	1758	1758	1772	1772	1772	1772	1786	1786
Adj Flow Rate, veh/h	200	517	228	128	299	136	237	897	88	167	831	143
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	2	2	1	3	3	2	2	2	2	1	1
Cap, veh/h	223	720	309	151	382	169	256	1423	140	190	1218	210
Arrive On Green	0.13	0.21	0.21	0.09	0.17	0.17	0.30	0.92	0.92	0.11	0.42	0.42
Sat Flow, veh/h	1701	3367	1445	1701	2228	985	1688	3082	302	1688	2880	496
Grp Volume(v), veh/h	200	517	228	128	222	213	237	490	495	167	489	485
Grp Sat Flow(s),veh/h/ln	1701	1683	1445	1701	1670	1543	1688	1683	1701	1688	1697	1679
Q Serve(g_s), s	15.0	18.5	19.1	9.6	16.5	17.3	17.7	6.9	6.9	12.7	30.4	30.4
Cycle Q Clear(g_c), s	15.0	18.5	19.1	9.6	16.5	17.3	17.7	6.9	6.9	12.7	30.4	30.4
Prop In Lane	1.00		1.00	1.00		0.64	1.00		0.18	1.00		0.30
Lane Grp Cap(c), veh/h	223	720	309	151	286	264	256	777	786	190	717	710
V/C Ratio(X)	0.90	0.72	0.74	0.85	0.78	0.81	0.93	0.63	0.63	0.88	0.68	0.68
Avail Cap(c_a), veh/h	275	772	331	225	334	309	312	777	786	234	717	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	47.5	47.7	58.4	51.5	51.8	44.6	2.9	2.9	56.8	30.4	30.4
Incr Delay (d2), s/veh	23.2	2.5	6.6	11.7	7.7	10.8	22.4	2.9	2.9	22.9	5.2	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	8.0	7.5	4.6	7.5	7.5	8.0	1.8	1.9	6.6	13.4	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.8	49.9	54.3	70.1	59.2	62.6	67.0	5.9	5.9	79.7	35.6	35.7
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	D	D
Approach Vol, veh/h		945			563			1222			1141	
Approach Delay, s/veh		57.1			63.0			17.7			42.1	
Approach LOS		E			E			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.7	59.0	21.1	26.3	18.6	64.0	15.5	31.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	24.0	43.0	21.0	26.0	18.0	49.0	17.2	29.8				
Max Q Clear Time (g_c+I1), s	19.7	32.4	17.0	19.3	14.7	8.9	11.6	21.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.5	0.0	1.5	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (vph)	28	22	29	129	9	88	34	1181	152	138	992	28
Future Volume (vph)	28	22	29	129	9	88	34	1181	152	138	992	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.95			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1680	1485	1709	3311		1693	3370	
Flt Permitted		0.78			0.63	1.00	0.24	1.00		0.13	1.00	
Satd. Flow (perm)		1310			1108	1485	429	3311		232	3370	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	30	24	31	139	10	95	37	1270	163	148	1067	30
RTOR Reduction (vph)	0	17	0	0	0	81	0	5	0	0	1	0
Lane Group Flow (vph)	0	68	0	0	149	14	37	1428	0	148	1096	0
Confl. Peds. (#/hr)	4		10	10		4	3		4	4		3
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		19.7			19.7	19.7	93.0	89.9		101.3	94.2	
Effective Green, g (s)		19.7			19.7	19.7	93.0	89.9		101.3	94.2	
Actuated g/C Ratio		0.15			0.15	0.15	0.72	0.69		0.78	0.72	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		0.5			0.5	0.5	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		198			167	225	337	2289		263	2441	
v/s Ratio Prot							0.00	c0.43		c0.03	0.33	
v/s Ratio Perm		0.05			c0.13	0.01	0.08			0.40		
v/c Ratio		0.34			0.89	0.06	0.11	0.62		0.56	0.45	
Uniform Delay, d1		49.4			54.1	47.3	5.6	10.9		8.9	7.3	
Progression Factor		1.00			1.00	1.00	0.98	1.24		3.96	1.09	
Incremental Delay, d2		0.4			39.5	0.0	0.0	1.1		1.3	0.5	
Delay (s)		49.7			93.6	47.3	5.5	14.6		36.6	8.4	
Level of Service		D			F	D	A	B		D	A	
Approach Delay (s)		49.7			75.6			14.4			11.8	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay		19.2										
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		73.5%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	22	29	129	9	88	34	1181	152	138	992	28
Future Volume (veh/h)	28	22	29	129	9	88	34	1181	152	138	992	28
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	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	1800	1800	1800	1800	1800	1786	1800	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	30	24	31	139	10	95	37	1270	163	148	1067	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	1	0	1	1	1	1	1
Cap, veh/h	41	33	21	196	10	333	396	1908	244	359	2224	63
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.03	1.00	1.00	0.09	1.00	1.00
Sat Flow, veh/h	16	147	93	638	46	1493	1714	3025	386	1701	3370	95
Grp Volume(v), veh/h	85	0	0	149	0	95	37	709	724	148	537	560
Grp Sat Flow(s),veh/h/ln	256	0	0	684	0	1493	1714	1697	1715	1701	1697	1769
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	6.9	1.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	29.0	0.0	0.0	28.1	0.0	6.9	1.0	0.0	0.0	4.0	0.0	0.0
Prop In Lane	0.35		0.36	0.93		1.00	1.00		0.23	1.00		0.05
Lane Grp Cap(c), veh/h	95	0	0	206	0	333	396	1070	1081	359	1119	1167
V/C Ratio(X)	0.90	0.00	0.00	0.72	0.00	0.29	0.09	0.66	0.67	0.41	0.48	0.48
Avail Cap(c_a), veh/h	95	0	0	206	0	333	444	1070	1081	502	1119	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.64	0.64	0.64	0.68	0.68	0.68
Uniform Delay (d), s/veh	49.8	0.0	0.0	50.2	0.0	41.9	8.1	0.0	0.0	6.5	0.0	0.0
Incr Delay (d2), s/veh	59.3	0.0	0.0	10.3	0.0	0.2	0.0	2.1	2.1	0.2	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(50%),veh/ln	4.4	0.0	0.0	5.4	0.0	2.6	0.4	0.6	0.6	1.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.2	0.0	0.0	60.5	0.0	42.1	8.1	2.1	2.1	6.7	1.0	1.0
LnGrp LOS	F	A	A	E	A	D	A	A	A	A	A	A
Approach Vol, veh/h		85			244			1470			1245	
Approach Delay, s/veh		109.2			53.3			2.3			1.7	
Approach LOS		F			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	90.8		33.0	10.0	87.0		33.0				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	5.8	82.2		29.0	17.0	71.0		29.0				
Max Q Clear Time (g_c+I1), s	3.0	2.0		30.1	6.0	2.0		31.0				
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	2.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				9.1								
HCM 6th LOS				A								

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	666	318	77	287	150	161	657	65	186	765	186
Future Volume (vph)	320	666	318	77	287	150	161	657	65	186	765	186
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3252	3190		1710	3150		1644	3335		1693	3261	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3252	3190		1710	3150		1644	3335		1693	3261	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	694	331	80	299	156	168	684	68	194	797	194
RTOR Reduction (vph)	0	44	0	0	51	0	0	5	0	0	15	0
Lane Group Flow (vph)	333	981	0	80	404	0	168	747	0	194	976	0
Confl. Peds. (#/hr)	27		5	5		27	7		3	3		7
Confl. Bikes (#/hr)			2			2			2			
Heavy Vehicles (%)	2%	1%	2%	0%	1%	1%	4%	1%	0%	1%	1%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	16.0	42.1		8.7	34.8		14.5	44.5		16.7	46.7	
Effective Green, g (s)	16.0	42.1		8.7	34.8		14.5	44.5		16.7	46.7	
Actuated g/C Ratio	0.12	0.32		0.07	0.27		0.11	0.34		0.13	0.36	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	400	1033		114	843		183	1141		217	1171	
v/s Ratio Prot	c0.10	c0.31		0.05	0.13		0.10	0.22		c0.11	c0.30	
v/s Ratio Perm												
v/c Ratio	0.83	0.95		0.70	0.48		0.92	0.65		0.89	0.83	
Uniform Delay, d1	55.7	42.9		59.4	40.0		57.2	36.2		55.8	38.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.91	0.93	
Incremental Delay, d2	13.2	16.8		14.7	0.2		42.8	2.9		30.8	6.4	
Delay (s)	68.9	59.7		74.1	40.1		99.9	39.2		81.5	41.9	
Level of Service	E	E		E	D		F	D		F	D	
Approach Delay (s)		62.0			45.2			50.3			48.3	
Approach LOS		E			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			53.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			88.0%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	320	666	318	77	287	150	161	657	65	186	765	186
Future Volume (veh/h)	320	666	318	77	287	150	161	657	65	186	765	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.99
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	1772	1786	1786	1800	1786	1786	1744	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	333	694	331	80	299	156	168	684	68	194	797	194
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	0	1	1	4	1	1	1	1	1
Cap, veh/h	380	710	339	100	569	287	191	1092	108	219	988	240
Arrive On Green	0.12	0.32	0.32	0.06	0.27	0.27	0.11	0.35	0.35	0.04	0.12	0.12
Sat Flow, veh/h	3274	2198	1048	1714	2146	1084	1661	3107	309	1701	2702	658
Grp Volume(v), veh/h	333	536	489	80	234	221	168	373	379	194	500	491
Grp Sat Flow(s),veh/h/ln	1637	1697	1549	1714	1697	1533	1661	1697	1718	1701	1697	1663
Q Serve(g_s), s	13.0	40.6	40.6	6.0	15.3	16.1	13.0	23.8	23.8	14.8	37.4	37.4
Cycle Q Clear(g_c), s	13.0	40.6	40.6	6.0	15.3	16.1	13.0	23.8	23.8	14.8	37.4	37.4
Prop In Lane	1.00		0.68	1.00		0.71	1.00		0.18	1.00		0.40
Lane Grp Cap(c), veh/h	380	548	500	100	450	406	191	596	604	219	620	608
V/C Ratio(X)	0.88	0.98	0.98	0.80	0.52	0.54	0.88	0.63	0.63	0.89	0.81	0.81
Avail Cap(c_a), veh/h	504	548	500	158	450	406	192	596	604	249	620	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	56.5	43.5	43.5	60.5	40.7	41.0	56.7	35.0	35.1	61.3	52.7	52.7
Incr Delay (d2), s/veh	10.6	32.5	34.3	6.2	0.5	0.8	33.4	4.9	4.9	23.4	9.8	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	21.8	20.2	2.8	6.5	6.2	7.2	10.6	10.8	8.2	18.8	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	76.0	77.8	66.7	41.2	41.8	90.1	40.0	39.9	84.7	62.5	62.7
LnGrp LOS	E	E	E	E	D	D	F	D	D	F	E	E
Approach Vol, veh/h	1358			535			920			1185		
Approach Delay, s/veh	74.5			45.3			49.1			66.2		
Approach LOS	E			D			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.9	52.5	19.1	39.5	20.8	50.7	11.6	47.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	15.0	43.0	20.0	34.0	19.0	39.0	12.0	42.0				
Max Q Clear Time (g_c+I1), s	15.0	39.4	15.0	18.1	16.8	25.8	8.0	42.6				
Green Ext Time (p_c), s	0.0	0.8	0.1	0.7	0.0	1.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	62.3											
HCM 6th LOS	E											

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	197	474	394	43	48	165
Future Vol, veh/h	197	474	394	43	48	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	205	494	410	45	50	172
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	455	0	-	0	1337	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	904	-
Critical Hdwy	4.12	-	-	-	6.42	6.21
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.309
Pot Cap-1 Maneuver	1106	-	-	-	169	625
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	395	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1106	-	-	-	138	625
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	395	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.6	0		20.2		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1106	-	-	-	138	625
HCM Lane V/C Ratio	0.186	-	-	-	0.362	0.275
HCM Control Delay (s)	9	-	-	-	45.2	12.9
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.7	-	-	-	1.5	1.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	97	82	8	11	15
Future Vol, veh/h	21	97	82	8	11	15
Conflicting Peds, #/hr	0	0	0	0	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	4	0	12	0	0
Mvmt Flow	24	113	95	9	13	17
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	104	0	-	0	264	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1500	-	-	-	729	961
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	870	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1500	-	-	-	717	961
Mov Cap-2 Maneuver	-	-	-	-	717	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	870	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.3	0		9.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1500	-	-	-	840	
HCM Lane V/C Ratio	0.016	-	-	-	0.036	
HCM Control Delay (s)	7.4	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	569	79	30	354	36	25
Future Vol, veh/h	569	79	30	354	36	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	0	3	0
Mvmt Flow	605	84	32	377	38	27
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	689	0	1088	647
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	441	-
Critical Hdwy	-	-	4.1	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.2	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	915	-	238	475
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	915	-	228	475
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	646	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		21	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	290	-	-	915	-	
HCM Lane V/C Ratio	0.224	-	-	0.035	-	
HCM Control Delay (s)	21	-	-	9.1	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-	

Appendix E
Year 2039 Background Traffic Conditions
Operational Worksheets

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

1: Cordon Rd NE & Silverton Rd NE

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	206	156	258	399	4	227	364	197	14	427	130
Future Volume (vph)	78	206	156	258	399	4	227	364	197	14	427	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1583	2951		1629	3284		1598	1765	1404	1449	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1583	2951		1629	3284		1598	1765	1404	1449	1714	1457
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	90	237	179	297	459	5	261	418	226	16	491	149
RTOR Reduction (vph)	0	149	0	0	1	0	0	0	60	0	0	58
Lane Group Flow (vph)	90	267	0	297	463	0	261	418	166	16	491	91
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	8%	8%	9%	5%	4%	0%	7%	2%	9%	18%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases								8				4
Actuated Green, G (s)	8.5	16.6		11.1	19.2		24.4	52.1	63.2	2.2	29.9	38.4
Effective Green, g (s)	8.5	16.6		11.1	19.2		24.4	52.1	63.2	2.2	29.9	38.4
Actuated g/C Ratio	0.08	0.17		0.11	0.19		0.24	0.52	0.63	0.02	0.30	0.38
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	134	489		180	630		389	919	887	31	512	559
v/s Ratio Prot	0.06	0.09		c0.18	c0.14		c0.16	0.24	0.02	0.01	c0.29	0.01
v/s Ratio Perm									0.10			0.05
v/c Ratio	0.67	0.55		1.65	0.74		0.67	0.45	0.19	0.52	0.96	0.16
Uniform Delay, d1	44.4	38.2		44.5	38.0		34.2	15.0	7.7	48.4	34.4	20.2
Progression Factor	1.00	1.00		1.00	1.00		0.93	1.52	2.42	1.00	1.00	1.00
Incremental Delay, d2	9.9	0.7		316.0	3.8		3.0	1.4	0.0	5.9	30.8	0.1
Delay (s)	54.3	38.9		360.4	41.9		34.9	24.3	18.6	54.3	65.2	20.3
Level of Service	D	D		F	D		C	C	B	D	E	C
Approach Delay (s)		41.7			166.2			26.0			54.8	
Approach LOS		D			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			73.2			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			78.4%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

1: Cordon Rd NE & Silverton Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	206	156	258	399	4	227	364	197	14	427	130
Future Volume (veh/h)	78	206	156	258	399	4	227	364	197	14	427	130
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	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1688	1688	1688	1730	1744	1744	1702	1772	1674	1547	1730	1730
Adj Flow Rate, veh/h	90	237	179	297	459	5	261	418	226	16	491	149
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	5	4	4	7	2	9	18	5	5
Cap, veh/h	111	300	217	165	672	7	146	956	907	16	797	777
Arrive On Green	0.07	0.17	0.17	0.10	0.20	0.20	0.09	0.54	0.54	0.01	0.46	0.46
Sat Flow, veh/h	1607	1771	1281	1647	3357	37	1621	1772	1418	1474	1730	1466
Grp Volume(v), veh/h	90	214	202	297	226	238	261	418	226	16	491	149
Grp Sat Flow(s),veh/h/ln	1607	1603	1448	1647	1657	1737	1621	1772	1418	1474	1730	1466
Q Serve(g_s), s	5.5	12.8	13.5	10.0	12.7	12.7	9.0	14.2	6.8	1.1	21.4	5.3
Cycle Q Clear(g_c), s	5.5	12.8	13.5	10.0	12.7	12.7	9.0	14.2	6.8	1.1	21.4	5.3
Prop In Lane	1.00		0.88	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	271	245	165	332	348	146	956	907	16	797	777
V/C Ratio(X)	0.81	0.79	0.83	1.80	0.68	0.68	1.79	0.44	0.25	0.98	0.62	0.19
Avail Cap(c_a), veh/h	207	513	463	165	482	505	146	956	907	81	797	777
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	39.8	40.1	45.0	37.1	37.1	45.5	13.9	7.7	49.4	20.3	12.3
Incr Delay (d2), s/veh	5.2	1.9	2.7	384.3	0.9	0.9	381.3	1.5	0.7	58.2	3.6	0.5
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(50%),veh/ln	2.4	5.1	4.9	21.6	5.2	5.4	19.0	5.8	2.1	0.7	9.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	41.7	42.8	429.3	38.0	37.9	426.8	15.3	8.4	107.6	23.9	12.9
LnGrp LOS	D	D	D	F	D	D	F	B	A	F	C	B
Approach Vol, veh/h		506			761			905			656	
Approach Delay, s/veh		43.8			190.7			132.2			23.4	
Approach LOS		D			F			F			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	21.9	13.0	51.1	10.9	25.0	5.1	59.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	10.0	32.0	9.0	31.0	12.9	29.1	5.5	34.5				
Max Q Clear Time (g_c+l1), s	12.0	15.5	11.0	23.4	7.5	14.7	3.1	16.2				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.6	0.0	0.6	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay				106.9								
HCM 6th LOS				F								

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	42	130	53	76	39	151	645	14	39	730	100
Future Volume (vph)	66	42	130	53	76	39	151	645	14	39	730	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	1530		1674	1635		1644	1760		1710	1727	
Flt Permitted	0.54	1.00		0.41	1.00		0.13	1.00		0.31	1.00	
Satd. Flow (perm)	958	1530		719	1635		219	1760		563	1727	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	47	144	59	84	43	168	717	16	43	811	111
RTOR Reduction (vph)	0	117	0	0	20	0	0	1	0	0	4	0
Lane Group Flow (vph)	73	74	0	59	107	0	168	732	0	43	918	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	2%	3%	2%	2%	4%	3%	4%	2%	0%	0%	2%	3%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	12.7	9.9		12.5	9.8		72.4	66.2		62.8	60.6	
Effective Green, g (s)	12.7	9.9		12.5	9.8		72.4	66.2		62.8	60.6	
Actuated g/C Ratio	0.13	0.10		0.12	0.10		0.72	0.66		0.63	0.61	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	141	151		115	160		269	1165		378	1046	
v/s Ratio Prot	c0.01	0.05		0.01	c0.07		c0.05	0.42		0.00	c0.53	
v/s Ratio Perm	0.05			0.05			0.40			0.07		
v/c Ratio	0.52	0.49		0.51	0.67		0.62	0.63		0.11	0.88	
Uniform Delay, d1	40.5	42.7		40.6	43.5		15.3	9.8		7.8	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.59	1.73		1.65	1.46	
Incremental Delay, d2	1.3	0.9		1.6	8.0		2.5	2.0		0.0	1.1	
Delay (s)	41.8	43.6		42.2	51.5		26.8	18.9		12.9	25.2	
Level of Service	D	D		D	D		C	B		B	C	
Approach Delay (s)		43.1			48.6			20.4			24.7	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			27.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			86.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	42	130	53	76	39	151	645	14	39	730	100
Future Volume (veh/h)	66	42	130	53	76	39	151	645	14	39	730	100
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	1.00		0.97	1.00		1.00	1.00		0.98
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	1772	1758	1758	1772	1744	1744	1744	1772	1772	1800	1772	1772
Adj Flow Rate, veh/h	73	47	144	59	84	43	168	717	16	43	811	111
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	3	3	2	4	4	4	2	2	0	2	2
Cap, veh/h	205	54	165	146	153	78	225	1065	24	348	881	121
Arrive On Green	0.03	0.14	0.14	0.03	0.14	0.14	0.06	0.62	0.62	0.02	0.58	0.58
Sat Flow, veh/h	1688	379	1161	1688	1075	550	1661	1726	39	1714	1521	208
Grp Volume(v), veh/h	73	0	191	59	0	127	168	0	733	43	0	922
Grp Sat Flow(s),veh/h/ln	1688	0	1539	1688	0	1625	1661	0	1765	1714	0	1729
Q Serve(g_s), s	3.0	0.0	12.2	3.0	0.0	7.3	3.9	0.0	27.2	1.0	0.0	48.0
Cycle Q Clear(g_c), s	3.0	0.0	12.2	3.0	0.0	7.3	3.9	0.0	27.2	1.0	0.0	48.0
Prop In Lane	1.00		0.75	1.00		0.34	1.00		0.02	1.00		0.12
Lane Grp Cap(c), veh/h	205	0	219	146	0	231	225	0	1088	348	0	1002
V/C Ratio(X)	0.36	0.00	0.87	0.40	0.00	0.55	0.75	0.00	0.67	0.12	0.00	0.92
Avail Cap(c_a), veh/h	205	0	231	146	0	244	244	0	1088	363	0	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	42.0	36.3	0.0	39.9	22.8	0.0	12.6	11.1	0.0	18.9
Incr Delay (d2), s/veh	0.4	0.0	26.3	0.7	0.0	1.1	9.3	0.0	3.3	0.1	0.0	14.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	6.2	1.3	0.0	3.0	2.9	0.0	10.7	0.4	0.0	21.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	68.3	36.9	0.0	41.0	32.1	0.0	15.9	11.2	0.0	33.6
LnGrp LOS	D	A	E	D	A	D	C	A	B	B	A	C
Approach Vol, veh/h	264			186			901			965		
Approach Delay, s/veh	59.8			39.7			18.9			32.6		
Approach LOS	E			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	63.9	7.0	19.2	6.1	67.7	7.0	19.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0				
Max Green Setting (Gmax), s	7.0	56.0	3.0	15.0	3.0	60.0	3.0	15.0				
Max Q Clear Time (g_c+l1), s	5.9	50.0	5.0	9.3	3.0	29.2	5.0	14.2				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.1	0.0	1.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	31.0											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	20.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	35	10	58	5	4	0	79	775	4	9	836	68
Future Vol, veh/h	35	10	58	5	4	0	79	775	4	9	836	68
Conflicting Peds, #/hr	0	0	1	1	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	0	0	0	2	5	0	0	7	2
Mvmt Flow	38	11	64	5	4	0	87	852	4	10	919	75

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2008	2008	959	2043	2043	854	995	0	0	856	0	0
Stage 1	978	978	-	1028	1028	-	-	-	-	-	-	-
Stage 2	1030	1030	-	1015	1015	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	45	60	306	42	57	361	695	-	-	793	-	-
Stage 1	304	331	-	285	314	-	-	-	-	-	-	-
Stage 2	284	313	-	290	318	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 38	52	305	25	49	361	694	-	-	793	-	-
Mov Cap-2 Maneuver	~ 38	52	-	25	49	-	-	-	-	-	-	-
Stage 1	266	326	-	249	275	-	-	-	-	-	-	-
Stage 2	244	274	-	219	314	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	345.1		161.6		1		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	694	-	-	79	32	793	-	-
HCM Lane V/C Ratio	0.125	-	-	1.433	0.309	0.012	-	-
HCM Control Delay (s)	10.9	-	-	\$ 345.1	161.6	9.6	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	9	1	0	-	-

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

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	60	139	60	96	37	135	749	29	45	735	119
Future Volume (vph)	72	60	139	60	96	37	135	749	29	45	735	119
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1676	1765	1457	1644	1638		1660	1705		1710	1682	1485
Flt Permitted	0.52	1.00	1.00	0.71	1.00		0.23	1.00		0.25	1.00	1.00
Satd. Flow (perm)	922	1765	1457	1236	1638		405	1705		445	1682	1485
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	79	66	153	66	105	41	148	823	32	49	808	131
RTOR Reduction (vph)	0	0	134	0	17	0	0	1	0	0	0	22
Lane Group Flow (vph)	79	66	19	66	129	0	148	854	0	49	808	109
Heavy Vehicles (%)	2%	2%	5%	4%	3%	11%	3%	5%	5%	0%	7%	3%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	12.7	12.7	12.7	12.7	12.7		75.4	69.2		69.2	66.1	66.1
Effective Green, g (s)	12.7	12.7	12.7	12.7	12.7		75.4	69.2		69.2	66.1	66.1
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13		0.75	0.69		0.69	0.66	0.66
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	117	224	185	156	208		383	1179		347	1111	981
v/s Ratio Prot		0.04			0.08		c0.02	c0.50		0.00	0.48	
v/s Ratio Perm	c0.09		0.01	0.05			0.27			0.09		0.07
v/c Ratio	0.68	0.29	0.11	0.42	0.62		0.39	0.72		0.14	0.73	0.11
Uniform Delay, d1	41.7	39.6	38.6	40.3	41.4		7.3	9.5		6.8	11.1	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.34	1.48		0.77	0.63	0.37
Incremental Delay, d2	11.4	0.3	0.1	1.3	4.9		0.0	0.4		0.0	2.7	0.1
Delay (s)	53.1	39.9	38.7	41.6	46.3		9.8	14.4		5.3	9.7	2.4
Level of Service	D	D	D	D	D		A	B		A	A	A
Approach Delay (s)		42.8			44.8			13.7			8.5	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			17.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			78.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

4: Cordon Rd NE & Center St NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	60	139	60	96	37	135	749	29	45	735	119
Future Volume (veh/h)	72	60	139	60	96	37	135	749	29	45	735	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1772	1772	1730	1744	1758	1758	1758	1730	1730	1800	1702	1758
Adj Flow Rate, veh/h	79	66	153	66	105	41	148	823	32	49	808	131
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	5	4	3	3	3	5	5	0	7	3
Cap, veh/h	174	295	244	218	200	78	325	1093	43	312	1079	945
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.05	0.66	0.66	0.02	0.63	0.63
Sat Flow, veh/h	1177	1772	1466	1084	1203	470	1674	1654	64	1714	1702	1490
Grp Volume(v), veh/h	79	66	153	66	0	146	148	0	855	49	808	131
Grp Sat Flow(s),veh/h/ln	1177	1772	1466	1084	0	1673	1674	0	1718	1714	1702	1490
Q Serve(g_s), s	6.6	3.2	9.7	5.6	0.0	8.0	3.0	0.0	33.6	1.0	33.1	3.5
Cycle Q Clear(g_c), s	14.5	3.2	9.7	8.8	0.0	8.0	3.0	0.0	33.6	1.0	33.1	3.5
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	174	295	244	218	0	279	325	0	1136	312	1079	945
V/C Ratio(X)	0.45	0.22	0.63	0.30	0.00	0.52	0.46	0.00	0.75	0.16	0.75	0.14
Avail Cap(c_a), veh/h	296	478	396	330	0	452	343	0	1136	370	1079	945
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	36.1	38.8	39.9	0.0	38.0	13.0	0.0	11.4	11.2	12.7	7.3
Incr Delay (d2), s/veh	0.7	0.1	1.0	0.6	0.0	1.1	0.4	0.0	4.6	0.1	4.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.4	3.5	1.5	0.0	3.3	1.3	0.0	12.6	0.3	12.6	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	36.2	39.8	40.5	0.0	39.2	13.4	0.0	16.1	11.3	17.5	7.6
LnGrp LOS	D	D	D	D	A	D	B	A	B	B	B	A
Approach Vol, veh/h	298			212			1003			988		
Approach Delay, s/veh	40.5			39.6			15.7			15.9		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	21.7		8.9	69.4		21.7		6.2	72.1			
Change Period (Y+Rc), s	5.0		4.0	6.0		5.0		4.0	6.0			
Max Green Setting (Gmax), s	27.0		6.0	52.0		27.0		5.6	52.4			
Max Q Clear Time (g_c+I1), s	16.5		5.0	35.1		10.8		3.0	35.6			
Green Ext Time (p_c), s	0.1		0.0	1.3		0.8		0.0	1.5			
Intersection Summary												
HCM 6th Ctrl Delay	20.7											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Traffic Vol, veh/h	16	2	46	13	1	12	46	885	24	16	888	32
Future Vol, veh/h	16	2	46	13	1	12	46	885	24	16	888	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	14	0	7	0	0	0	0	5	22	0	7	0
Mvmt Flow	18	2	51	14	1	13	51	983	27	18	987	36

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2147	2153	1005	2167	2158	997	1023	0	0	1010	0	0
Stage 1	1041	1041	-	1099	1099	-	-	-	-	-	-	-
Stage 2	1106	1112	-	1068	1059	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.5	6.27	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4	3.363	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	32	49	287	34	48	299	686	-	-	694	-	-
Stage 1	264	310	-	260	291	-	-	-	-	-	-	-
Stage 2	242	287	-	271	304	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	28	44	287	25	43	299	686	-	-	694	-	-
Mov Cap-2 Maneuver	28	44	-	25	43	-	-	-	-	-	-	-
Stage 1	244	302	-	241	269	-	-	-	-	-	-	-
Stage 2	213	266	-	215	296	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	153.3		176.5		0.5		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	686	-	-	82	45	694	-
HCM Lane V/C Ratio	0.075	-	-	0.867	0.642	0.026	-
HCM Control Delay (s)	10.7	-	-	153.3	176.5	10.3	-
HCM Lane LOS	B	-	-	F	F	B	-
HCM 95th %tile Q(veh)	0.2	-	-	4.5	2.4	0.1	-

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	88	53	83	212	110	68	668	66	67	624	270
Future Volume (vph)	185	88	53	83	212	110	68	668	66	67	624	270
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1628	1644		1583	1589		1644	1684		1474	1682	1469
Flt Permitted	0.17	1.00		0.66	1.00		0.14	1.00		0.09	1.00	1.00
Satd. Flow (perm)	292	1644		1093	1589		250	1684		135	1682	1469
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	210	100	60	94	241	125	77	759	75	76	709	307
RTOR Reduction (vph)	0	21	0	0	19	0	0	4	0	0	0	114
Lane Group Flow (vph)	210	139	0	94	347	0	77	830	0	76	709	193
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	5%	1%	5%	8%	6%	8%	4%	5%	10%	16%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	33.2	25.0		26.8	21.8		50.0	45.9		50.0	45.9	45.9
Effective Green, g (s)	33.2	25.0		26.8	21.8		50.0	45.9		50.0	45.9	45.9
Actuated g/C Ratio	0.33	0.25		0.27	0.22		0.50	0.46		0.50	0.46	0.46
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	206	411		317	346		182	772		122	772	674
v/s Ratio Prot	c0.08	0.08		0.01	0.22		0.02	c0.49		c0.03	0.42	
v/s Ratio Perm	c0.25			0.06			0.19			0.28		0.13
v/c Ratio	1.02	0.34		0.30	1.00		0.42	1.08		0.62	0.92	0.29
Uniform Delay, d1	29.7	30.7		28.5	39.1		17.9	27.1		22.0	25.3	16.8
Progression Factor	1.00	1.00		1.00	1.00		1.13	1.04		1.34	0.99	1.62
Incremental Delay, d2	67.8	0.2		0.2	49.3		0.5	53.6		5.8	15.4	0.9
Delay (s)	97.6	30.9		28.7	88.4		20.8	81.6		35.4	40.6	28.2
Level of Service	F	C		C	F		C	F		D	D	C
Approach Delay (s)		68.7			76.2			76.5			36.7	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			60.1			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	88	53	83	212	110	68	668	66	67	624	270
Future Volume (veh/h)	185	88	53	83	212	110	68	668	66	67	624	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1730	1786	1786	1688	1716	1716	1744	1730	1730	1575	1702	1772
Adj Flow Rate, veh/h	210	100	60	94	241	125	77	759	75	76	709	307
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	1	1	8	6	6	4	5	5	16	7	2
Cap, veh/h	207	240	144	334	223	116	183	724	72	133	798	690
Arrive On Green	0.08	0.23	0.23	0.06	0.21	0.21	0.04	0.47	0.47	0.04	0.47	0.47
Sat Flow, veh/h	1647	1035	621	1607	1063	552	1661	1549	153	1500	1702	1470
Grp Volume(v), veh/h	210	0	160	94	0	366	77	0	834	76	709	307
Grp Sat Flow(s),veh/h/ln	1647	0	1656	1607	0	1615	1661	0	1702	1500	1702	1470
Q Serve(g_s), s	8.2	0.0	8.2	4.5	0.0	21.0	2.4	0.0	46.7	2.6	37.9	14.0
Cycle Q Clear(g_c), s	8.2	0.0	8.2	4.5	0.0	21.0	2.4	0.0	46.7	2.6	37.9	14.0
Prop In Lane	1.00		0.38	1.00		0.34	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	207	0	383	334	0	339	183	0	796	133	798	690
V/C Ratio(X)	1.01	0.00	0.42	0.28	0.00	1.08	0.42	0.00	1.05	0.57	0.89	0.45
Avail Cap(c_a), veh/h	207	0	383	341	0	339	210	0	796	155	798	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	0.0	32.7	28.5	0.0	39.5	21.1	0.0	26.6	23.7	24.2	17.8
Incr Delay (d2), s/veh	66.2	0.0	0.3	0.2	0.0	71.6	0.6	0.0	45.3	1.4	14.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	3.3	1.7	0.0	14.9	0.9	0.0	27.8	0.9	17.5	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.8	0.0	33.0	28.6	0.0	111.1	21.7	0.0	72.0	25.1	38.1	19.9
LnGrp LOS	F	A	C	C	A	F	C	A	F	C	D	B
Approach Vol, veh/h		370			460			911			1092	
Approach Delay, s/veh		70.9			94.3			67.7			32.1	
Approach LOS		E			F			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	29.1	7.9	52.9	12.2	27.0	8.1	52.7				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	6.5	22.7	5.5	45.3	8.2	21.0	5.5	45.3				
Max Q Clear Time (g_c+I1), s	6.5	10.2	4.4	39.9	10.2	23.0	4.6	48.7				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.8	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			58.7									
HCM 6th LOS			E									

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	34	20	745	692	67
Future Vol, veh/h	57	34	20	745	692	67
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	4	7	5	9	10
Mvmt Flow	63	38	22	828	769	74
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1679	808	843	0	-	0
Stage 1	806	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Critical Hdwy	6.46	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	102	378	772	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	99	377	772	-	-	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	421	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	82.8	0.3		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	772	-	137	-	-	
HCM Lane V/C Ratio	0.029	-	0.738	-	-	
HCM Control Delay (s)	9.8	-	82.8	-	-	
HCM Lane LOS	A	-	F	-	-	
HCM 95th %tile Q(veh)	0.1	-	4.3	-	-	

Intersection												
Int Delay, s/veh	14.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	0	11	5	5	5	3	650	0	5	625	88
Future Vol, veh/h	80	0	11	5	5	5	3	650	0	5	625	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	0	11	0	50	25	0	7	0	0	5	6
Mvmt Flow	93	0	13	6	6	6	3	756	0	6	727	102
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1558	1552	778	1559	1603	756	829	0	0	756	0	0
Stage 1	790	790	-	762	762	-	-	-	-	-	-	-
Stage 2	768	762	-	797	841	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.31	7.1	7	6.45	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.399	3.5	4.45	3.525	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 90	115	382	92	82	373	811	-	-	864	-	-
Stage 1	380	404	-	400	351	-	-	-	-	-	-	-
Stage 2	391	416	-	383	320	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 82	113	382	88	80	373	811	-	-	864	-	-
Mov Cap-2 Maneuver	~ 82	113	-	88	80	-	-	-	-	-	-	-
Stage 1	378	399	-	398	349	-	-	-	-	-	-	-
Stage 2	376	414	-	365	316	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	229.7		42.6		0		0.1					
HCM LOS	F		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	811	-	-	91	113	864	-	-				
HCM Lane V/C Ratio	0.004	-	-	1.163	0.154	0.007	-	-				
HCM Control Delay (s)	9.5	0	-	229.7	42.6	9.2	0	-				
HCM Lane LOS	A	A	-	F	E	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	7.3	0.5	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	49	25	0	71	51	51	9	553	20	38	584	20
Future Volume (vph)	49	25	0	71	51	51	9	553	20	38	584	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.96		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1566			1654		1710	1689		1598	1693	
Flt Permitted		0.60			0.85		0.35	1.00		0.34	1.00	
Satd. Flow (perm)		967			1433		621	1689		571	1693	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	28	0	79	57	57	10	614	22	42	649	22
RTOR Reduction (vph)	0	0	0	0	17	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	82	0	0	176	0	10	635	0	42	670	0
Heavy Vehicles (%)	14%	6%	0%	0%	8%	0%	0%	6%	7%	7%	6%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		15.3			15.3		67.9	67.2		71.5	69.0	
Effective Green, g (s)		15.3			15.3		67.9	67.2		71.5	69.0	
Actuated g/C Ratio		0.15			0.15		0.68	0.67		0.72	0.69	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		147			219		429	1135		433	1168	
v/s Ratio Prot							0.00	0.38		c0.00	c0.40	
v/s Ratio Perm		0.08			c0.12		0.02			0.07		
v/c Ratio		0.56			0.80		0.02	0.56		0.10	0.57	
Uniform Delay, d1		39.2			40.9		5.8	8.6		5.2	8.0	
Progression Factor		1.00			1.00		0.80	0.73		1.60	1.66	
Incremental Delay, d2		2.6			17.9		0.0	1.8		0.0	1.4	
Delay (s)		41.8			58.8		4.6	8.1		8.3	14.7	
Level of Service		D			E		A	A		A	B	
Approach Delay (s)		41.8			58.8			8.0			14.3	
Approach LOS		D			E			A			B	
Intersection Summary												
HCM 2000 Control Delay		18.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		53.6%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	25	0	71	51	51	9	553	20	38	584	20
Future Volume (veh/h)	49	25	0	71	51	51	9	553	20	38	584	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1716	1716	1716	1688	1688	1688	1800	1716	1716	1702	1716	1716
Adj Flow Rate, veh/h	54	28	0	79	57	0	10	614	22	42	649	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	6	6	6	8	8	8	0	6	6	7	6	6
Cap, veh/h	147	63	0	145	75		497	1184	42	503	1209	41
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.01	0.72	0.72	0.02	0.73	0.73
Sat Flow, veh/h	791	571	0	799	681	0	1714	1646	59	1621	1650	56
Grp Volume(v), veh/h	82	0	0	136	0	0	10	0	636	42	0	671
Grp Sat Flow(s),veh/h/ln	1362	0	0	1480	0	0	1714	0	1705	1621	0	1706
Q Serve(g_s), s	0.0	0.0	0.0	3.3	0.0	0.0	0.2	0.0	16.7	0.7	0.0	17.3
Cycle Q Clear(g_c), s	5.6	0.0	0.0	8.9	0.0	0.0	0.2	0.0	16.7	0.7	0.0	17.3
Prop In Lane	0.66		0.00	0.58		0.00	1.00		0.03	1.00		0.03
Lane Grp Cap(c), veh/h	210	0	0	220	0		497	0	1227	503	0	1250
V/C Ratio(X)	0.39	0.00	0.00	0.62	0.00		0.02	0.00	0.52	0.08	0.00	0.54
Avail Cap(c_a), veh/h	414	0	0	430	0		581	0	1227	564	0	1250
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	0.87	0.00	0.87	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	0.0	43.4	0.0	0.0	5.1	0.0	6.3	4.9	0.0	5.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.1	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	3.3	0.0	0.0	0.0	0.0	5.4	0.2	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	0.0	0.0	44.5	0.0	0.0	5.1	0.0	7.6	5.0	0.0	7.5
LnGrp LOS	D	A	A	D	A		A	A	A	A	A	A
Approach Vol, veh/h	82				136		A		646		713	
Approach Delay, s/veh	42.4				44.5				7.6		7.4	
Approach LOS	D				D				A		A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	79.3		16.0	6.1	77.9		16.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.6	53.4		26.0	5.8	53.2		26.0				
Max Q Clear Time (g_c+I1), s	2.2	19.3		10.9	2.7	18.7		7.6				
Green Ext Time (p_c), s	0.0	1.1		0.1	0.0	1.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay 12.5
HCM 6th LOS B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

10: Cordon Rd SE & Gaffin Rd SE

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	28	129	49	21	178	35	390	22	70	575	51
Future Volume (vph)	55	28	129	49	21	178	35	390	22	70	575	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	1540		1710	1505		1598	1690		1613	1708	
Flt Permitted	0.95	1.00		0.95	1.00		0.27	1.00		0.41	1.00	
Satd. Flow (perm)	1660	1540		1710	1505		462	1690		702	1708	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	67	34	157	60	26	217	43	476	27	85	701	62
RTOR Reduction (vph)	0	144	0	0	199	0	0	1	0	0	2	0
Lane Group Flow (vph)	67	47	0	60	44	0	43	502	0	85	761	0
Heavy Vehicles (%)	3%	0%	3%	0%	0%	4%	7%	6%	0%	6%	4%	5%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	5.1	8.5		4.8	8.2		67.3	64.8		70.1	66.2	
Effective Green, g (s)	5.1	8.5		4.8	8.2		67.3	64.8		70.1	66.2	
Actuated g/C Ratio	0.05	0.08		0.05	0.08		0.67	0.65		0.70	0.66	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	84	130		82	123		339	1095		527	1130	
v/s Ratio Prot	c0.04	c0.03		0.04	0.03		0.00	0.30		c0.01	c0.45	
v/s Ratio Perm							0.08			0.11		
v/c Ratio	0.80	0.36		0.73	0.36		0.13	0.46		0.16	0.67	
Uniform Delay, d1	46.9	43.2		47.0	43.4		7.1	8.8		5.2	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.80	0.61	
Incremental Delay, d2	37.2	0.6		24.8	0.6		0.1	1.4		0.0	2.9	
Delay (s)	84.1	43.8		71.8	44.0		7.2	10.2		4.2	9.2	
Level of Service	F	D		E	D		A	B		A	A	
Approach Delay (s)		54.3			49.5			10.0			8.7	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			21.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			69.6%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 10: Cordon Rd SE & Gaffin Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	28	129	49	21	178	35	390	22	70	575	51
Future Volume (veh/h)	55	28	129	49	21	178	35	390	22	70	575	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1758	1800	1800	1800	1800	1800	1702	1716	1716	1716	1744	1744
Adj Flow Rate, veh/h	67	34	157	60	26	217	43	476	27	85	701	62
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	0	0	0	0	0	7	6	6	6	4	4
Cap, veh/h	84	51	234	76	29	244	255	893	51	437	903	80
Arrive On Green	0.05	0.18	0.18	0.04	0.18	0.18	0.02	0.56	0.56	0.04	0.57	0.57
Sat Flow, veh/h	1674	279	1289	1714	166	1385	1621	1608	91	1634	1579	140
Grp Volume(v), veh/h	67	0	191	60	0	243	43	0	503	85	0	763
Grp Sat Flow(s),veh/h/ln	1674	0	1568	1714	0	1551	1621	0	1699	1634	0	1719
Q Serve(g_s), s	4.0	0.0	11.3	3.5	0.0	15.3	1.2	0.0	18.7	2.2	0.0	34.2
Cycle Q Clear(g_c), s	4.0	0.0	11.3	3.5	0.0	15.3	1.2	0.0	18.7	2.2	0.0	34.2
Prop In Lane	1.00		0.82	1.00		0.89	1.00		0.05	1.00		0.08
Lane Grp Cap(c), veh/h	84	0	285	76	0	273	255	0	944	437	0	983
V/C Ratio(X)	0.80	0.00	0.67	0.79	0.00	0.89	0.17	0.00	0.53	0.19	0.00	0.78
Avail Cap(c_a), veh/h	97	0	408	99	0	403	310	0	944	476	0	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82
Uniform Delay (d), s/veh	47.0	0.0	38.1	47.3	0.0	40.3	14.9	0.0	14.0	10.7	0.0	16.5
Incr Delay (d2), s/veh	27.5	0.0	1.0	19.8	0.0	11.7	0.1	0.0	2.2	0.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	4.4	1.9	0.0	6.6	0.4	0.0	7.3	0.8	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.4	0.0	39.1	67.2	0.0	51.9	15.0	0.0	16.2	10.7	0.0	21.5
LnGrp LOS	E	A	D	E	A	D	B	A	B	B	A	C
Approach Vol, veh/h	258			303			546			848		
Approach Delay, s/veh	48.3			55.0			16.1			20.4		
Approach LOS	D			D			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	63.2	9.0	21.6	7.8	61.5	8.4	22.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.6	44.6	5.8	26.0	6.2	44.0	5.8	26.0				
Max Q Clear Time (g_c+l1), s	3.2	36.2	6.0	17.3	4.2	20.7	5.5	13.3				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.3	0.0	0.7	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	28.2											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	185	117	113	378	156	138	718	46	77	601	140
Future Volume (vph)	129	185	117	113	378	156	138	718	46	77	601	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	3081	1335	1527	3093		1644	3242		1660	3195	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1660	3081	1335	1527	3093		1644	3242		1660	3195	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	148	213	134	130	434	179	159	825	53	89	691	161
RTOR Reduction (vph)	0	0	90	0	44	0	0	4	0	0	16	0
Lane Group Flow (vph)	148	213	44	130	569	0	159	874	0	89	836	0
Confl. Peds. (#/hr)	6		8	8		6	7		9	9		7
Heavy Vehicles (%)	3%	11%	13%	12%	6%	3%	4%	4%	9%	3%	4%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	11.9	22.9	36.0	12.3	23.3		13.1	50.4		8.4	45.7	
Effective Green, g (s)	11.9	22.9	36.0	12.3	23.3		13.1	50.4		8.4	45.7	
Actuated g/C Ratio	0.11	0.21	0.33	0.11	0.21		0.12	0.46		0.08	0.42	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	179	641	485	170	655		195	1485		126	1327	
v/s Ratio Prot	c0.09	0.07	0.01	0.09	c0.18		c0.10	0.27		0.05	c0.26	
v/s Ratio Perm			0.02									
v/c Ratio	0.83	0.33	0.09	0.76	0.87		0.82	0.59		0.71	0.63	
Uniform Delay, d1	48.0	37.0	25.6	47.4	41.9		47.3	22.1		49.6	25.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.05	0.58		0.83	0.93	
Incremental Delay, d2	24.7	0.1	0.0	16.7	11.4		20.3	1.6		12.8	2.1	
Delay (s)	72.7	37.2	25.7	64.1	53.3		70.0	14.5		54.2	25.7	
Level of Service	E	D	C	E	D		E	B		D	C	
Approach Delay (s)		44.7			55.2			23.0			28.4	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			35.3			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			70.4%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary 11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	185	117	113	378	156	138	718	46	77	601	140
Future Volume (veh/h)	129	185	117	113	378	156	138	718	46	77	601	140
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	1.00		0.99	1.00		0.99	1.00		0.99
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	1758	1646	1617	1632	1716	1716	1744	1744	1744	1758	1744	1744
Adj Flow Rate, veh/h	148	213	134	130	434	179	159	825	53	89	691	161
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	11	13	12	6	6	4	4	4	3	4	4
Cap, veh/h	174	690	450	156	489	199	182	1476	95	110	1128	263
Arrive On Green	0.10	0.22	0.22	0.10	0.22	0.22	0.22	0.93	0.93	0.07	0.42	0.42
Sat Flow, veh/h	1674	3127	1356	1554	2250	918	1661	3159	203	1674	2664	620
Grp Volume(v), veh/h	148	213	134	130	313	300	159	433	445	89	430	422
Grp Sat Flow(s),veh/h/ln	1674	1563	1356	1554	1630	1538	1661	1657	1705	1674	1657	1627
Q Serve(g_s), s	9.6	6.3	8.1	9.0	20.5	20.8	10.2	3.9	3.9	5.8	22.2	22.2
Cycle Q Clear(g_c), s	9.6	6.3	8.1	9.0	20.5	20.8	10.2	3.9	3.9	5.8	22.2	22.2
Prop In Lane	1.00		1.00	1.00		0.60	1.00		0.12	1.00		0.38
Lane Grp Cap(c), veh/h	174	690	450	156	354	334	182	774	797	110	702	689
V/C Ratio(X)	0.85	0.31	0.30	0.83	0.88	0.90	0.87	0.56	0.56	0.81	0.61	0.61
Avail Cap(c_a), veh/h	213	739	471	261	452	427	226	774	797	143	702	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	35.8	27.4	48.6	41.7	41.9	42.2	2.0	2.0	50.7	24.7	24.7
Incr Delay (d2), s/veh	19.8	0.1	0.1	4.3	13.5	15.9	20.6	2.7	2.6	17.2	4.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.4	2.6	3.7	9.5	9.3	4.7	1.3	1.3	2.9	9.3	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	35.9	27.5	52.9	55.2	57.8	62.7	4.7	4.6	67.9	28.6	28.7
LnGrp LOS	E	D	C	D	E	E	E	A	A	E	C	C
Approach Vol, veh/h	495			743			1037			941		
Approach Delay, s/veh	43.3			55.8			13.6			32.4		
Approach LOS	D			E			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	50.6	15.4	27.9	11.3	55.4	15.1	28.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	15.0	34.5	14.0	30.5	9.4	40.1	18.5	26.0				
Max Q Clear Time (g_c+I1), s	12.2	24.2	11.6	22.8	7.8	5.9	11.0	10.1				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.7	0.0	1.3	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	33.4											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (vph)	14	3	17	83	8	56	14	850	43	56	784	7
Future Volume (vph)	14	3	17	83	8	56	14	850	43	56	784	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1489			1649	1470	1568	3218		1526	3223	
Flt Permitted		0.87			0.79	1.00	0.32	1.00		0.26	1.00	
Satd. Flow (perm)		1327			1370	1470	522	3218		419	3223	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	3	19	91	9	62	15	934	47	62	862	8
RTOR Reduction (vph)	0	17	0	0	0	55	0	2	0	0	0	0
Lane Group Flow (vph)	0	20	0	0	100	7	15	979	0	62	870	0
Confl. Peds. (#/hr)	5		3	3		5	1		4	4		1
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	67%	7%	3%	14%	2%	9%	5%	12%	12%	6%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		13.1			13.1	13.1	81.9	80.5		85.9	82.5	
Effective Green, g (s)		13.1			13.1	13.1	81.9	80.5		85.9	82.5	
Actuated g/C Ratio		0.12			0.12	0.12	0.74	0.73		0.78	0.75	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0	2.0	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		158			163	175	401	2354		361	2417	
v/s Ratio Prot							0.00	c0.30		c0.01	0.27	
v/s Ratio Perm		0.02			c0.07	0.01	0.03			0.13		
v/c Ratio		0.13			0.61	0.04	0.04	0.42		0.17	0.36	
Uniform Delay, d1		43.3			46.0	42.9	3.7	5.7		3.2	4.7	
Progression Factor		1.00			1.00	1.00	0.50	0.44		2.55	2.85	
Incremental Delay, d2		0.1			4.7	0.0	0.0	0.4		0.1	0.3	
Delay (s)		43.5			50.8	42.9	1.9	2.9		8.1	13.8	
Level of Service		D			D	D	A	A		A	B	
Approach Delay (s)		43.5			47.8			2.9			13.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.6									
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			51.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	14	3	17	83	8	56	14	850	43	56	784	7
Future Volume (veh/h)	14	3	17	83	8	56	14	850	43	56	784	7
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		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	859	859	859	1603	1603	1772	1674	1730	1730	1632	1716	1716
Adj Flow Rate, veh/h	15	3	19	91	9	62	15	934	47	62	862	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	67	67	67	14	14	2	9	5	5	12	6	6
Cap, veh/h	58	12	26	185	15	250	473	2188	110	449	2329	22
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.02	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	71	74	153	731	89	1488	1594	3180	160	1554	3309	31
Grp Volume(v), veh/h	37	0	0	100	0	62	15	483	498	62	425	445
Grp Sat Flow(s),veh/h/ln	299	0	0	820	0	1488	1594	1643	1696	1554	1630	1710
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	4.0	0.3	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	16.2	0.0	0.0	13.7	0.0	4.0	0.3	0.0	0.0	1.3	0.0	0.0
Prop In Lane	0.41		0.51	0.91		1.00	1.00		0.09	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	0	200	0	250	473	1131	1167	449	1147	1203
V/C Ratio(X)	0.38	0.00	0.00	0.50	0.00	0.25	0.03	0.43	0.43	0.14	0.37	0.37
Avail Cap(c_a), veh/h	149	0	0	294	0	365	558	1131	1167	537	1147	1203
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.79	0.79	0.79	0.76	0.76	0.76
Uniform Delay (d), s/veh	44.0	0.0	0.0	43.7	0.0	39.7	5.0	0.0	0.0	4.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.7	0.0	0.2	0.0	0.9	0.9	0.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.6	0.0	1.5	0.1	0.3	0.3	0.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	0.0	44.4	0.0	39.9	5.0	0.9	0.9	4.6	0.7	0.7
LnGrp LOS	D	A	A	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		37			162			996			932	
Approach Delay, s/veh		44.9			42.7			1.0			0.9	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	82.4		22.5	6.8	80.7		22.5				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	7.0	63.0		27.0	9.0	61.0		27.0				
Max Q Clear Time (g_c+I1), s	2.3	2.0		15.7	3.3	2.0		18.2				
Green Ext Time (p_c), s	0.0	1.3		0.3	0.0	1.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			4.9									
HCM 6th LOS			A									

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr NE & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	232	138	50	569	142	269	612	38	66	458	240
Future Volume (vph)	177	232	138	50	569	142	269	612	38	66	458	240
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3016	3031		1541	3226		1660	3240		1527	3055	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3016	3031		1541	3226		1660	3240		1527	3055	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	199	261	155	56	639	160	302	688	43	74	515	270
RTOR Reduction (vph)	0	74	0	0	20	0	0	4	0	0	62	0
Lane Group Flow (vph)	199	342	0	56	779	0	302	727	0	74	723	0
Confl. Peds. (#/hr)	7		6	6		7	2		12	12		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	10%	5%	7%	11%	2%	4%	3%	4%	10%	12%	6%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	9.2	32.1		6.1	29.0		21.4	46.5		7.3	32.4	
Effective Green, g (s)	9.2	32.1		6.1	29.0		21.4	46.5		7.3	32.4	
Actuated g/C Ratio	0.08	0.29		0.06	0.26		0.19	0.42		0.07	0.29	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	252	884		85	850		322	1369		101	899	
v/s Ratio Prot	c0.07	c0.11		0.04	c0.24		c0.18	0.22		0.05	c0.24	
v/s Ratio Perm												
v/c Ratio	0.79	0.39		0.66	0.92		0.94	0.53		0.73	0.80	
Uniform Delay, d1	49.5	31.1		50.9	39.3		43.6	23.6		50.4	35.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.11	0.80	
Incremental Delay, d2	14.0	0.1		13.2	14.2		33.5	1.5		20.0	7.3	
Delay (s)	63.5	31.2		64.1	53.5		77.2	25.1		76.0	35.9	
Level of Service	E	C		E	D		E	C		E	D	
Approach Delay (s)		41.6			54.2			40.3			39.3	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			43.8			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			82.6%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr NE & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	177	232	138	50	569	142	269	612	38	66	458	240
Future Volume (veh/h)	177	232	138	50	569	142	269	612	38	66	458	240
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	1.00		0.99	1.00		0.97	1.00		0.99
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	1660	1730	1730	1646	1772	1772	1758	1744	1744	1632	1716	1716
Adj Flow Rate, veh/h	199	261	155	56	639	160	302	688	43	74	515	270
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, %	10	5	5	11	2	2	3	4	4	12	6	6
Cap, veh/h	251	568	326	69	654	163	327	1423	89	91	647	338
Arrive On Green	0.08	0.28	0.28	0.04	0.25	0.25	0.20	0.45	0.45	0.02	0.10	0.10
Sat Flow, veh/h	3066	2005	1151	1567	2663	666	1674	3160	197	1554	2061	1077
Grp Volume(v), veh/h	199	212	204	56	404	395	302	360	371	74	407	378
Grp Sat Flow(s),veh/h/ln	1533	1643	1513	1567	1683	1645	1674	1657	1700	1554	1630	1507
Q Serve(g_s), s	7.0	11.7	12.3	3.9	26.2	26.3	19.5	16.8	16.8	5.2	26.8	27.0
Cycle Q Clear(g_c), s	7.0	11.7	12.3	3.9	26.2	26.3	19.5	16.8	16.8	5.2	26.8	27.0
Prop In Lane	1.00		0.76	1.00		0.40	1.00		0.12	1.00		0.71
Lane Grp Cap(c), veh/h	251	465	428	69	413	404	327	746	766	91	511	473
V/C Ratio(X)	0.79	0.46	0.48	0.81	0.98	0.98	0.92	0.48	0.48	0.81	0.80	0.80
Avail Cap(c_a), veh/h	251	465	428	140	413	404	350	746	766	164	511	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	49.6	32.4	32.7	52.1	41.2	41.2	43.4	21.2	21.2	53.3	45.9	45.9
Incr Delay (d2), s/veh	14.8	0.3	0.3	8.3	37.9	39.0	27.5	2.2	2.2	5.9	11.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	4.7	4.5	1.7	15.0	14.9	10.5	6.9	7.1	2.2	13.4	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	32.7	33.0	60.4	79.1	80.2	70.9	23.5	23.4	59.3	57.4	58.6
LnGrp LOS	E	C	C	E	E	F	E	C	C	E	E	E
Approach Vol, veh/h	615			855			1033			859		
Approach Delay, s/veh	43.0			78.4			37.3			58.1		
Approach LOS	D			E			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.5	39.5	13.0	32.0	10.5	54.5	8.8	36.2				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	23.0	33.0	9.0	27.0	11.6	44.4	9.8	26.2				
Max Q Clear Time (g_c+I1), s	21.5	29.0	9.0	28.3	7.2	18.8	5.9	14.3				
Green Ext Time (p_c), s	0.0	0.7	0.0	0.0	0.0	1.1	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	54.1											
HCM 6th LOS	D											

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	93	257	474	58	26	147
Future Vol, veh/h	93	257	474	58	26	147
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	9	4	5	10	8
Mvmt Flow	108	299	551	67	30	171
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	618	0	-	0	1100	586
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	515	-
Critical Hdwy	4.13	-	-	-	6.5	6.28
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.227	-	-	-	3.59	3.372
Pot Cap-1 Maneuver	957	-	-	-	227	499
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	957	-	-	-	201	499
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	584	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.5	0		17.4		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	957	-	-	-	201	499
HCM Lane V/C Ratio	0.113	-	-	-	0.15	0.343
HCM Control Delay (s)	9.2	-	-	-	26.1	15.9
HCM Lane LOS	A	-	-	-	D	C
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5	1.5

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	59	67	7	7	12
Future Vol, veh/h	10	59	67	7	7	12
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	11	4	0	0	20	0
Mvmt Flow	15	88	100	10	10	18
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	110	0	-	0	224	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	4.21	-	-	-	6.6	6.2
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	2.299	-	-	-	3.68	3.3
Pot Cap-1 Maneuver	1426	-	-	-	726	955
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1426	-	-	-	718	955
Mov Cap-2 Maneuver	-	-	-	-	718	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	863	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		9.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1426	-	-	-	851	
HCM Lane V/C Ratio	0.01	-	-	-	0.033	
HCM Control Delay (s)	7.6	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	282	38	22	528	66	43
Future Vol, veh/h	282	38	22	528	66	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	7	0	6	2	0	3
Mvmt Flow	313	42	24	587	73	48
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	355	0	969	334
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	-	-	4.16	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.254	-	3.5	3.327
Pot Cap-1 Maneuver	-	-	1182	-	284	706
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1182	-	275	706
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	532	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		19.9	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	362	-	-	1182	-	
HCM Lane V/C Ratio	0.335	-	-	0.021	-	
HCM Control Delay (s)	19.9	-	-	8.1	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-	

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

02/25/2019

1: Cordon Rd & Silverton Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	395	261	217	371	6	207	427	282	12	562	183
Future Volume (vph)	126	395	261	217	371	6	207	427	282	12	562	183
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3184		1660	3345		1693	1782	1496	1710	1765	1511
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1693	3184		1660	3345		1693	1782	1496	1710	1765	1511
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	145	454	300	249	426	7	238	491	324	14	646	210
RTOR Reduction (vph)	0	124	0	0	2	0	0	0	82	0	0	73
Lane Group Flow (vph)	145	630	0	249	431	0	238	491	242	14	646	137
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	3%	2%	0%	1%	1%	1%	0%	2%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	10.5	23.1		9.0	21.6		17.0	47.9	47.9	2.0	32.9	32.9
Effective Green, g (s)	10.5	23.1		9.0	21.6		17.0	47.9	47.9	2.0	32.9	32.9
Actuated g/C Ratio	0.10	0.23		0.09	0.22		0.17	0.48	0.48	0.02	0.33	0.33
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	177	735		149	722		287	853	716	34	580	497
v/s Ratio Prot	0.09	c0.20		c0.15	0.13		c0.14	0.28		0.01	c0.37	
v/s Ratio Perm									0.16			0.09
v/c Ratio	0.82	0.86		1.67	0.60		0.83	0.58	0.34	0.41	1.11	0.28
Uniform Delay, d1	43.8	36.9		45.5	35.3		40.1	18.7	16.2	48.4	33.5	24.8
Progression Factor	1.00	1.00		1.00	1.00		0.81	0.92	1.08	1.00	1.00	1.00
Incremental Delay, d2	23.5	9.4		329.6	0.9		10.6	0.3	0.1	2.9	72.6	1.4
Delay (s)	67.3	46.2		375.1	36.2		42.9	17.5	17.5	51.4	106.2	26.1
Level of Service	E	D		F	D		D	B	B	D	F	C
Approach Delay (s)		49.7			159.9			23.3			86.0	
Approach LOS		D			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			72.2				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			91.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

1: Cordon Rd & Silverton Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	395	261	217	371	6	207	427	282	12	562	183
Future Volume (veh/h)	126	395	261	217	371	6	207	427	282	12	562	183
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	1.00		0.99	1.00		0.99	1.00		0.99
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	1786	1786	1786	1758	1772	1772	1786	1786	1786	1800	1772	1800
Adj Flow Rate, veh/h	145	454	300	249	426	7	238	491	324	14	646	210
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	1	3	2	2	1	1	1	0	2	0
Cap, veh/h	173	507	333	151	837	14	153	824	690	17	675	574
Arrive On Green	0.10	0.26	0.26	0.09	0.25	0.25	0.09	0.46	0.46	0.01	0.38	0.38
Sat Flow, veh/h	1701	1957	1285	1674	3389	56	1701	1786	1495	1714	1772	1506
Grp Volume(v), veh/h	145	393	361	249	211	222	238	491	324	14	646	210
Grp Sat Flow(s),veh/h/ln	1701	1697	1546	1674	1683	1762	1701	1786	1495	1714	1772	1506
Q Serve(g_s), s	8.4	22.4	22.6	9.0	10.8	10.8	9.0	20.4	14.9	0.8	35.5	10.0
Cycle Q Clear(g_c), s	8.4	22.4	22.6	9.0	10.8	10.8	9.0	20.4	14.9	0.8	35.5	10.0
Prop In Lane	1.00		0.83	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	439	400	151	416	435	153	824	690	17	675	574
V/C Ratio(X)	0.84	0.90	0.90	1.65	0.51	0.51	1.55	0.60	0.47	0.84	0.96	0.37
Avail Cap(c_a), veh/h	204	526	479	151	471	493	153	824	690	94	675	574
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	35.7	35.8	45.5	32.4	32.4	45.5	20.0	18.5	49.4	30.1	22.3
Incr Delay (d2), s/veh	19.6	14.4	16.4	321.3	0.4	0.3	279.1	0.8	0.2	32.3	25.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	10.8	10.2	17.2	4.4	4.6	15.6	8.4	5.0	0.5	19.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	50.1	52.2	366.8	32.8	32.8	324.6	20.8	18.7	81.8	55.6	24.0
LnGrp LOS	E	D	D	F	C	C	F	C	B	F	E	C
Approach Vol, veh/h		899			682			1053			870	
Approach Delay, s/veh		53.2			154.7			88.8			48.4	
Approach LOS		D			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	30.9	13.0	43.1	14.2	29.7	5.0	51.1				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	9.0	31.0	9.0	33.0	12.0	28.0	5.5	36.5				
Max Q Clear Time (g_c+I1), s	11.0	24.6	11.0	37.5	10.4	12.8	2.8	22.4				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.5	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay				82.5								
HCM 6th LOS				F								

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	74	152	53	63	48	165	805	69	56	902	116
Future Volume (vph)	97	74	152	53	63	48	165	805	69	56	902	116
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1607		1676	1650		1693	1773		1710	1743	
Flt Permitted	0.60	1.00		0.28	1.00		0.07	1.00		0.10	1.00	
Satd. Flow (perm)	1085	1607		494	1650		121	1773		187	1743	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	80	165	58	68	52	179	875	75	61	980	126
RTOR Reduction (vph)	0	78	0	0	29	0	0	3	0	0	5	0
Lane Group Flow (vph)	105	167	0	58	91	0	179	947	0	61	1101	0
Confl. Peds. (#/hr)							12		1	1		12
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%	1%	0%	2%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.3	14.3		18.3	14.3		68.2	59.1		59.0	54.4	
Effective Green, g (s)	18.3	14.3		18.3	14.3		68.2	59.1		59.0	54.4	
Actuated g/C Ratio	0.18	0.14		0.18	0.14		0.68	0.59		0.59	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	229		137	235		228	1047		180	948	
v/s Ratio Prot	c0.02	c0.10		0.02	0.06		c0.07	0.53		0.02	c0.63	
v/s Ratio Perm	0.07			0.06			0.46			0.18		
v/c Ratio	0.47	0.73		0.42	0.39		0.79	0.90		0.34	1.16	
Uniform Delay, d1	36.0	41.0		35.0	38.9		29.2	18.0		16.2	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.46	0.78		1.26	0.80	
Incremental Delay, d2	1.6	11.0		2.1	1.1		10.5	8.5		0.1	74.0	
Delay (s)	37.6	52.0		37.1	39.9		53.3	22.4		20.4	92.4	
Level of Service	D	D		D	D		D	C		C	F	
Approach Delay (s)		47.7			39.0			27.3			88.6	
Approach LOS		D			D			C			F	
Intersection Summary												
HCM 2000 Control Delay			55.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			100.5%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	74	152	53	63	48	165	805	69	56	902	116
Future Volume (veh/h)	97	74	152	53	63	48	165	805	69	56	902	116
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		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1800	1800	1772	1772	1772	1786	1800	1800	1800	1786	1786
Adj Flow Rate, veh/h	105	80	165	58	68	52	179	875	75	61	980	126
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	2	2	2	1	0	0	0	1	1
Cap, veh/h	274	90	185	163	150	115	166	926	79	181	856	110
Arrive On Green	0.05	0.17	0.17	0.04	0.16	0.16	0.05	0.57	0.57	0.04	0.55	0.55
Sat Flow, veh/h	1714	524	1081	1688	931	712	1701	1630	140	1714	1544	198
Grp Volume(v), veh/h	105	0	245	58	0	120	179	0	950	61	0	1106
Grp Sat Flow(s),veh/h/ln	1714	0	1605	1688	0	1644	1701	0	1770	1714	0	1742
Q Serve(g_s), s	5.0	0.0	14.9	2.8	0.0	6.6	5.5	0.0	50.0	1.5	0.0	55.4
Cycle Q Clear(g_c), s	5.0	0.0	14.9	2.8	0.0	6.6	5.5	0.0	50.0	1.5	0.0	55.4
Prop In Lane	1.00		0.67	1.00		0.43	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	274	0	274	163	0	264	166	0	1006	181	0	966
V/C Ratio(X)	0.38	0.00	0.89	0.36	0.00	0.45	1.08	0.00	0.94	0.34	0.00	1.15
Avail Cap(c_a), veh/h	274	0	289	179	0	296	166	0	1006	198	0	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	40.6	34.1	0.0	38.0	29.1	0.0	20.1	21.7	0.0	22.3
Incr Delay (d2), s/veh	0.9	0.0	26.8	1.3	0.0	1.2	93.3	0.0	17.8	1.1	0.0	77.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	7.9	1.2	0.0	2.7	8.4	0.0	23.7	0.8	0.0	41.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	67.4	35.4	0.0	39.2	122.3	0.0	37.9	22.8	0.0	100.1
LnGrp LOS	C	A	E	D	A	D	F	A	D	C	A	F
Approach Vol, veh/h	350			178			1129			1167		
Approach Delay, s/veh	57.5			38.0			51.3			96.1		
Approach LOS	E			D			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	61.3	8.5	21.6	10.0	59.9	9.5	20.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	53.9	5.0	18.0	5.5	53.5	5.0	18.0				
Max Q Clear Time (g_c+I1), s	3.5	52.0	4.8	16.9	7.5	57.4	7.0	8.6				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.2	0.0	0.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	69.7											
HCM 6th LOS	E											

Intersection												
Int Delay, s/veh	132.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	40	16	108	7	2	11	95	988	27	11	1006	90
Future Vol, veh/h	40	16	108	7	2	11	95	988	27	11	1006	90
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	0	1	0	0	0	0	1	0	0	2	1
Mvmt Flow	44	18	119	8	2	12	104	1086	30	12	1105	99

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2498	2506	1158	2556	2540	1101	1207	0	0	1116	0	0
Stage 1	1182	1182	-	1309	1309	-	-	-	-	-	-	-
Stage 2	1316	1324	-	1247	1231	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.21	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.309	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 19	29	240	18	28	260	585	-	-	633	-	-
Stage 1	230	266	-	198	231	-	-	-	-	-	-	-
Stage 2	193	227	-	215	252	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 14	23	239	~ 3	23	260	583	-	-	633	-	-
Mov Cap-2 Maneuver	~ 14	23	-	~ 3	23	-	-	-	-	-	-	-
Stage 1	188	260	-	163	190	-	-	-	-	-	-	-
Stage 2	149	187	-	99	246	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, \$	1727.1	1691.3	1.1	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	583	-	-	41 8	633	-	-
HCM Lane V/C Ratio	0.179	-	-	4.396 2.747	0.019	-	-
HCM Control Delay (s)	12.5	-	-	\$ 1727.1 \$ 1691.3	10.8	-	-
HCM Lane LOS	B	-	-	F F	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	20.7 3.9	0.1	-	-

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

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

4: Cordon Rd & Center St

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	98	231	33	61	32	199	910	38	33	938	150
Future Volume (vph)	168	98	231	33	61	32	199	910	38	33	938	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1748	1500	1710	1684		1676	1756		1583	1765	1465
Flt Permitted	0.69	1.00	1.00	0.68	1.00		0.07	1.00		0.13	1.00	1.00
Satd. Flow (perm)	1245	1748	1500	1225	1684		125	1756		218	1765	1465
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	107	251	36	66	35	216	989	41	36	1020	163
RTOR Reduction (vph)	0	0	145	0	21	0	0	1	0	0	0	31
Lane Group Flow (vph)	183	107	106	36	80	0	216	1029	0	36	1020	132
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	2%	0%	8%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	17.8	17.8	17.8	17.8	17.8		71.2	64.7		55.1	52.6	52.6
Effective Green, g (s)	17.8	17.8	17.8	17.8	17.8		71.2	64.7		55.1	52.6	52.6
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.71	0.65		0.55	0.53	0.53
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	221	311	267	218	299		315	1136		154	928	770
v/s Ratio Prot		0.06			0.05		c0.10	c0.59		0.01	c0.58	
v/s Ratio Perm	c0.15		0.07	0.03			0.39			0.12		0.09
v/c Ratio	0.83	0.34	0.40	0.17	0.27		0.69	0.91		0.23	1.10	0.17
Uniform Delay, d1	39.6	36.0	36.4	34.8	35.5		28.5	15.1		14.9	23.7	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.45	0.66		1.40	1.46	1.62
Incremental Delay, d2	20.9	0.2	0.4	0.3	0.3		0.5	1.3		0.1	51.5	0.2
Delay (s)	60.5	36.2	36.7	35.1	35.8		41.8	11.3		20.9	86.2	20.2
Level of Service	E	D	D	D	D		D	B		C	F	C
Approach Delay (s)		44.7			35.6			16.6			75.4	
Approach LOS		D			D			B			E	
Intersection Summary												
HCM 2000 Control Delay			45.1			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			92.7%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 4: Cordon Rd & Center St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	98	231	33	61	32	199	910	38	33	938	150
Future Volume (veh/h)	168	98	231	33	61	32	199	910	38	33	938	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1772	1800	1772	1772	1772	1772	1772	1688	1772	1772
Adj Flow Rate, veh/h	183	107	251	36	66	35	216	989	41	36	1020	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	2	0	2	2	2	2	2	8	2	2
Cap, veh/h	278	380	324	235	235	125	173	1039	43	138	1017	860
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.06	0.61	0.61	0.02	0.57	0.57
Sat Flow, veh/h	1245	1758	1502	985	1090	578	1688	1689	70	1607	1772	1499
Grp Volume(v), veh/h	183	107	251	36	0	101	216	0	1030	36	1020	163
Grp Sat Flow(s),veh/h/ln	1245	1758	1502	985	0	1668	1688	0	1759	1607	1772	1499
Q Serve(g_s), s	14.4	5.1	15.7	3.2	0.0	5.1	6.0	0.0	54.4	0.9	57.4	5.2
Cycle Q Clear(g_c), s	19.4	5.1	15.7	8.2	0.0	5.1	6.0	0.0	54.4	0.9	57.4	5.2
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	278	380	324	235	0	360	173	0	1082	138	1017	860
V/C Ratio(X)	0.66	0.28	0.77	0.15	0.00	0.28	1.25	0.00	0.95	0.26	1.00	0.19
Avail Cap(c_a), veh/h	345	475	405	288	0	450	173	0	1082	196	1017	860
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	32.7	36.9	36.2	0.0	32.7	31.4	0.0	17.9	22.1	21.3	10.2
Incr Delay (d2), s/veh	1.7	0.1	5.4	0.2	0.0	0.3	149.9	0.0	18.0	0.4	28.9	0.5
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(50%),veh/ln	4.5	2.2	6.2	0.8	0.0	2.1	11.5	0.0	24.9	0.4	29.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	32.9	42.3	36.4	0.0	33.0	181.3	0.0	35.9	22.5	50.2	10.7
LnGrp LOS	D	C	D	D	A	C	F	A	D	C	F	B
Approach Vol, veh/h		541			137			1246			1219	
Approach Delay, s/veh		40.5			33.9			61.1			44.1	
Approach LOS		D			C			E			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.6	10.0	63.4		26.6	5.9	67.5				
Change Period (Y+Rc), s		5.0	4.0	6.0		5.0	4.0	6.0				
Max Green Setting (Gmax), s		27.0	6.0	52.0		27.0	5.5	52.5				
Max Q Clear Time (g_c+I1), s		21.4	8.0	59.4		10.2	2.9	56.4				
Green Ext Time (p_c), s		0.2	0.0	0.0		0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			49.8									
HCM 6th LOS			D									

Intersection												
Int Delay, s/veh	44.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↵		↵	↵	
Traffic Vol, veh/h	17	2	102	7	2	10	68	1120	32	8	1141	53
Future Vol, veh/h	17	2	102	7	2	10	68	1120	32	8	1141	53
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	3	0
Mvmt Flow	18	2	111	8	2	11	74	1217	35	9	1240	58
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2679	2690	1272	2727	2702	1235	1301	0	0	1252	0	0
Stage 1	1290	1290	-	1383	1383	-	-	-	-	-	-	-
Stage 2	1389	1400	-	1344	1319	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 15	22	207	14	22	217	539	-	-	563	-	-
Stage 1	203	236	-	180	213	-	-	-	-	-	-	-
Stage 2	178	209	-	189	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 11	19	206	~ 5	19	217	537	-	-	563	-	-
Mov Cap-2 Maneuver	~ 11	19	-	~ 5	19	-	-	-	-	-	-	-
Stage 1	175	232	-	155	184	-	-	-	-	-	-	-
Stage 2	144	180	-	85	225	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	772.7		\$ 975.8		0.7		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	537	-	-	56	12	563	-	-				
HCM Lane V/C Ratio	0.138	-	-	2.349	1.721	0.015	-	-				
HCM Control Delay (s)	12.8	-	-	\$ 772.7	\$ 975.8	11.5	-	-				
HCM Lane LOS	B	-	-	F	F	B	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	13.2	3.4	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	363	299	110	107	183	146	77	717	130	158	830	239
Future Volume (vph)	363	299	110	107	183	146	77	717	130	158	830	239
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1670		1692	1647		1710	1702		1660	1782	1483
Flt Permitted	0.17	1.00		0.22	1.00		0.09	1.00		0.09	1.00	1.00
Satd. Flow (perm)	302	1670		389	1647		170	1702		156	1782	1483
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	378	311	115	111	191	152	80	747	135	165	865	249
RTOR Reduction (vph)	0	13	0	0	29	0	0	6	0	0	0	91
Lane Group Flow (vph)	378	413	0	111	314	0	80	876	0	165	865	158
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	7%	1%	2%	2%	0%	3%	3%	3%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	35.1	25.6		25.6	20.1		46.4	42.3		51.4	44.8	44.8
Effective Green, g (s)	35.1	25.6		25.6	20.1		46.4	42.3		51.4	44.8	44.8
Actuated g/C Ratio	0.35	0.26		0.26	0.20		0.46	0.42		0.51	0.45	0.45
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	260	427		171	331		142	719		179	798	664
v/s Ratio Prot	c0.16	0.25		0.04	0.19		0.02	c0.51		c0.06	0.49	
v/s Ratio Perm	c0.35			0.13			0.24			0.41		0.11
v/c Ratio	1.45	0.97		0.65	0.95		0.56	1.22		0.92	1.08	0.24
Uniform Delay, d1	27.6	36.8		30.4	39.4		22.7	28.9		23.6	27.6	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.09	0.72		1.65	0.72	0.70
Incremental Delay, d2	224.4	34.4		6.2	35.5		2.2	107.4		26.9	48.4	0.4
Delay (s)	252.0	71.1		36.6	75.0		27.0	128.0		65.9	68.2	12.3
Level of Service	F	E		D	E		C	F		E	E	B
Approach Delay (s)		156.2			65.6			119.6			57.0	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM 2000 Control Delay			98.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.33									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			114.9%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	299	110	107	183	146	77	717	130	158	830	239
Future Volume (veh/h)	363	299	110	107	183	146	77	717	130	158	830	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.98
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	1800	1786	1786	1786	1772	1772	1800	1758	1758	1758	1786	1786
Adj Flow Rate, veh/h	378	311	115	111	191	152	80	747	135	165	865	249
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	1	2	2	0	3	3	3	1	1
Cap, veh/h	261	323	119	183	191	152	143	606	110	172	783	650
Arrive On Green	0.11	0.26	0.26	0.06	0.21	0.21	0.04	0.42	0.42	0.06	0.44	0.44
Sat Flow, veh/h	1714	1233	456	1701	911	725	1714	1443	261	1674	1786	1482
Grp Volume(v), veh/h	378	0	426	111	0	343	80	0	882	165	865	249
Grp Sat Flow(s),veh/h/ln	1714	0	1689	1701	0	1635	1714	0	1704	1674	1786	1482
Q Serve(g_s), s	11.0	0.0	24.9	5.1	0.0	21.0	2.6	0.0	42.0	5.7	43.9	11.3
Cycle Q Clear(g_c), s	11.0	0.0	24.9	5.1	0.0	21.0	2.6	0.0	42.0	5.7	43.9	11.3
Prop In Lane	1.00		0.27	1.00		0.44	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	261	0	443	183	0	343	143	0	716	172	783	650
V/C Ratio(X)	1.45	0.00	0.96	0.61	0.00	1.00	0.56	0.00	1.23	0.96	1.10	0.38
Avail Cap(c_a), veh/h	261	0	443	183	0	343	166	0	716	172	783	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	36.4	30.8	0.0	39.5	24.0	0.0	29.0	23.8	28.1	18.9
Incr Delay (d2), s/veh	222.2	0.0	33.0	4.2	0.0	48.2	1.3	0.0	116.4	55.3	64.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.9	0.0	14.1	2.3	0.0	12.9	1.1	0.0	39.5	4.8	31.8	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	251.6	0.0	69.4	34.9	0.0	87.7	25.3	0.0	145.4	79.1	92.6	20.6
LnGrp LOS	F	A	E	C	A	F	C	A	F	E	F	C
Approach Vol, veh/h	804			454			962			1279		
Approach Delay, s/veh	155.1			74.8			135.4			76.9		
Approach LOS	F			E			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	32.2	8.1	49.9	15.0	27.0	10.0	48.0				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.8	26.2	5.5	42.5	11.0	21.0	6.0	42.0				
Max Q Clear Time (g_c+I1), s	7.1	26.9	4.6	45.9	13.0	23.0	7.7	44.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	110.7											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	18.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	33	68	889	959	88
Future Vol, veh/h	35	33	68	889	959	88
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	7	4	4	4	3	5
Mvmt Flow	43	40	83	1084	1170	107
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2474	1224	1277	0	-	0
Stage 1	1224	-	-	-	-	-
Stage 2	1250	-	-	-	-	-
Critical Hdwy	6.47	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	~ 32	216	537	-	-	-
Stage 1	271	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 27	216	537	-	-	-
Mov Cap-2 Maneuver	~ 27	-	-	-	-	-
Stage 1	229	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	554.2	0.9		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	537	-	47	-	-	
HCM Lane V/C Ratio	0.154	-	1.764	-	-	
HCM Control Delay (s)	12.9	-\$ 554.2		-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.5	-	8.3	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	38.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	77	4	6	6	5	7	10	908	5	7	859	173
Future Vol, veh/h	77	4	6	6	5	7	10	908	5	7	859	173
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	12	3	0	0	4	2
Mvmt Flow	83	4	6	6	5	8	11	976	5	8	924	186
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2040	2036	1017	2039	2127	979	1110	0	0	981	0	0
Stage 1	1033	1033	-	1001	1001	-	-	-	-	-	-	-
Stage 2	1007	1003	-	1038	1126	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.22	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.308	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 42	58	291	42	50	306	593	-	-	712	-	-
Stage 1	283	312	-	295	323	-	-	-	-	-	-	-
Stage 2	293	322	-	281	282	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 35	54	291	36	46	306	593	-	-	712	-	-
Mov Cap-2 Maneuver	~ 35	54	-	36	46	-	-	-	-	-	-	-
Stage 1	271	302	-	283	310	-	-	-	-	-	-	-
Stage 2	269	309	-	262	273	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	890.3		91.3		0.1		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	593	-	-	38	60	712	-	-				
HCM Lane V/C Ratio	0.018	-	-	2.462	0.323	0.011	-	-				
HCM Control Delay (s)	11.2	0	-	\$ 890.3	91.3	10.1	0	-				
HCM Lane LOS	B	A	-	F	F	B	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	10.3	1.2	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	74	0	35	49	51	22	826	101	97	746	28
Future Volume (vph)	47	74	0	35	49	51	22	826	101	97	746	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1765			1583		1710	1706		1660	1740	
Flt Permitted		0.68			0.82		0.27	1.00		0.13	1.00	
Satd. Flow (perm)		1218			1316		486	1706		221	1740	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	52	81	0	38	54	56	24	908	111	107	820	31
RTOR Reduction (vph)	0	0	0	0	26	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	133	0	0	122	0	24	1016	0	107	850	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						2			2			
Heavy Vehicles (%)	0%	0%	0%	5%	0%	11%	0%	4%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.8			11.8		68.7	67.2		77.2	71.7	
Effective Green, g (s)		11.8			11.8		68.7	67.2		77.2	71.7	
Actuated g/C Ratio		0.12			0.12		0.69	0.67		0.77	0.72	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		143			155		352	1146		256	1247	
v/s Ratio Prot							0.00	c0.60		c0.02	c0.49	
v/s Ratio Perm		c0.11			0.09		0.05			0.30		
v/c Ratio		0.93			0.78		0.07	0.89		0.42	0.68	
Uniform Delay, d1		43.7			42.9		6.1	13.3		13.3	7.8	
Progression Factor		1.00			1.00		1.27	0.76		0.80	1.14	
Incremental Delay, d2		53.9			20.8		0.0	7.1		0.2	1.7	
Delay (s)		97.6			63.7		7.8	17.3		10.8	10.7	
Level of Service		F			E		A	B		B	B	
Approach Delay (s)		97.6			63.7			17.0			10.7	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM 2000 Control Delay		22.1										
HCM 2000 Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		100.0								15.0		
Intersection Capacity Utilization		81.7%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	74	0	35	49	51	22	826	101	97	746	28
Future Volume (veh/h)	47	74	0	35	49	51	22	826	101	97	746	28
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	1800	1800	1800	1800	1800	1800	1800	1744	1744	1758	1758	1758
Adj Flow Rate, veh/h	52	81	0	38	54	0	24	908	111	107	820	31
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	4	3	3	3
Cap, veh/h	106	113	0	102	111		398	1085	133	281	1236	47
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.01	0.71	0.71	0.04	0.73	0.73
Sat Flow, veh/h	555	1117	0	507	1103	0	1714	1520	186	1674	1683	64
Grp Volume(v), veh/h	133	0	0	92	0	0	24	0	1019	107	0	851
Grp Sat Flow(s),veh/h/ln	1672	0	0	1610	0	0	1714	0	1706	1674	0	1746
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	0.4	0.0	42.5	1.7	0.0	25.2
Cycle Q Clear(g_c), s	7.6	0.0	0.0	5.3	0.0	0.0	0.4	0.0	42.5	1.7	0.0	25.2
Prop In Lane	0.39		0.00	0.41		0.00	1.00		0.11	1.00		0.04
Lane Grp Cap(c), veh/h	219	0	0	213	0		398	0	1218	281	0	1283
V/C Ratio(X)	0.61	0.00	0.00	0.43	0.00		0.06	0.00	0.84	0.38	0.00	0.66
Avail Cap(c_a), veh/h	467	0	0	457	0		469	0	1218	315	0	1283
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	0.48	0.00	0.48	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	0.0	42.7	0.0	0.0	6.5	0.0	10.2	14.7	0.0	6.9
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	3.5	0.3	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	2.2	0.0	0.0	0.1	0.0	14.0	1.2	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	0.0	43.2	0.0	0.0	6.5	0.0	13.6	15.0	0.0	9.6
LnGrp LOS	D	A	A	D	A		A	A	B	B	A	A
Approach Vol, veh/h	133			92			A			1043		
Approach Delay, s/veh	44.7			43.2			13.5			10.2		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	77.4		15.1	5.5	79.5		15.1				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.5	53.5		26.0	5.6	53.4		26.0				
Max Q Clear Time (g_c+I1), s	3.7	44.5		9.6	2.4	27.2		7.3				
Green Ext Time (p_c), s	0.0	1.7		0.1	0.0	1.5		0.1				

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	34	72	45	28	195	108	744	28	158	578	95
Future Volume (vph)	74	34	72	45	28	195	108	744	28	158	578	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1618		1710	1515		1710	1752		1644	1732	
Flt Permitted	0.95	1.00		0.95	1.00		0.28	1.00		0.16	1.00	
Satd. Flow (perm)	1710	1618		1710	1515		510	1752		273	1732	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	80	37	77	48	30	210	116	800	30	170	622	102
RTOR Reduction (vph)	0	69	0	0	189	0	0	1	0	0	4	0
Lane Group Flow (vph)	80	45	0	48	51	0	116	829	0	170	720	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	3%	0%	2%	5%	4%	2%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	5.6	10.5		4.3	9.2		63.2	57.7		71.2	61.7	
Effective Green, g (s)	5.6	10.5		4.3	9.2		63.2	57.7		71.2	61.7	
Actuated g/C Ratio	0.06	0.10		0.04	0.09		0.63	0.58		0.71	0.62	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	95	169		73	139		388	1010		324	1068	
v/s Ratio Prot	c0.05	0.03		0.03	c0.03		0.02	c0.47		c0.05	0.42	
v/s Ratio Perm							0.17			0.32		
v/c Ratio	0.84	0.27		0.66	0.37		0.30	0.82		0.52	0.67	
Uniform Delay, d1	46.8	41.2		47.1	42.7		8.8	17.0		12.7	12.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.47	0.96	
Incremental Delay, d2	44.3	0.3		15.1	0.6		0.2	7.5		0.6	2.7	
Delay (s)	91.1	41.5		62.2	43.3		8.9	24.5		32.0	14.7	
Level of Service	F	D		E	D		A	C		C	B	
Approach Delay (s)		62.0			46.4			22.6			18.0	
Approach LOS		E			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			27.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			85.9%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	34	72	45	28	195	108	744	28	158	578	95
Future Volume (veh/h)	74	34	72	45	28	195	108	744	28	158	578	95
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	1800	1800	1800	1800	1730	1730	1800	1772	1772	1744	1772	1772
Adj Flow Rate, veh/h	80	37	77	48	30	210	116	800	30	170	622	102
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	5	5	0	2	2	4	2	2
Cap, veh/h	99	105	219	60	34	235	294	874	33	234	791	130
Arrive On Green	0.06	0.20	0.20	0.04	0.18	0.18	0.05	0.52	0.52	0.07	0.53	0.53
Sat Flow, veh/h	1714	521	1084	1714	187	1308	1714	1695	64	1661	1485	243
Grp Volume(v), veh/h	80	0	114	48	0	240	116	0	830	170	0	724
Grp Sat Flow(s),veh/h/ln	1714	0	1605	1714	0	1494	1714	0	1759	1661	0	1728
Q Serve(g_s), s	4.6	0.0	6.1	2.8	0.0	15.7	3.2	0.0	43.3	4.8	0.0	33.7
Cycle Q Clear(g_c), s	4.6	0.0	6.1	2.8	0.0	15.7	3.2	0.0	43.3	4.8	0.0	33.7
Prop In Lane	1.00		0.68	1.00		0.88	1.00		0.04	1.00		0.14
Lane Grp Cap(c), veh/h	99	0	325	60	0	269	294	0	906	234	0	921
V/C Ratio(X)	0.80	0.00	0.35	0.80	0.00	0.89	0.39	0.00	0.92	0.73	0.00	0.79
Avail Cap(c_a), veh/h	99	0	420	96	0	389	309	0	906	241	0	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.70	0.00	0.70
Uniform Delay (d), s/veh	46.5	0.0	34.2	47.9	0.0	40.1	16.3	0.0	22.2	21.8	0.0	18.8
Incr Delay (d2), s/veh	34.3	0.0	0.2	8.5	0.0	13.1	0.3	0.0	15.4	6.3	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	2.4	1.3	0.0	6.7	1.2	0.0	20.5	2.4	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	0.0	34.5	56.4	0.0	53.2	16.6	0.0	37.6	28.0	0.0	23.6
LnGrp LOS	F	A	C	E	A	D	B	A	D	C	A	C
Approach Vol, veh/h	194			288			946			894		
Approach Delay, s/veh	53.6			53.7			35.0			24.4		
Approach LOS	D			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	59.3	9.8	22.0	10.7	57.5	7.5	24.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.8	44.4	5.8	26.0	7.1	43.1	5.6	26.2				
Max Q Clear Time (g_c+I1), s	5.2	35.7	6.6	17.7	6.8	45.3	4.8	8.1				
Green Ext Time (p_c), s	0.0	1.0	0.0	0.3	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	34.8											
HCM 6th LOS	C											

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	659	290	163	381	172	301	1143	111	213	1058	182
Future Volume (vph)	255	659	290	163	381	172	301	1143	111	213	1058	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1693	3353	1439	1693	3137		1676	3282		1676	3298	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1693	3353	1439	1693	3137		1676	3282		1676	3298	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	260	672	296	166	389	176	307	1166	113	217	1080	186
RTOR Reduction (vph)	0	0	94	0	41	0	0	5	0	0	11	0
Lane Group Flow (vph)	260	672	202	166	524	0	307	1274	0	217	1255	0
Confl. Peds. (#/hr)	17		18	18		17	10		21	21		10
Confl. Bikes (#/hr)			1						1			4
Heavy Vehicles (%)	1%	2%	2%	1%	3%	2%	2%	2%	4%	2%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	19.5	29.6	29.6	13.6	23.7		25.3	52.6		18.2	45.5	
Effective Green, g (s)	19.5	29.6	29.6	13.6	23.7		25.3	52.6		18.2	45.5	
Actuated g/C Ratio	0.15	0.23	0.23	0.10	0.18		0.19	0.40		0.14	0.35	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	253	763	327	177	571		326	1327		234	1154	
v/s Ratio Prot	c0.15	c0.20		0.10	0.17		c0.18	0.39		0.13	c0.38	
v/s Ratio Perm			0.14									
v/c Ratio	1.03	0.88	0.62	0.94	0.92		0.94	0.96		0.93	1.09	
Uniform Delay, d1	55.2	48.5	45.1	57.8	52.2		51.6	37.7		55.2	42.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.04	1.08		0.74	1.18	
Incremental Delay, d2	63.9	11.3	2.4	48.8	19.4		22.9	10.9		31.8	50.6	
Delay (s)	119.2	59.8	47.5	106.6	71.6		76.6	51.5		72.8	100.4	
Level of Service	F	E	D	F	E		E	D		E	F	
Approach Delay (s)		69.4			79.5			56.4			96.4	
Approach LOS		E			E			E			F	
Intersection Summary												
HCM 2000 Control Delay			74.7			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			101.9%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 11: Lancaster Dr & Center St

Pictsweet Master Plan
02/25/2019

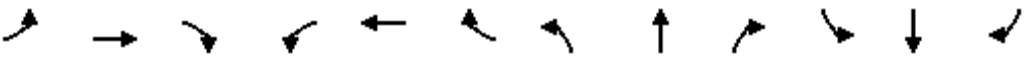
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	659	290	163	381	172	301	1143	111	213	1058	182
Future Volume (veh/h)	255	659	290	163	381	172	301	1143	111	213	1058	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1786	1772	1772	1786	1758	1758	1772	1772	1772	1772	1786	1786
Adj Flow Rate, veh/h	260	672	296	166	389	176	307	1166	113	217	1080	186
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	2	2	1	3	3	2	2	2	2	1	1
Cap, veh/h	255	788	339	183	427	190	299	1231	119	230	1032	177
Arrive On Green	0.15	0.23	0.23	0.11	0.19	0.19	0.35	0.80	0.80	0.14	0.36	0.36
Sat Flow, veh/h	1701	3367	1448	1701	2225	991	1688	3086	298	1688	2880	494
Grp Volume(v), veh/h	260	672	296	166	290	275	307	635	644	217	635	631
Grp Sat Flow(s),veh/h/ln	1701	1683	1448	1701	1670	1546	1688	1683	1701	1688	1697	1678
Q Serve(g_s), s	19.5	24.8	25.6	12.5	22.1	22.7	23.0	40.3	41.0	16.6	46.6	46.6
Cycle Q Clear(g_c), s	19.5	24.8	25.6	12.5	22.1	22.7	23.0	40.3	41.0	16.6	46.6	46.6
Prop In Lane	1.00		1.00	1.00		0.64	1.00		0.18	1.00		0.29
Lane Grp Cap(c), veh/h	255	788	339	183	320	297	299	672	679	230	608	601
V/C Ratio(X)	1.02	0.85	0.87	0.91	0.91	0.93	1.03	0.95	0.95	0.94	1.04	1.05
Avail Cap(c_a), veh/h	255	816	351	183	334	309	299	672	679	230	608	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.43	0.43	0.43	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	47.6	47.9	57.4	51.4	51.6	42.0	12.0	12.0	55.7	41.7	41.7
Incr Delay (d2), s/veh	61.3	8.0	19.4	40.2	25.7	31.2	41.6	13.0	13.4	43.6	48.7	50.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	11.3	11.0	7.4	11.5	11.3	11.6	7.0	7.2	9.8	27.4	27.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.6	55.6	67.3	97.6	77.1	82.8	83.6	25.0	25.5	99.2	90.4	92.4
LnGrp LOS	F	E	E	F	E	F	F	C	C	F	F	F
Approach Vol, veh/h		1228			731			1586			1483	
Approach Delay, s/veh		71.3			83.9			36.5			92.5	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	50.6	23.5	28.9	21.7	55.9	18.0	34.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	23.0	45.5	19.5	26.0	17.7	50.8	14.0	31.5				
Max Q Clear Time (g_c+I1), s	25.0	48.6	21.5	24.7	18.6	43.0	14.5	27.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	1.7	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			68.4									
HCM 6th LOS			E									

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (vph)	30	25	31	141	10	96	44	1536	198	179	1290	36
Future Volume (vph)	30	25	31	141	10	96	44	1536	198	179	1290	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.95			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1681	1485	1710	3310		1693	3370	
Flt Permitted		0.75			0.62	1.00	0.16	1.00		0.05	1.00	
Satd. Flow (perm)		1270			1090	1485	285	3310		82	3370	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	32	27	33	152	11	103	47	1652	213	192	1387	39
RTOR Reduction (vph)	0	16	0	0	0	86	0	7	0	0	1	0
Lane Group Flow (vph)	0	76	0	0	163	17	47	1858	0	192	1425	0
Confl. Peds. (#/hr)	4		10	10		4	3		4	4		3
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		21.0			21.0	21.0	87.3	84.1		100.0	92.8	
Effective Green, g (s)		21.0			21.0	21.0	87.3	84.1		100.0	92.8	
Actuated g/C Ratio		0.16			0.16	0.16	0.67	0.65		0.77	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		0.5			0.5	0.5	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		205			176	239	226	2141		210	2405	
v/s Ratio Prot							0.01	0.56		0.08	0.42	
v/s Ratio Perm		0.06			0.15	0.01	0.13			0.62		
v/c Ratio		0.37			0.93	0.07	0.21	0.87		0.91	0.59	
Uniform Delay, d1		48.6			53.7	46.2	8.0	18.5		43.2	9.2	
Progression Factor		1.00			1.00	1.00	1.81	1.64		1.15	0.86	
Incremental Delay, d2		0.4			46.0	0.0	0.1	3.6		17.9	0.4	
Delay (s)		49.0			99.8	46.3	14.5	34.0		67.4	8.3	
Level of Service		D			F	D	B	C		E	A	
Approach Delay (s)		49.0			79.0			33.5			15.3	
Approach LOS		D			E			C			B	
Intersection Summary												
HCM 2000 Control Delay		29.4										
HCM 2000 Volume to Capacity ratio		0.93										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		88.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	30	25	31	141	10	96	44	1536	198	179	1290	36
Future Volume (veh/h)	30	25	31	141	10	96	44	1536	198	179	1290	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		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	1800	1800	1800	1800	1800	1786	1800	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	32	27	33	152	11	103	47	1652	213	192	1387	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	1	0	1	1	1	1	1
Cap, veh/h	37	31	17	169	8	263	330	2013	255	212	2370	67
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.02	0.66	0.66	0.12	1.00	1.00
Sat Flow, veh/h	0	174	97	652	47	1488	1714	3029	383	1701	3371	95
Grp Volume(v), veh/h	92	0	0	163	0	103	47	912	953	192	697	729
Grp Sat Flow(s),veh/h/ln	272	0	0	699	0	1488	1714	1697	1716	1701	1697	1769
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	8.0	1.2	50.6	54.6	5.6	0.0	0.0
Cycle Q Clear(g_c), s	23.0	0.0	0.0	23.0	0.0	8.0	1.2	50.6	54.6	5.6	0.0	0.0
Prop In Lane	0.35		0.36	0.93		1.00	1.00		0.22	1.00		0.05
Lane Grp Cap(c), veh/h	85	0	0	177	0	263	330	1127	1140	212	1193	1244
V/C Ratio(X)	1.08	0.00	0.00	0.92	0.00	0.39	0.14	0.81	0.84	0.90	0.58	0.59
Avail Cap(c_a), veh/h	85	0	0	177	0	263	372	1127	1140	296	1193	1244
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.18	0.18	0.18	0.09	0.09	0.09
Uniform Delay (d), s/veh	53.1	0.0	0.0	56.3	0.0	47.3	6.7	15.8	16.5	30.1	0.0	0.0
Incr Delay (d2), s/veh	119.9	0.0	0.0	44.4	0.0	0.4	0.0	1.2	1.4	2.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	0.0	7.6	0.0	3.0	0.4	18.6	20.3	4.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	173.0	0.0	0.0	100.7	0.0	47.7	6.7	17.0	17.9	32.5	0.2	0.2
LnGrp LOS	F	A	A	F	A	D	A	B	B	C	A	A
Approach Vol, veh/h	92				266			1912		1618		
Approach Delay, s/veh	173.0				80.2			17.2		4.0		
Approach LOS	F				F			B		A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	96.4		27.0	11.6	91.4		27.0				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	5.8	88.2		23.0	14.0	80.0		23.0				
Max Q Clear Time (g_c+I1), s	3.2	2.0		25.0	7.6	56.6		25.0				
Green Ext Time (p_c), s	0.0	2.4		0.0	0.0	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	19.7											
HCM 6th LOS	B											

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	416	866	414	99	373	195	210	854	85	241	995	241
Future Volume (vph)	416	866	414	99	373	195	210	854	85	241	995	241
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3252	3190		1710	3150		1644	3334		1693	3261	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3252	3190		1710	3150		1644	3334		1693	3261	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	433	902	431	103	389	203	219	890	89	251	1036	251
RTOR Reduction (vph)	0	43	0	0	50	0	0	6	0	0	16	0
Lane Group Flow (vph)	433	1290	0	103	542	0	219	973	0	251	1271	0
Confl. Peds. (#/hr)	27		5	5		27	7		3	3		7
Confl. Bikes (#/hr)			2			2			2			
Heavy Vehicles (%)	2%	1%	2%	0%	1%	1%	4%	1%	0%	1%	1%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	19.7	45.0		10.0	35.3		14.0	38.0		19.0	43.0	
Effective Green, g (s)	19.7	45.0		10.0	35.3		14.0	38.0		19.0	43.0	
Actuated g/C Ratio	0.15	0.35		0.08	0.27		0.11	0.29		0.15	0.33	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	492	1104		131	855		177	974		247	1078	
v/s Ratio Prot	c0.13	c0.40		0.06	0.17		c0.13	0.29		c0.15	c0.39	
v/s Ratio Perm												
v/c Ratio	0.88	1.17		0.79	0.63		1.24	1.00		1.02	1.18	
Uniform Delay, d1	54.0	42.5		59.0	41.7		58.0	46.0		55.5	43.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.94	0.85	
Incremental Delay, d2	16.2	85.7		24.2	1.1		145.7	28.7		55.3	88.5	
Delay (s)	70.2	128.2		83.2	42.8		203.7	74.7		107.4	125.5	
Level of Service	E	F		F	D		F	E		F	F	
Approach Delay (s)		114.0			48.8			98.2			122.5	
Approach LOS		F			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			104.2			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			109.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	416	866	414	99	373	195	210	854	85	241	995	241
Future Volume (veh/h)	416	866	414	99	373	195	210	854	85	241	995	241
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.99
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	1772	1786	1786	1800	1786	1786	1744	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	433	902	431	103	389	203	219	890	89	251	1036	251
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	0	1	1	4	1	1	1	1	1
Cap, veh/h	479	730	344	125	549	281	179	968	97	249	948	229
Arrive On Green	0.15	0.33	0.33	0.07	0.26	0.26	0.11	0.31	0.31	0.05	0.12	0.12
Sat Flow, veh/h	3274	2208	1040	1714	2132	1093	1661	3104	310	1701	2707	653
Grp Volume(v), veh/h	433	690	643	103	308	284	219	487	492	251	647	640
Grp Sat Flow(s),veh/h/ln	1637	1697	1551	1714	1697	1529	1661	1697	1717	1701	1697	1664
Q Serve(g_s), s	16.9	43.0	43.0	7.7	21.4	22.0	14.0	36.0	36.0	19.0	45.5	45.5
Cycle Q Clear(g_c), s	16.9	43.0	43.0	7.7	21.4	22.0	14.0	36.0	36.0	19.0	45.5	45.5
Prop In Lane	1.00		0.67	1.00		0.71	1.00		0.18	1.00		0.39
Lane Grp Cap(c), veh/h	479	561	513	125	437	394	179	529	535	249	594	583
V/C Ratio(X)	0.90	1.23	1.25	0.82	0.71	0.72	1.22	0.92	0.92	1.01	1.09	1.10
Avail Cap(c_a), veh/h	579	561	513	158	437	394	179	529	535	249	594	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	54.6	43.5	43.5	59.4	43.8	44.0	58.0	43.2	43.2	61.9	57.5	57.5
Incr Delay (d2), s/veh	14.3	118.5	129.0	19.4	4.4	5.5	140.5	23.6	23.4	52.9	59.8	62.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	36.3	34.7	4.0	9.5	8.9	12.9	18.5	18.7	12.4	30.7	30.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	162.0	172.5	78.9	48.2	49.5	198.5	66.8	66.6	114.7	117.3	120.3
LnGrp LOS	E	F	F	E	D	D	F	E	E	F	F	F
Approach Vol, veh/h	1766			695			1198			1538		
Approach Delay, s/veh	143.0			53.3			90.8			118.1		
Approach LOS	F			D			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	50.5	23.0	38.5	23.0	45.5	13.5	48.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	14.0	43.0	23.0	32.0	19.0	38.0	12.0	43.0				
Max Q Clear Time (g_c+I1), s	16.0	47.5	18.9	24.0	21.0	38.0	9.7	45.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	111.6											
HCM 6th LOS	F											

Intersection						
Int Delay, s/veh	10.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	256	617	512	56	62	215
Future Vol, veh/h	256	617	512	56	62	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	267	643	533	58	65	224
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	591	0	-	0	1739	562
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	1177	-
Critical Hdwy	4.12	-	-	-	6.42	6.21
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.309
Pot Cap-1 Maneuver	985	-	-	-	96	528
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	293	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	985	-	-	-	70	528
Mov Cap-2 Maneuver	-	-	-	-	70	-
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	293	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.9	0		54.6		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	985	-	-	-	70	528
HCM Lane V/C Ratio	0.271	-	-	-	0.923	0.424
HCM Control Delay (s)	10	-	-	-	186.2	16.7
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	1.1	-	-	-	4.6	2.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	107	112	11	14	20
Future Vol, veh/h	23	107	112	11	14	20
Conflicting Peds, #/hr	0	0	0	0	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	4	0	12	0	0
Mvmt Flow	27	124	130	13	16	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	143	0	-	0	318	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1452	-	-	-	679	917
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1452	-	-	-	665	917
Mov Cap-2 Maneuver	-	-	-	-	665	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	855	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.3	0		9.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1452	-	-	-	793	
HCM Lane V/C Ratio	0.018	-	-	-	0.05	
HCM Control Delay (s)	7.5	0	-	-	9.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	739	102	39	459	47	33
Future Vol, veh/h	739	102	39	459	47	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	0	0	3	0
Mvmt Flow	786	109	41	488	50	35
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	895	0	1411	841
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	570	-
Critical Hdwy	-	-	4.1	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.2	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	767	-	152	368
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	767	-	141	368
Mov Cap-2 Maneuver	-	-	-	-	141	-
Stage 1	-	-	-	-	390	-
Stage 2	-	-	-	-	564	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.8		38.8	
HCM LOS	E					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	189	-	-	767	-	
HCM Lane V/C Ratio	0.45	-	-	0.054	-	
HCM Control Delay (s)	38.8	-	-	10	0	
HCM Lane LOS	E	-	-	A	A	
HCM 95th %tile Q(veh)	2.1	-	-	0.2	-	

Appendix F
Year 2039 With-Site Traffic Conditions
Operational Worksheets

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

1: Cordon Rd NE & Silverton Rd NE

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	206	158	260	399	4	231	394	201	14	437	130
Future Volume (vph)	78	206	158	260	399	4	231	394	201	14	437	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1583	2948		1629	3284		1598	1765	1404	1449	1714	1457
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1583	2948		1629	3284		1598	1765	1404	1449	1714	1457
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	90	237	182	299	459	5	266	453	231	16	502	149
RTOR Reduction (vph)	0	152	0	0	1	0	0	0	56	0	0	56
Lane Group Flow (vph)	90	267	0	299	463	0	266	453	175	16	502	93
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	8%	8%	9%	5%	4%	0%	7%	2%	9%	18%	5%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	8.5	16.6		10.8	18.9		24.4	52.4	63.2	2.2	30.2	38.7
Effective Green, g (s)	8.5	16.6		10.8	18.9		24.4	52.4	63.2	2.2	30.2	38.7
Actuated g/C Ratio	0.08	0.17		0.11	0.19		0.24	0.52	0.63	0.02	0.30	0.39
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	4.0	4.0	5.0	4.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	134	489		175	620		389	924	887	31	517	563
v/s Ratio Prot	0.06	0.09		c0.18	c0.14		c0.17	0.26	0.02	0.01	c0.29	0.01
v/s Ratio Perm									0.10			0.05
v/c Ratio	0.67	0.55		1.71	0.75		0.68	0.49	0.20	0.52	0.97	0.16
Uniform Delay, d1	44.4	38.2		44.6	38.3		34.3	15.2	7.7	48.4	34.5	20.1
Progression Factor	1.00	1.00		1.00	1.00		0.95	1.56	2.30	1.00	1.00	1.00
Incremental Delay, d2	9.9	0.7		342.0	4.3		3.3	1.5	0.0	5.9	33.0	0.1
Delay (s)	54.3	38.9		386.6	42.6		35.7	25.3	17.8	54.3	67.5	20.1
Level of Service	D	D		F	D		D	C	B	D	E	C
Approach Delay (s)		41.6			177.4			26.4			56.6	
Approach LOS		D			F			C			E	
Intersection Summary												
HCM 2000 Control Delay			75.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			79.4%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

1: Cordon Rd NE & Silverton Rd NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	78	206	158	260	399	4	231	394	201	14	437	130
Future Volume (veh/h)	78	206	158	260	399	4	231	394	201	14	437	130
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	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1688	1688	1688	1730	1744	1744	1702	1772	1674	1547	1730	1730
Adj Flow Rate, veh/h	90	237	182	299	459	5	266	453	231	16	502	149
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	8	8	8	5	4	4	7	2	9	18	5	5
Cap, veh/h	111	299	220	165	675	7	146	954	906	16	795	775
Arrive On Green	0.07	0.17	0.17	0.10	0.20	0.20	0.09	0.54	0.54	0.01	0.46	0.46
Sat Flow, veh/h	1607	1757	1292	1647	3357	37	1621	1772	1418	1474	1730	1466
Grp Volume(v), veh/h	90	215	204	299	226	238	266	453	231	16	502	149
Grp Sat Flow(s),veh/h/ln	1607	1603	1446	1647	1657	1737	1621	1772	1418	1474	1730	1466
Q Serve(g_s), s	5.5	12.9	13.6	10.0	12.6	12.7	9.0	15.8	7.0	1.1	22.1	5.3
Cycle Q Clear(g_c), s	5.5	12.9	13.6	10.0	12.6	12.7	9.0	15.8	7.0	1.1	22.1	5.3
Prop In Lane	1.00		0.89	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	273	246	165	333	349	146	954	906	16	795	775
V/C Ratio(X)	0.81	0.79	0.83	1.81	0.68	0.68	1.82	0.47	0.26	0.98	0.63	0.19
Avail Cap(c_a), veh/h	207	513	463	165	482	505	146	954	906	81	795	775
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	39.8	40.1	45.0	37.0	37.0	45.5	14.3	7.8	49.4	20.6	12.4
Incr Delay (d2), s/veh	5.2	1.9	2.7	389.6	0.9	0.9	396.2	1.7	0.7	58.2	3.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.2	5.0	21.9	5.1	5.4	19.6	6.5	2.1	0.7	9.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	41.7	42.8	434.6	37.9	37.8	441.7	16.0	8.5	107.6	24.4	12.9
LnGrp LOS	D	D	D	F	D	D	F	B	A	F	C	B
Approach Vol, veh/h	509			763			950			667		
Approach Delay, s/veh	43.8			193.3			133.4			23.8		
Approach LOS	D			F			F			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	22.0	13.0	51.0	10.9	25.1	5.1	58.9				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	10.0	32.0	9.0	31.0	12.9	29.1	5.5	34.5				
Max Q Clear Time (g_c+l1), s	12.0	15.6	11.0	24.1	7.5	14.7	3.1	17.8				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.6	0.0	0.6	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay	108.1											
HCM 6th LOS	F											

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	42	131	54	76	39	155	683	19	39	743	100
Future Volume (vph)	66	42	131	54	76	39	155	683	19	39	743	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	1529		1674	1635		1644	1759		1710	1727	
Flt Permitted	0.54	1.00		0.40	1.00		0.11	1.00		0.29	1.00	
Satd. Flow (perm)	961	1529		712	1635		192	1759		515	1727	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	47	146	60	84	43	172	759	21	43	826	111
RTOR Reduction (vph)	0	119	0	0	20	0	0	1	0	0	4	0
Lane Group Flow (vph)	73	74	0	60	107	0	172	779	0	43	933	0
Confl. Peds. (#/hr)			2	2								
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	2%	3%	2%	2%	4%	3%	4%	2%	0%	0%	2%	3%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	12.9	10.0		12.7	9.9		72.2	66.1		61.9	59.8	
Effective Green, g (s)	12.9	10.0		12.7	9.9		72.2	66.1		61.9	59.8	
Actuated g/C Ratio	0.13	0.10		0.13	0.10		0.72	0.66		0.62	0.60	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	144	152		117	161		260	1162		343	1032	
v/s Ratio Prot	c0.01	0.05		0.01	c0.07		c0.06	0.44		0.00	c0.54	
v/s Ratio Perm	0.05			0.05			0.42			0.07		
v/c Ratio	0.51	0.49		0.51	0.67		0.66	0.67		0.13	0.90	
Uniform Delay, d1	40.2	42.6		40.4	43.5		16.9	10.3		8.4	17.6	
Progression Factor	1.00	1.00		1.00	1.00		1.21	1.75		1.61	1.43	
Incremental Delay, d2	1.0	0.9		1.6	7.8		3.6	2.3		0.0	1.4	
Delay (s)	41.2	43.5		42.0	51.2		24.1	20.4		13.6	26.6	
Level of Service	D	D		D	D		C	C		B	C	
Approach Delay (s)		42.9			48.3			21.0			26.0	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			27.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			87.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	42	131	54	76	39	155	683	19	39	743	100
Future Volume (veh/h)	66	42	131	54	76	39	155	683	19	39	743	100
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	1.00		0.97	1.00		1.00	1.00		0.98
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	1772	1758	1758	1772	1744	1744	1744	1772	1772	1800	1772	1772
Adj Flow Rate, veh/h	73	47	146	60	84	43	172	759	21	43	826	111
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	3	3	2	4	4	4	2	2	0	2	2
Cap, veh/h	207	54	167	146	154	79	214	1056	29	315	880	118
Arrive On Green	0.03	0.14	0.14	0.03	0.14	0.14	0.06	0.62	0.62	0.02	0.58	0.58
Sat Flow, veh/h	1688	375	1164	1688	1075	550	1661	1716	47	1714	1525	205
Grp Volume(v), veh/h	73	0	193	60	0	127	172	0	780	43	0	937
Grp Sat Flow(s),veh/h/ln	1688	0	1539	1688	0	1625	1661	0	1763	1714	0	1730
Q Serve(g_s), s	3.0	0.0	12.3	3.0	0.0	7.3	4.0	0.0	30.5	1.0	0.0	50.0
Cycle Q Clear(g_c), s	3.0	0.0	12.3	3.0	0.0	7.3	4.0	0.0	30.5	1.0	0.0	50.0
Prop In Lane	1.00		0.76	1.00		0.34	1.00		0.03	1.00		0.12
Lane Grp Cap(c), veh/h	207	0	221	146	0	233	214	0	1085	315	0	998
V/C Ratio(X)	0.35	0.00	0.87	0.41	0.00	0.54	0.80	0.00	0.72	0.14	0.00	0.94
Avail Cap(c_a), veh/h	207	0	231	146	0	244	231	0	1085	330	0	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	41.9	36.4	0.0	39.8	23.4	0.0	13.3	12.1	0.0	19.5
Incr Delay (d2), s/veh	0.4	0.0	26.9	0.7	0.0	1.1	15.5	0.0	4.1	0.1	0.0	17.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	6.3	1.3	0.0	2.9	3.3	0.0	12.1	0.4	0.0	22.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	68.8	37.1	0.0	40.9	38.9	0.0	17.4	12.2	0.0	36.5
LnGrp LOS	D	A	E	D	A	D	D	A	B	B	A	D
Approach Vol, veh/h	266			187			952			980		
Approach Delay, s/veh	60.2			39.7			21.3			35.5		
Approach LOS	E			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	63.7	7.0	19.3	6.1	67.5	7.0	19.3				
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0				
Max Green Setting (Gmax), s	7.0	56.0	3.0	15.0	3.0	60.0	3.0	15.0				
Max Q Clear Time (g_c+l1), s	6.0	52.0	5.0	9.3	3.0	32.5	5.0	14.3				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.1	0.0	1.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	32.9											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	26.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	10	60	5	4	0	83	822	4	9	852	68
Future Vol, veh/h	35	10	60	5	4	0	83	822	4	9	852	68
Conflicting Peds, #/hr	0	0	1	1	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	6	0	0	0	2	5	0	0	7	2
Mvmt Flow	38	11	66	5	4	0	91	903	4	10	936	75
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	2084	2084	976	2120	2119	905	1012	0	0	907	0	0
Stage 1	995	995	-	1087	1087	-	-	-	-	-	-	-
Stage 2	1089	1089	-	1033	1032	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.26	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.354	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	39	54	299	37	51	338	685	-	-	759	-	-
Stage 1	297	325	-	264	295	-	-	-	-	-	-	-
Stage 2	263	294	-	283	313	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 32	46	298	21	44	338	684	-	-	759	-	-
Mov Cap-2 Maneuver	~ 32	46	-	21	44	-	-	-	-	-	-	-
Stage 1	257	320	-	229	256	-	-	-	-	-	-	-
Stage 2	224	255	-	210	309	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s\$	457.7		201.4			1			0.1			
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	684	-	-	69	27	759	-	-				
HCM Lane V/C Ratio	0.133	-	-	1.672	0.366	0.013	-	-				
HCM Control Delay (s)	11.1	-	-	\$ 457.7	201.4	9.8	-	-				
HCM Lane LOS	B	-	-	F	F	A	-	-				
HCM 95th %tile Q(veh)	0.5	-	-	10.1	1.1	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	60	139	60	96	37	135	781	29	45	751	121
Future Volume (vph)	91	60	139	60	96	37	135	781	29	45	751	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1676	1765	1457	1644	1638		1660	1705		1710	1682	1485
Flt Permitted	0.52	1.00	1.00	0.71	1.00		0.22	1.00		0.23	1.00	1.00
Satd. Flow (perm)	925	1765	1457	1236	1638		383	1705		411	1682	1485
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	100	66	153	66	105	41	148	858	32	49	825	133
RTOR Reduction (vph)	0	0	133	0	17	0	0	1	0	0	0	23
Lane Group Flow (vph)	100	66	20	66	129	0	148	889	0	49	825	110
Heavy Vehicles (%)	2%	2%	5%	4%	3%	11%	3%	5%	5%	0%	7%	3%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	12.8	12.8	12.8	12.8	12.8		75.6	69.1		68.8	65.7	65.7
Effective Green, g (s)	12.8	12.8	12.8	12.8	12.8		75.6	69.1		68.8	65.7	65.7
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13		0.76	0.69		0.69	0.66	0.66
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	118	225	186	158	209		372	1178		323	1105	975
v/s Ratio Prot		0.04			0.08		c0.03	c0.52		0.00	0.49	
v/s Ratio Perm	c0.11		0.01	0.05			0.27			0.10		0.07
v/c Ratio	0.85	0.29	0.11	0.42	0.62		0.40	0.75		0.15	0.75	0.11
Uniform Delay, d1	42.6	39.5	38.5	40.2	41.3		7.9	10.0		7.4	11.5	6.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.56	1.72		0.72	0.69	0.36
Incremental Delay, d2	38.6	0.3	0.1	1.3	4.6		0.0	0.4		0.0	2.9	0.1
Delay (s)	81.3	39.8	38.6	41.5	45.9		12.3	17.6		5.3	10.9	2.5
Level of Service	F	D	D	D	D		B	B		A	B	A
Approach Delay (s)		52.2			44.5			16.8			9.5	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			20.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			79.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 4: Cordon Rd NE & Center St NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	60	139	60	96	37	135	781	29	45	751	121
Future Volume (veh/h)	91	60	139	60	96	37	135	781	29	45	751	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1772	1772	1730	1744	1758	1758	1758	1730	1730	1800	1702	1758
Adj Flow Rate, veh/h	100	66	153	66	105	41	148	858	32	49	825	133
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	5	4	3	3	3	5	5	0	7	3
Cap, veh/h	195	323	268	236	220	86	298	1068	40	269	1050	919
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.05	0.64	0.64	0.02	0.62	0.62
Sat Flow, veh/h	1177	1772	1466	1084	1203	470	1674	1657	62	1714	1702	1490
Grp Volume(v), veh/h	100	66	153	66	0	146	148	0	890	49	825	133
Grp Sat Flow(s),veh/h/ln	1177	1772	1466	1084	0	1673	1674	0	1719	1714	1702	1490
Q Serve(g_s), s	8.3	3.2	9.5	5.5	0.0	7.8	3.1	0.0	38.2	1.1	36.1	3.8
Cycle Q Clear(g_c), s	16.1	3.2	9.5	8.7	0.0	7.8	3.1	0.0	38.2	1.1	36.1	3.8
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	195	323	268	236	0	305	298	0	1108	269	1050	919
V/C Ratio(X)	0.51	0.20	0.57	0.28	0.00	0.48	0.50	0.00	0.80	0.18	0.79	0.14
Avail Cap(c_a), veh/h	298	478	396	330	0	452	307	0	1108	326	1050	919
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	34.7	37.3	38.4	0.0	36.6	15.1	0.0	13.1	13.5	14.3	8.1
Incr Delay (d2), s/veh	0.8	0.1	0.7	0.5	0.0	0.9	0.5	0.0	6.2	0.1	5.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.4	3.4	1.5	0.0	3.2	1.5	0.0	14.8	0.4	14.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	34.8	38.0	38.9	0.0	37.5	15.5	0.0	19.3	13.6	20.2	8.4
LnGrp LOS	D	C	D	D	A	D	B	A	B	B	C	A
Approach Vol, veh/h	319				212				1038			
Approach Delay, s/veh	39.4				37.9				18.8			
Approach LOS	D				D				B			
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	23.3		9.1	67.7		23.3		6.3	70.5			
Change Period (Y+Rc), s	5.0		4.0	6.0		5.0		4.0	6.0			
Max Green Setting (Gmax), s	27.0		5.6	52.4		27.0		5.6	52.4			
Max Q Clear Time (g_c+I1), s	18.1		5.1	38.1		10.7		3.1	40.2			
Green Ext Time (p_c), s	0.1		0.0	1.3		0.8		0.0	1.5			
Intersection Summary												
HCM 6th Ctrl Delay	22.7											
HCM 6th LOS	C											

Intersection												
Int Delay, s/veh	21.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	33	2	50	13	1	12	47	900	24	16	892	43
Future Vol, veh/h	33	2	50	13	1	12	47	900	24	16	892	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	14	0	7	0	0	0	0	5	22	0	7	0
Mvmt Flow	37	2	56	14	1	13	52	1000	27	18	991	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2176	2182	1015	2198	2193	1014	1039	0	0	1027	0	0
Stage 1	1051	1051	-	1118	1118	-	-	-	-	-	-	-
Stage 2	1125	1131	-	1080	1075	-	-	-	-	-	-	-
Critical Hdwy	7.24	6.5	6.27	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.24	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.626	4	3.363	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 31	47	283	33	46	292	677	-	-	684	-	-
Stage 1	260	306	-	254	285	-	-	-	-	-	-	-
Stage 2	236	281	-	267	298	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 27	42	283	23	41	292	677	-	-	684	-	-
Mov Cap-2 Maneuver	~ 27	42	-	23	41	-	-	-	-	-	-	-
Stage 1	240	298	-	234	263	-	-	-	-	-	-	-
Stage 2	207	259	-	207	290	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	450.6		205.9		0.5		0.2					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	677	-	-	59	41	684	-	-				
HCM Lane V/C Ratio	0.077	-	-	1.601	0.705	0.026	-	-				
HCM Control Delay (s)	10.8	-	-	\$ 450.6	205.9	10.4	-	-				
HCM Lane LOS	B	-	-	F	F	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	8.6	2.6	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	109	140	83	219	110	90	670	66	67	628	275
Future Volume (vph)	200	109	140	83	219	110	90	670	66	67	628	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1628	1577		1583	1591		1644	1684		1474	1682	1469
Flt Permitted	0.16	1.00		0.51	1.00		0.13	1.00		0.09	1.00	1.00
Satd. Flow (perm)	266	1577		842	1591		218	1684		139	1682	1469
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	227	124	159	94	249	125	102	761	75	76	714	312
RTOR Reduction (vph)	0	45	0	0	18	0	0	3	0	0	0	116
Lane Group Flow (vph)	227	238	0	94	356	0	102	833	0	76	714	197
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	5%	1%	5%	8%	6%	8%	4%	5%	10%	16%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	35.0	26.5		26.3	21.8		49.1	44.8		48.9	44.7	44.7
Effective Green, g (s)	35.0	26.5		26.3	21.8		49.1	44.8		48.9	44.7	44.7
Actuated g/C Ratio	0.35	0.26		0.26	0.22		0.49	0.45		0.49	0.45	0.45
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	218	417		254	346		168	754		124	751	656
v/s Ratio Prot	c0.10	0.15		0.02	0.22		c0.03	c0.49		0.03	0.42	
v/s Ratio Perm	c0.27			0.08			0.27			0.27		0.13
v/c Ratio	1.04	0.57		0.37	1.03		0.61	1.10		0.61	0.95	0.30
Uniform Delay, d1	28.0	31.8		29.0	39.1		19.3	27.6		22.5	26.6	17.7
Progression Factor	1.11	1.03		1.00	1.00		1.39	1.12		1.41	1.06	1.77
Incremental Delay, d2	71.2	1.1		0.3	56.0		3.9	64.1		5.1	20.0	1.0
Delay (s)	102.4	34.0		29.3	95.1		30.7	95.1		36.8	48.1	32.2
Level of Service	F	C		C	F		C	F		D	D	C
Approach Delay (s)		64.4			81.9			88.1			42.8	
Approach LOS		E			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			66.6			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			93.0%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	109	140	83	219	110	90	670	66	67	628	275
Future Volume (veh/h)	200	109	140	83	219	110	90	670	66	67	628	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1730	1786	1786	1688	1716	1716	1744	1730	1730	1575	1702	1772
Adj Flow Rate, veh/h	227	124	159	94	249	125	102	761	75	76	714	312
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	5	1	1	8	6	6	4	5	5	16	7	2
Cap, veh/h	224	172	221	259	226	113	180	707	70	134	763	659
Arrive On Green	0.15	0.41	0.41	0.06	0.21	0.21	0.05	0.46	0.46	0.04	0.45	0.45
Sat Flow, veh/h	1647	701	898	1607	1077	540	1661	1550	153	1500	1702	1470
Grp Volume(v), veh/h	227	0	283	94	0	374	102	0	836	76	714	312
Grp Sat Flow(s),veh/h/ln	1647	0	1599	1607	0	1617	1661	0	1702	1500	1702	1470
Q Serve(g_s), s	9.2	0.0	14.8	4.6	0.0	21.0	3.3	0.0	45.6	2.7	39.9	14.9
Cycle Q Clear(g_c), s	9.2	0.0	14.8	4.6	0.0	21.0	3.3	0.0	45.6	2.7	39.9	14.9
Prop In Lane	1.00		0.56	1.00		0.33	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	224	0	393	259	0	340	180	0	777	134	763	659
V/C Ratio(X)	1.02	0.00	0.72	0.36	0.00	1.10	0.57	0.00	1.08	0.57	0.94	0.47
Avail Cap(c_a), veh/h	224	0	393	259	0	340	189	0	777	156	763	659
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.00	0.96	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	26.6	29.3	0.0	39.5	22.9	0.0	27.2	23.8	26.2	19.3
Incr Delay (d2), s/veh	63.0	0.0	5.2	0.3	0.0	78.9	2.0	0.0	54.6	1.4	20.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.0	5.2	1.8	0.0	15.6	1.3	0.0	29.3	1.0	19.6	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.0	0.0	31.8	29.6	0.0	118.4	24.9	0.0	81.8	25.1	46.5	21.8
LnGrp LOS	F	A	C	C	A	F	C	A	F	C	D	C
Approach Vol, veh/h	510			468			938			1102		
Approach Delay, s/veh	59.0			100.6			75.6			38.0		
Approach LOS	E			F			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	30.6	9.0	50.8	13.2	27.0	8.2	51.6				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.6	24.6	5.5	44.3	9.2	21.0	5.6	44.2				
Max Q Clear Time (g_c+I1), s	6.6	16.8	5.3	41.9	11.2	23.0	4.7	47.6				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.5	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	63.0											
HCM 6th LOS	E											

Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	34	20	769	765	70
Future Vol, veh/h	57	34	20	769	765	70
Conflicting Peds, #/hr	1	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	6	4	7	5	9	10
Mvmt Flow	63	38	22	854	850	78
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1788	891	928	0	-	0
Stage 1	889	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Critical Hdwy	6.46	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	87	338	717	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	84	337	717	-	-	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	383	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	118.8	0.3		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	717	-	117	-	-	
HCM Lane V/C Ratio	0.031	-	0.864	-	-	
HCM Control Delay (s)	10.2	-	118.8	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.1	-	5.2	-	-	

Intersection												
Int Delay, s/veh	20.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	0	11	5	5	5	3	674	0	5	698	88
Future Vol, veh/h	80	0	11	5	5	5	3	674	0	5	698	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	0	11	0	50	25	0	7	0	0	5	6
Mvmt Flow	93	0	13	6	6	6	3	784	0	6	812	102
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1671	1665	863	1672	1716	784	914	0	0	784	0	0
Stage 1	875	875	-	790	790	-	-	-	-	-	-	-
Stage 2	796	790	-	882	926	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.5	6.31	7.1	7	6.45	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.5	-	6.1	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4	3.399	3.5	4.45	3.525	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 75	98	341	77	69	359	754	-	-	843	-	-
Stage 1	341	370	-	386	340	-	-	-	-	-	-	-
Stage 2	378	404	-	344	290	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 68	96	341	73	67	359	754	-	-	843	-	-
Mov Cap-2 Maneuver	~ 68	96	-	73	67	-	-	-	-	-	-	-
Stage 1	339	364	-	383	338	-	-	-	-	-	-	-
Stage 2	363	401	-	326	286	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	\$ 343		50.6			0			0.1			
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	754	-	-	75	96	843	-	-				
HCM Lane V/C Ratio	0.005	-	-	1.411	0.182	0.007	-	-				
HCM Control Delay (s)	9.8	0	-	\$ 343	50.6	9.3	0	-				
HCM Lane LOS	A	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	8.5	0.6	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	51	25	0	71	51	52	9	574	20	42	648	24
Future Volume (vph)	51	25	0	71	51	52	9	574	20	42	648	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.96		1.00	0.99		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1564			1654		1710	1689		1598	1692	
Flt Permitted		0.59			0.85		0.30	1.00		0.32	1.00	
Satd. Flow (perm)		954			1430		543	1689		546	1692	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	28	0	79	57	58	10	638	22	47	720	27
RTOR Reduction (vph)	0	0	0	0	18	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	85	0	0	176	0	10	659	0	47	746	0
Heavy Vehicles (%)	14%	6%	0%	0%	8%	0%	0%	6%	7%	7%	6%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		15.3			15.3		67.8	67.1		71.6	69.0	
Effective Green, g (s)		15.3			15.3		67.8	67.1		71.6	69.0	
Actuated g/C Ratio		0.15			0.15		0.68	0.67		0.72	0.69	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		145			218		376	1133		418	1167	
v/s Ratio Prot							0.00	0.39		c0.00	c0.44	
v/s Ratio Perm		0.09			c0.12		0.02			0.08		
v/c Ratio		0.59			0.81		0.03	0.58		0.11	0.64	
Uniform Delay, d1		39.4			40.9		6.2	8.9		5.4	8.6	
Progression Factor		1.00			1.00		0.83	0.72		1.45	1.44	
Incremental Delay, d2		3.9			18.4		0.0	1.9		0.0	1.8	
Delay (s)		43.3			59.3		5.2	8.3		7.8	14.2	
Level of Service		D			E		A	A		A	B	
Approach Delay (s)		43.3			59.3			8.3			13.8	
Approach LOS		D			E			A			B	
Intersection Summary												
HCM 2000 Control Delay		18.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		57.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd SE & MacLeay Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	25	0	71	51	52	9	574	20	42	648	24
Future Volume (veh/h)	51	25	0	71	51	52	9	574	20	42	648	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1716	1716	1716	1688	1688	1688	1800	1716	1716	1702	1716	1716
Adj Flow Rate, veh/h	57	28	0	79	57	0	10	638	22	47	720	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	6	6	6	8	8	8	0	6	6	7	6	6
Cap, veh/h	149	60	0	145	75		444	1183	41	488	1203	45
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.01	0.72	0.72	0.02	0.73	0.73
Sat Flow, veh/h	805	548	0	795	680	0	1714	1649	57	1621	1643	62
Grp Volume(v), veh/h	85	0	0	136	0	0	10	0	660	47	0	747
Grp Sat Flow(s),veh/h/ln	1353	0	0	1475	0	0	1714	0	1706	1621	0	1705
Q Serve(g_s), s	0.0	0.0	0.0	3.1	0.0	0.0	0.2	0.0	17.8	0.8	0.0	20.9
Cycle Q Clear(g_c), s	5.9	0.0	0.0	8.9	0.0	0.0	0.2	0.0	17.8	0.8	0.0	20.9
Prop In Lane	0.67		0.00	0.58		0.00	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	209	0	0	220	0		444	0	1224	488	0	1248
V/C Ratio(X)	0.41	0.00	0.00	0.62	0.00		0.02	0.00	0.54	0.10	0.00	0.60
Avail Cap(c_a), veh/h	413	0	0	429	0		528	0	1224	546	0	1248
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	0.86	0.00	0.86	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	0.0	43.4	0.0	0.0	5.7	0.0	6.5	5.2	0.0	6.4
Incr Delay (d2), s/veh	0.5	0.0	0.0	1.1	0.0	0.0	0.0	0.0	1.5	0.0	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	5.9	0.2	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	0.0	0.0	44.5	0.0	0.0	5.7	0.0	8.0	5.2	0.0	8.5
LnGrp LOS	D	A	A	D	A		A	A	A	A	A	A
Approach Vol, veh/h	85				136		A		670		794	
Approach Delay, s/veh	42.5				44.5				7.9		8.3	
Approach LOS	D				D				A		A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	79.2		16.0	6.2	77.8		16.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.6	53.4		26.0	5.8	53.2		26.0				
Max Q Clear Time (g_c+I1), s	2.2	22.9		10.9	2.8	19.8		7.9				
Green Ext Time (p_c), s	0.0	1.2		0.1	0.0	1.1		0.1				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

10: Cordon Rd SE & Gaffin Rd SE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	28	129	49	21	182	35	407	22	83	626	51
Future Volume (vph)	55	28	129	49	21	182	35	407	22	83	626	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	1540		1710	1504		1598	1690		1613	1710	
Flt Permitted	0.95	1.00		0.95	1.00		0.24	1.00		0.40	1.00	
Satd. Flow (perm)	1660	1540		1710	1504		407	1690		677	1710	
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	67	34	157	60	26	222	43	496	27	101	763	62
RTOR Reduction (vph)	0	144	0	0	203	0	0	1	0	0	2	0
Lane Group Flow (vph)	67	47	0	60	45	0	43	522	0	101	823	0
Heavy Vehicles (%)	3%	0%	3%	0%	0%	4%	7%	6%	0%	6%	4%	5%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	4.6	8.4		4.6	8.4		67.3	64.8		70.7	66.5	
Effective Green, g (s)	4.6	8.4		4.6	8.4		67.3	64.8		70.7	66.5	
Actuated g/C Ratio	0.05	0.08		0.05	0.08		0.67	0.65		0.71	0.66	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	76	129		78	126		303	1095		517	1137	
v/s Ratio Prot	c0.04	c0.03		0.04	0.03		0.00	0.31		c0.01	c0.48	
v/s Ratio Perm							0.09			0.13		
v/c Ratio	0.88	0.37		0.77	0.35		0.14	0.48		0.20	0.72	
Uniform Delay, d1	47.4	43.3		47.2	43.2		7.8	9.0		5.2	10.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.95	0.71	
Incremental Delay, d2	63.2	0.6		32.7	0.6		0.1	1.5		0.1	3.5	
Delay (s)	110.7	43.9		79.9	43.9		7.9	10.4		4.9	11.2	
Level of Service	F	D		E	D		A	B		A	B	
Approach Delay (s)		61.3			50.9			10.3			10.5	
Approach LOS		E			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			72.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
10: Cordon Rd SE & Gaffin Rd SE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	28	129	49	21	182	35	407	22	83	626	51
Future Volume (veh/h)	55	28	129	49	21	182	35	407	22	83	626	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1758	1800	1800	1800	1800	1800	1702	1716	1716	1716	1744	1744
Adj Flow Rate, veh/h	67	34	157	60	26	222	43	496	27	101	763	62
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	0	0	0	0	0	7	6	6	6	4	4
Cap, veh/h	84	52	239	76	29	249	211	881	48	422	904	73
Arrive On Green	0.05	0.19	0.19	0.04	0.18	0.18	0.02	0.55	0.55	0.04	0.57	0.57
Sat Flow, veh/h	1674	279	1289	1714	163	1388	1621	1612	88	1634	1591	129
Grp Volume(v), veh/h	67	0	191	60	0	248	43	0	523	101	0	825
Grp Sat Flow(s),veh/h/ln	1674	0	1568	1714	0	1550	1621	0	1700	1634	0	1721
Q Serve(g_s), s	4.0	0.0	11.3	3.5	0.0	15.6	1.2	0.0	20.2	2.7	0.0	39.8
Cycle Q Clear(g_c), s	4.0	0.0	11.3	3.5	0.0	15.6	1.2	0.0	20.2	2.7	0.0	39.8
Prop In Lane	1.00		0.82	1.00		0.90	1.00		0.05	1.00		0.08
Lane Grp Cap(c), veh/h	84	0	290	76	0	278	211	0	929	422	0	978
V/C Ratio(X)	0.80	0.00	0.66	0.79	0.00	0.89	0.20	0.00	0.56	0.24	0.00	0.84
Avail Cap(c_a), veh/h	97	0	408	99	0	403	266	0	929	448	0	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.76	0.00	0.76
Uniform Delay (d), s/veh	47.0	0.0	37.8	47.3	0.0	40.1	17.2	0.0	14.9	11.2	0.0	17.9
Incr Delay (d2), s/veh	27.5	0.0	0.9	19.8	0.0	12.5	0.2	0.0	2.5	0.1	0.0	6.9
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(50%),veh/ln	2.3	0.0	4.4	1.9	0.0	6.8	0.4	0.0	8.0	0.9	0.0	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.4	0.0	38.8	67.2	0.0	52.6	17.3	0.0	17.3	11.3	0.0	24.8
LnGrp LOS	E	A	D	E	A	D	B	A	B	B	A	C
Approach Vol, veh/h	258			308			566			926		
Approach Delay, s/veh	48.0			55.5			17.3			23.3		
Approach LOS	D			E			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.2	62.8	9.0	21.9	8.4	60.6	8.4	22.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.6	44.6	5.8	26.0	6.0	44.2	5.8	26.0				
Max Q Clear Time (g_c+l1), s	3.2	41.8	6.0	17.6	4.7	22.2	5.5	13.3				
Green Ext Time (p_c), s	0.0	0.6	0.0	0.3	0.0	0.8	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	29.6											
HCM 6th LOS	C											

HCM Signalized Intersection Capacity Analysis

11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	208	122	113	446	182	155	727	46	101	589	140
Future Volume (vph)	129	208	122	113	446	182	155	727	46	101	589	140
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	3081	1334	1527	3094		1644	3242		1660	3193	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1660	3081	1334	1527	3094		1644	3242		1660	3193	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	148	239	140	130	513	209	178	836	53	116	677	161
RTOR Reduction (vph)	0	0	89	0	42	0	0	4	0	0	17	0
Lane Group Flow (vph)	148	239	51	130	680	0	178	885	0	116	821	0
Confl. Peds. (#/hr)	6		8	8		6	7		9	9		7
Heavy Vehicles (%)	3%	11%	13%	12%	6%	3%	4%	4%	9%	3%	4%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	11.8	26.1	40.0	12.3	26.6		13.9	46.1		9.5	41.7	
Effective Green, g (s)	11.8	26.1	40.0	12.3	26.6		13.9	46.1		9.5	41.7	
Actuated g/C Ratio	0.11	0.24	0.36	0.11	0.24		0.13	0.42		0.09	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	178	731	533	170	748		207	1358		143	1210	
v/s Ratio Prot	c0.09	0.08	0.01	0.09	c0.22		c0.11	c0.27		0.07	0.26	
v/s Ratio Perm			0.03									
v/c Ratio	0.83	0.33	0.10	0.76	0.91		0.86	0.65		0.81	0.68	
Uniform Delay, d1	48.1	34.7	23.1	47.4	40.5		47.1	25.5		49.4	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.05	0.58		0.86	0.95	
Incremental Delay, d2	25.8	0.1	0.0	16.7	14.6		25.9	2.3		25.5	2.9	
Delay (s)	74.0	34.8	23.1	64.1	55.1		75.1	17.2		68.2	29.9	
Level of Service	E	C	C	E	E		E	B		E	C	
Approach Delay (s)		42.7			56.5			26.8			34.6	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			38.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			73.7%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary 11: Lancaster Dr NE & Center St NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	129	208	122	113	446	182	155	727	46	101	589	140
Future Volume (veh/h)	129	208	122	113	446	182	155	727	46	101	589	140
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	1.00		0.99	1.00		0.99	1.00		0.99
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	1758	1646	1617	1632	1716	1716	1744	1744	1744	1758	1744	1744
Adj Flow Rate, veh/h	148	239	140	130	513	209	178	836	53	116	677	161
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	11	13	12	6	6	4	4	4	3	4	4
Cap, veh/h	174	783	506	156	557	226	201	1327	84	140	1014	241
Arrive On Green	0.10	0.25	0.25	0.10	0.25	0.25	0.24	0.84	0.84	0.08	0.38	0.38
Sat Flow, veh/h	1674	3127	1358	1554	2256	915	1661	3161	200	1674	2652	630
Grp Volume(v), veh/h	148	239	140	130	370	352	178	438	451	116	423	415
Grp Sat Flow(s),veh/h/ln	1674	1563	1358	1554	1630	1541	1661	1657	1705	1674	1657	1625
Q Serve(g_s), s	9.6	6.8	7.9	9.0	24.3	24.5	11.4	9.9	9.9	7.5	23.3	23.3
Cycle Q Clear(g_c), s	9.6	6.8	7.9	9.0	24.3	24.5	11.4	9.9	9.9	7.5	23.3	23.3
Prop In Lane	1.00		1.00	1.00		0.59	1.00		0.12	1.00		0.39
Lane Grp Cap(c), veh/h	174	783	506	156	402	380	201	695	716	140	634	622
V/C Ratio(X)	0.85	0.31	0.28	0.83	0.92	0.93	0.88	0.63	0.63	0.83	0.67	0.67
Avail Cap(c_a), veh/h	213	783	506	261	452	427	242	695	716	152	634	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	33.5	24.2	48.6	40.4	40.4	40.9	5.9	5.9	49.6	28.2	28.2
Incr Delay (d2), s/veh	19.8	0.1	0.1	4.3	21.4	23.4	22.5	3.9	3.8	25.7	5.5	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.6	2.6	3.7	12.0	11.7	5.3	2.7	2.8	4.1	10.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	33.5	24.3	52.9	61.7	63.9	63.4	9.8	9.7	75.3	33.6	33.8
LnGrp LOS	E	C	C	D	E	E	E	A	A	E	C	C
Approach Vol, veh/h		527			852			1067			954	
Approach Delay, s/veh		40.8			61.3			18.7			38.8	
Approach LOS		D			E			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	46.1	15.4	31.2	13.2	50.2	15.1	31.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	16.0	33.5	14.0	30.5	10.0	39.5	18.5	26.0				
Max Q Clear Time (g_c+I1), s	13.4	25.3	11.6	26.5	9.5	11.9	11.0	9.9				
Green Ext Time (p_c), s	0.0	1.1	0.0	0.6	0.0	1.3	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay				38.4								
HCM 6th LOS				D								

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (vph)	14	5	17	92	12	68	14	862	46	61	773	7
Future Volume (vph)	14	5	17	92	12	68	14	862	46	61	773	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1457			1647	1470	1568	3215		1526	3223	
Flt Permitted		0.88			0.79	1.00	0.32	1.00		0.25	1.00	
Satd. Flow (perm)		1306			1355	1470	528	3215		405	3223	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	5	19	101	13	75	15	947	51	67	849	8
RTOR Reduction (vph)	0	17	0	0	0	65	0	2	0	0	0	0
Lane Group Flow (vph)	0	22	0	0	114	10	15	996	0	67	857	0
Confl. Peds. (#/hr)	5		3	3		5	1		4	4		1
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	67%	7%	3%	14%	2%	9%	5%	12%	12%	6%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		14.4			14.4	14.4	80.5	79.1		84.7	81.2	
Effective Green, g (s)		14.4			14.4	14.4	80.5	79.1		84.7	81.2	
Actuated g/C Ratio		0.13			0.13	0.13	0.73	0.72		0.77	0.74	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0	2.0	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		170			177	192	399	2311		347	2379	
v/s Ratio Prot							0.00	c0.31		c0.01	0.27	
v/s Ratio Perm		0.02			c0.08	0.01	0.03			0.14		
v/c Ratio		0.13			0.64	0.05	0.04	0.43		0.19	0.36	
Uniform Delay, d1		42.3			45.4	41.8	4.0	6.3		3.6	5.1	
Progression Factor		1.00			1.00	1.00	0.51	0.48		2.60	2.94	
Incremental Delay, d2		0.1			5.9	0.0	0.0	0.4		0.1	0.3	
Delay (s)		42.4			51.3	41.9	2.0	3.4		9.3	15.5	
Level of Service		D			D	D	A	A		A	B	
Approach Delay (s)		42.4			47.5			3.4			15.0	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9									
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			54.0%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 12: Lancaster Dr NE & Auburn Rd NE

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔		↔	↔	
Traffic Volume (veh/h)	14	5	17	92	12	68	14	862	46	61	773	7
Future Volume (veh/h)	14	5	17	92	12	68	14	862	46	61	773	7
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	1.00		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	859	859	859	1603	1603	1772	1674	1730	1730	1632	1716	1716
Adj Flow Rate, veh/h	15	5	19	101	13	75	15	947	51	67	849	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	67	67	67	14	14	2	9	5	5	12	6	6
Cap, veh/h	56	15	25	190	20	284	463	2099	113	407	2254	21
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.01	0.88	0.88	0.06	1.00	1.00
Sat Flow, veh/h	57	80	130	670	106	1490	1594	3167	171	1554	3309	31
Grp Volume(v), veh/h	39	0	0	114	0	75	15	491	507	67	418	439
Grp Sat Flow(s),veh/h/ln	266	0	0	776	0	1490	1594	1643	1694	1554	1630	1710
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	4.7	0.3	6.5	6.5	1.6	0.0	0.0
Cycle Q Clear(g_c), s	19.0	0.0	0.0	16.5	0.0	4.7	0.3	6.5	6.5	1.6	0.0	0.0
Prop In Lane	0.38		0.49	0.89		1.00	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	0	210	0	284	463	1089	1123	407	1110	1165
V/C Ratio(X)	0.41	0.00	0.00	0.54	0.00	0.26	0.03	0.45	0.45	0.16	0.38	0.38
Avail Cap(c_a), veh/h	133	0	0	277	0	366	549	1089	1123	490	1110	1165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.76	0.76	0.76	0.73	0.73	0.73
Uniform Delay (d), s/veh	42.4	0.0	0.0	42.5	0.0	37.9	5.9	2.6	2.6	5.5	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.8	0.0	0.2	0.0	1.0	1.0	0.1	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	3.0	0.0	1.7	0.1	1.7	1.8	0.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	0.0	0.0	43.3	0.0	38.1	5.9	3.6	3.6	5.6	0.7	0.7
LnGrp LOS	D	A	A	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		39			189			1013			924	
Approach Delay, s/veh		43.4			41.3			3.6			1.1	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	79.9		25.0	7.1	77.9		25.0				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	7.0	63.0		27.0	9.0	61.0		27.0				
Max Q Clear Time (g_c+I1), s	2.3	2.0		18.5	3.6	8.5		21.0				
Green Ext Time (p_c), s	0.0	1.3		0.3	0.0	1.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			6.5									
HCM 6th LOS			A									

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr NE & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	180	258	138	58	645	159	269	612	41	56	458	249
Future Volume (vph)	180	258	138	58	645	159	269	612	41	56	458	249
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3016	3046		1541	3227		1660	3237		1527	3051	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3016	3046		1541	3227		1660	3237		1527	3051	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	202	290	155	65	725	179	302	688	46	63	515	280
RTOR Reduction (vph)	0	59	0	0	19	0	0	4	0	0	69	0
Lane Group Flow (vph)	202	386	0	65	885	0	302	730	0	63	726	0
Confl. Peds. (#/hr)	7		6	6		7	2		12	12		2
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	10%	5%	7%	11%	2%	4%	3%	4%	10%	12%	6%	5%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	9.1	34.8		6.7	32.4		20.7	43.7		6.8	29.8	
Effective Green, g (s)	9.1	34.8		6.7	32.4		20.7	43.7		6.8	29.8	
Actuated g/C Ratio	0.08	0.32		0.06	0.29		0.19	0.40		0.06	0.27	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	249	963		93	950		312	1285		94	826	
v/s Ratio Prot	c0.07	0.13		0.04	c0.27		c0.18	0.23		0.04	c0.24	
v/s Ratio Perm												
v/c Ratio	0.81	0.40		0.70	0.93		0.97	0.57		0.67	0.88	
Uniform Delay, d1	49.6	29.4		50.7	37.7		44.3	25.8		50.5	38.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.18	0.80	
Incremental Delay, d2	17.0	0.1		16.9	15.1		41.6	1.8		13.2	12.4	
Delay (s)	66.6	29.5		67.5	52.8		85.9	27.6		72.8	43.2	
Level of Service	E	C		E	D		F	C		E	D	
Approach Delay (s)		41.1			53.8			44.6			45.4	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			46.7			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			85.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr NE & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	180	258	138	58	645	159	269	612	41	56	458	249
Future Volume (veh/h)	180	258	138	58	645	159	269	612	41	56	458	249
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	1.00		0.99	1.00		0.97	1.00		0.99
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	1660	1730	1730	1646	1772	1772	1758	1744	1744	1632	1716	1716
Adj Flow Rate, veh/h	202	290	155	65	725	179	302	688	46	63	515	280
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, %	10	5	5	11	2	2	3	4	4	12	6	6
Cap, veh/h	240	625	325	80	729	180	323	1369	91	78	595	322
Arrive On Green	0.08	0.30	0.30	0.05	0.27	0.27	0.19	0.44	0.44	0.02	0.10	0.10
Sat Flow, veh/h	3066	2085	1084	1567	2671	659	1674	3144	210	1554	2031	1101
Grp Volume(v), veh/h	202	227	218	65	457	447	302	362	372	63	413	382
Grp Sat Flow(s),veh/h/ln	1533	1643	1526	1567	1683	1647	1674	1657	1697	1554	1630	1501
Q Serve(g_s), s	7.2	12.3	12.9	4.5	29.8	29.8	19.5	17.4	17.4	4.4	27.5	27.6
Cycle Q Clear(g_c), s	7.2	12.3	12.9	4.5	29.8	29.8	19.5	17.4	17.4	4.4	27.5	27.6
Prop In Lane	1.00		0.71	1.00		0.40	1.00		0.12	1.00		0.73
Lane Grp Cap(c), veh/h	240	493	457	80	459	449	323	721	739	78	477	440
V/C Ratio(X)	0.84	0.46	0.48	0.81	1.00	1.00	0.94	0.50	0.50	0.81	0.87	0.87
Avail Cap(c_a), veh/h	240	493	457	151	459	449	323	721	739	170	477	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	50.0	31.3	31.5	51.7	39.9	39.9	43.7	22.4	22.5	53.6	47.6	47.6
Incr Delay (d2), s/veh	21.8	0.2	0.3	7.1	40.6	41.2	33.3	2.5	2.4	6.9	17.8	19.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.9	4.8	1.9	17.3	17.0	11.0	7.2	7.3	1.9	14.4	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.9	31.5	31.8	58.8	80.5	81.1	77.1	24.9	24.9	60.5	65.4	67.0
LnGrp LOS	E	C	C	E	F	F	E	C	C	E	E	E
Approach Vol, veh/h	647			969			1036			858		
Approach Delay, s/veh	44.2			79.3			40.1			65.8		
Approach LOS	D			E			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	37.2	12.6	35.0	9.5	52.9	9.6	38.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	21.2	32.2	8.6	30.0	12.0	41.4	10.6	28.0				
Max Q Clear Time (g_c+I1), s	21.5	29.6	9.2	31.8	6.4	19.4	6.5	14.9				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	1.1	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay	58.0											
HCM 6th LOS	E											

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	93	303	568	79	33	147
Future Vol, veh/h	93	303	568	79	33	147
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	9	4	5	10	8
Mvmt Flow	108	352	660	92	38	171
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	752	0	-	0	1274	707
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	568	-
Critical Hdwy	4.13	-	-	-	6.5	6.28
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	2.227	-	-	-	3.59	3.372
Pot Cap-1 Maneuver	853	-	-	-	178	425
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	551	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	853	-	-	-	155	425
Mov Cap-2 Maneuver	-	-	-	-	155	-
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	551	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		22.1		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	853	-	-	-	155	425
HCM Lane V/C Ratio	0.127	-	-	-	0.248	0.402
HCM Control Delay (s)	9.8	-	-	-	35.7	19.1
HCM Lane LOS	A	-	-	-	E	C
HCM 95th %tile Q(veh)	0.4	-	-	-	0.9	1.9

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	61	7	6	71	32	21	113	9	15	47	12
Future Vol, veh/h	10	61	7	6	71	32	21	113	9	15	47	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	67	67	67	67	67	67
Heavy Vehicles, %	11	4	0	0	0	0	0	0	0	20	0	0
Mvmt Flow	15	91	10	9	106	48	31	169	13	22	70	18
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	154	0	0	101	0	0	318	298	97	366	279	130
Stage 1	-	-	-	-	-	-	126	126	-	148	148	-
Stage 2	-	-	-	-	-	-	192	172	-	218	131	-
Critical Hdwy	4.21	-	-	4.1	-	-	7.1	6.5	6.2	7.3	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Follow-up Hdwy	2.299	-	-	2.2	-	-	3.5	4	3.3	3.68	4	3.3
Pot Cap-1 Maneuver	1373	-	-	1504	-	-	639	617	965	558	632	925
Stage 1	-	-	-	-	-	-	883	796	-	814	779	-
Stage 2	-	-	-	-	-	-	814	760	-	745	792	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	1504	-	-	564	605	964	425	620	925
Mov Cap-2 Maneuver	-	-	-	-	-	-	564	605	-	425	620	-
Stage 1	-	-	-	-	-	-	872	786	-	804	774	-
Stage 2	-	-	-	-	-	-	721	755	-	570	782	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.4			14			12.4		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	613	1373	-	-	1504	-	-	596				
HCM Lane V/C Ratio	0.348	0.011	-	-	0.006	-	-	0.185				
HCM Control Delay (s)	14	7.7	0	-	7.4	0	-	12.4				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	1.6	0	-	-	0	-	-	0.7				

HCM Signalized Intersection Capacity Analysis

16: 49th Ave & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	293	38	22	535	26	66	4	43	113	9	52
Future Volume (vph)	39	293	38	22	535	26	66	4	43	113	9	52
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0		5.0	5.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.95			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1708	1666		1613	1752			1639			1673	
Flt Permitted	0.37	1.00		0.54	1.00			0.77			0.79	
Satd. Flow (perm)	674	1666		921	1752			1295			1368	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	326	42	24	594	29	73	4	48	126	10	58
RTOR Reduction (vph)	0	5	0	0	2	0	0	40	0	0	44	0
Lane Group Flow (vph)	43	363	0	24	621	0	0	85	0	0	150	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	7%	0%	6%	2%	0%	0%	0%	3%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	32.8	32.8		32.8	32.8			8.2			8.2	
Effective Green, g (s)	32.8	32.8		32.8	32.8			8.2			8.2	
Actuated g/C Ratio	0.66	0.66		0.66	0.66			0.16			0.16	
Clearance Time (s)	5.0	5.0		5.0	5.0			4.0			4.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5			0.5			0.5	
Lane Grp Cap (vph)	442	1092		604	1149			212			224	
v/s Ratio Prot		0.22			c0.35							
v/s Ratio Perm	0.06			0.03				0.07			c0.11	
v/c Ratio	0.10	0.33		0.04	0.54			0.40			0.67	
Uniform Delay, d1	3.2	3.8		3.0	4.6			18.7			19.6	
Progression Factor	1.00	1.00		1.11	1.26			1.00			1.00	
Incremental Delay, d2	0.4	0.8		0.1	1.4			0.5			5.7	
Delay (s)	3.6	4.6		3.5	7.1			19.2			25.4	
Level of Service	A	A		A	A			B			C	
Approach Delay (s)		4.5			7.0			19.2			25.4	
Approach LOS		A			A			B			C	
Intersection Summary												
HCM 2000 Control Delay			9.9			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			54.9%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
16: 49th Ave & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	293	38	22	535	26	66	4	43	113	9	52
Future Volume (veh/h)	39	293	38	22	535	26	66	4	43	113	9	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1702	1702	1716	1772	1772	1800	1800	1800	1800	1800	1800
Adj Flow Rate, veh/h	43	326	42	24	594	29	73	4	48	126	10	58
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	7	7	6	2	2	0	0	0	0	0	0
Cap, veh/h	509	975	126	668	1106	54	237	35	98	270	20	73
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	771	1477	190	930	1675	82	768	218	614	947	128	458
Grp Volume(v), veh/h	43	0	368	24	0	623	125	0	0	194	0	0
Grp Sat Flow(s),veh/h/ln	771	0	1667	930	0	1757	1600	0	0	1533	0	0
Q Serve(g_s), s	1.6	0.0	4.8	0.6	0.0	9.3	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	10.9	0.0	4.8	5.4	0.0	9.3	3.4	0.0	0.0	5.8	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.05	0.58		0.38	0.65		0.30
Lane Grp Cap(c), veh/h	509	0	1101	668	0	1160	369	0	0	364	0	0
V/C Ratio(X)	0.08	0.00	0.33	0.04	0.00	0.54	0.34	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	509	0	1101	668	0	1160	729	0	0	723	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.61	0.00	0.61	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	3.7	4.9	0.0	4.5	19.1	0.0	0.0	20.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.8	0.1	0.0	1.1	0.2	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.1	0.1	0.0	2.1	1.2	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.7	0.0	4.5	4.9	0.0	5.6	19.3	0.0	0.0	20.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	C	A	A
Approach Vol, veh/h	411			647			125			194		
Approach Delay, s/veh	4.8			5.5			19.3			20.4		
Approach LOS	A			A			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	38.0			12.0			38.0			12.0		
Change Period (Y+Rc), s	5.0			4.0			5.0			4.0		
Max Green Setting (Gmax), s	20.0			21.0			20.0			21.0		
Max Q Clear Time (g_c+I1), s	12.9			7.8			11.3			5.4		
Green Ext Time (p_c), s	0.4			0.2			0.8			0.1		
Intersection Summary												
HCM 6th Ctrl Delay	8.7											
HCM 6th LOS	A											

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	81	3	1	106	4	4
Future Vol, veh/h	81	3	1	106	4	4
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	4	0	0	0	0	0
Mvmt Flow	121	4	1	158	6	6
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	283	124
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	160	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1474	-	711	932
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1474	-	710	931
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	874	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	806	-	-	1474	-	
HCM Lane V/C Ratio	0.015	-	-	0.001	-	
HCM Control Delay (s)	9.5	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	7	6	84	26	9
Future Vol, veh/h	77	7	6	84	26	9
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	4	0	0	0	0	0
Mvmt Flow	115	10	9	125	39	13
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	263	121
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1474	-	730	936
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1474	-	725	935
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	889	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		10	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	769	-	-	1474	-	
HCM Lane V/C Ratio	0.068	-	-	0.006	-	
HCM Control Delay (s)	10	-	-	7.5	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	344	0	0	645	8	0	0	0	26	0	73
Future Vol, veh/h	17	344	0	0	645	8	0	0	0	26	0	73
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	7	0	6	2	0	0	0	3	0	0	0
Mvmt Flow	19	382	0	0	717	9	0	0	0	29	0	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	728	0	0	382	0	0	1182	1148	382	1144	1144	724
Stage 1	-	-	-	-	-	-	420	420	-	724	724	-
Stage 2	-	-	-	-	-	-	762	728	-	420	420	-
Critical Hdwy	4.1	-	-	4.16	-	-	7.1	6.5	6.23	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.254	-	-	3.5	4	3.327	3.5	4	3.3
Pot Cap-1 Maneuver	885	-	-	1155	-	-	168	200	663	179	202	429
Stage 1	-	-	-	-	-	-	615	593	-	420	433	-
Stage 2	-	-	-	-	-	-	400	432	-	615	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	883	-	-	1155	-	-	134	195	663	176	197	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	195	-	176	197	-
Stage 1	-	-	-	-	-	-	601	580	-	410	432	-
Stage 2	-	-	-	-	-	-	324	431	-	602	580	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	22.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	883	-	-	1155	-	-	311
HCM Lane V/C Ratio	-	0.021	-	-	-	-	-	0.354
HCM Control Delay (s)	0	9.2	-	-	0	-	-	22.8
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.5

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

02/25/2019

1: Cordon Rd & Silverton Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	395	265	221	371	6	210	447	285	12	594	183
Future Volume (vph)	126	395	265	221	371	6	210	447	285	12	594	183
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1693	3182		1660	3345		1693	1782	1496	1710	1765	1511
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1693	3182		1660	3345		1693	1782	1496	1710	1765	1511
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	145	454	305	254	426	7	241	514	328	14	683	210
RTOR Reduction (vph)	0	130	0	0	2	0	0	0	79	0	0	73
Lane Group Flow (vph)	145	629	0	254	431	0	241	514	249	14	683	137
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	3%	2%	0%	1%	1%	1%	0%	2%	0%
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	10.5	23.0		9.0	21.5		17.0	48.0	48.0	2.0	33.0	33.0
Effective Green, g (s)	10.5	23.0		9.0	21.5		17.0	48.0	48.0	2.0	33.0	33.0
Actuated g/C Ratio	0.10	0.23		0.09	0.22		0.17	0.48	0.48	0.02	0.33	0.33
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5
Lane Grp Cap (vph)	177	731		149	719		287	855	718	34	582	498
v/s Ratio Prot	0.09	c0.20		c0.15	0.13		c0.14	0.29		0.01	c0.39	
v/s Ratio Perm									0.17			0.09
v/c Ratio	0.82	0.86		1.70	0.60		0.84	0.60	0.35	0.41	1.17	0.28
Uniform Delay, d1	43.8	37.0		45.5	35.4		40.2	19.0	16.2	48.4	33.5	24.7
Progression Factor	1.00	1.00		1.00	1.00		0.98	0.67	0.51	1.00	1.00	1.00
Incremental Delay, d2	23.5	9.8		344.0	1.0		10.9	0.5	0.1	2.9	95.2	1.4
Delay (s)	67.3	46.8		389.5	36.3		50.0	13.2	8.4	51.4	128.7	26.1
Level of Service	E	D		F	D		D	B	A	D	F	C
Approach Delay (s)		50.1			166.9			19.9			103.8	
Approach LOS		D			F			B			F	
Intersection Summary												
HCM 2000 Control Delay			77.0				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		18.0			
Intersection Capacity Utilization			93.7%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

1: Cordon Rd & Silverton Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	395	265	221	371	6	210	447	285	12	594	183
Future Volume (veh/h)	126	395	265	221	371	6	210	447	285	12	594	183
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	1.00		0.99	1.00		0.99	1.00		0.99
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	1786	1786	1786	1758	1772	1772	1786	1786	1786	1800	1772	1800
Adj Flow Rate, veh/h	145	454	305	254	426	7	241	514	328	14	683	210
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	1	1	3	2	2	1	1	1	0	2	0
Cap, veh/h	173	506	338	151	842	14	153	821	687	17	673	572
Arrive On Green	0.10	0.26	0.26	0.09	0.25	0.25	0.09	0.46	0.46	0.01	0.38	0.38
Sat Flow, veh/h	1701	1943	1298	1674	3389	56	1701	1786	1495	1714	1772	1506
Grp Volume(v), veh/h	145	396	363	254	211	222	241	514	328	14	683	210
Grp Sat Flow(s),veh/h/ln	1701	1697	1544	1674	1683	1762	1701	1786	1495	1714	1772	1506
Q Serve(g_s), s	8.4	22.5	22.7	9.0	10.8	10.8	9.0	21.8	15.2	0.8	38.0	10.1
Cycle Q Clear(g_c), s	8.4	22.5	22.7	9.0	10.8	10.8	9.0	21.8	15.2	0.8	38.0	10.1
Prop In Lane	1.00		0.84	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	442	402	151	418	438	153	821	687	17	673	572
V/C Ratio(X)	0.84	0.90	0.90	1.69	0.51	0.51	1.57	0.63	0.48	0.84	1.02	0.37
Avail Cap(c_a), veh/h	204	526	478	151	471	493	153	821	687	94	673	572
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	35.7	35.8	45.5	32.3	32.3	45.5	20.5	18.7	49.4	31.0	22.4
Incr Delay (d2), s/veh	19.6	14.7	16.7	335.6	0.4	0.3	287.4	1.1	0.2	32.3	38.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	10.9	10.2	17.7	4.4	4.6	16.0	9.0	5.1	0.5	22.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	50.4	52.5	381.1	32.6	32.6	332.9	21.6	18.9	81.8	69.6	24.2
LnGrp LOS	E	D	D	F	C	C	F	C	B	F	F	C
Approach Vol, veh/h		904			687			1083			907	
Approach Delay, s/veh		53.4			161.5			90.1			59.3	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	31.0	13.0	43.0	14.2	29.8	5.0	51.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	9.0	31.0	9.0	33.0	12.0	28.0	5.5	36.5				
Max Q Clear Time (g_c+I1), s	11.0	24.7	11.0	40.0	10.4	12.8	2.8	23.8				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.5	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			86.7									
HCM 6th LOS			F									

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	74	156	57	63	48	168	830	72	56	943	116
Future Volume (vph)	97	74	156	57	63	48	168	830	72	56	943	116
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1605		1676	1650		1693	1772		1710	1744	
Flt Permitted	0.60	1.00		0.28	1.00		0.07	1.00		0.08	1.00	
Satd. Flow (perm)	1087	1605		490	1650		121	1772		148	1744	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	80	170	62	68	52	183	902	78	61	1025	126
RTOR Reduction (vph)	0	80	0	0	29	0	0	3	0	0	4	0
Lane Group Flow (vph)	105	170	0	62	91	0	183	977	0	61	1147	0
Confl. Peds. (#/hr)							12		1	1		12
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%	1%	0%	2%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.4	14.4		18.4	14.4		68.1	59.0		58.8	54.2	
Effective Green, g (s)	18.4	14.4		18.4	14.4		68.1	59.0		58.8	54.2	
Actuated g/C Ratio	0.18	0.14		0.18	0.14		0.68	0.59		0.59	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	224	231		137	237		230	1045		158	945	
v/s Ratio Prot	c0.02	c0.11		0.02	0.06		c0.07	0.55		0.02	c0.66	
v/s Ratio Perm	0.07			0.06			0.47			0.21		
v/c Ratio	0.47	0.74		0.45	0.38		0.80	0.94		0.39	1.21	
Uniform Delay, d1	35.9	41.0		35.0	38.8		29.5	18.7		17.7	22.9	
Progression Factor	1.00	1.00		1.00	1.00		0.99	1.08		1.40	0.64	
Incremental Delay, d2	1.5	11.6		2.4	1.0		9.9	10.0		0.1	97.1	
Delay (s)	37.5	52.6		37.4	39.8		39.1	30.3		24.9	111.7	
Level of Service	D	D		D	D		D	C		C	F	
Approach Delay (s)		48.1			39.0			31.6			107.3	
Approach LOS		D			D			C			F	
Intersection Summary												
HCM 2000 Control Delay			65.6			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			103.2%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	74	156	57	63	48	168	830	72	56	943	116
Future Volume (veh/h)	97	74	156	57	63	48	168	830	72	56	943	116
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		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1800	1800	1800	1772	1772	1772	1786	1800	1800	1800	1786	1786
Adj Flow Rate, veh/h	105	80	170	62	68	52	183	902	78	61	1025	126
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	2	2	2	1	0	0	0	1	1
Cap, veh/h	279	89	189	164	154	118	183	919	79	155	839	103
Arrive On Green	0.05	0.17	0.17	0.04	0.16	0.16	0.06	0.56	0.56	0.04	0.54	0.54
Sat Flow, veh/h	1714	513	1091	1688	931	712	1701	1628	141	1714	1553	191
Grp Volume(v), veh/h	105	0	250	62	0	120	183	0	980	61	0	1151
Grp Sat Flow(s),veh/h/ln	1714	0	1604	1688	0	1644	1701	0	1769	1714	0	1744
Q Serve(g_s), s	5.0	0.0	15.3	3.0	0.0	6.6	6.5	0.0	54.1	1.5	0.0	54.0
Cycle Q Clear(g_c), s	5.0	0.0	15.3	3.0	0.0	6.6	6.5	0.0	54.1	1.5	0.0	54.0
Prop In Lane	1.00		0.68	1.00		0.43	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	279	0	279	164	0	271	183	0	998	155	0	942
V/C Ratio(X)	0.38	0.00	0.90	0.38	0.00	0.44	1.00	0.00	0.98	0.39	0.00	1.22
Avail Cap(c_a), veh/h	279	0	289	179	0	296	183	0	998	172	0	942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	40.4	33.8	0.0	37.6	29.9	0.0	21.3	23.4	0.0	23.0
Incr Delay (d2), s/veh	0.8	0.0	27.9	1.4	0.0	1.1	67.2	0.0	24.4	1.6	0.0	109.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	8.1	1.3	0.0	2.7	7.9	0.0	27.0	0.8	0.0	48.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	68.3	35.2	0.0	38.7	97.1	0.0	45.7	25.1	0.0	132.6
LnGrp LOS	C	A	E	D	A	D	F	A	D	C	A	F
Approach Vol, veh/h	355			182			1163			1212		
Approach Delay, s/veh	58.2			37.5			53.8			127.2		
Approach LOS	E			D			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	60.9	8.6	21.9	11.0	58.5	9.5	21.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.1	53.9	5.0	18.0	6.5	52.5	5.0	18.0				
Max Q Clear Time (g_c+l1), s	3.5	56.1	5.0	17.3	8.5	56.0	7.0	8.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	83.8											
HCM 6th LOS	F											

Intersection												
Int Delay, s/veh	181.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	40	16	112	7	2	11	98	1019	27	11	1055	90
Future Vol, veh/h	40	16	112	7	2	11	98	1019	27	11	1055	90
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	210	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	0	1	0	0	0	0	1	0	0	2	1
Mvmt Flow	44	18	123	8	2	12	108	1120	30	12	1159	99

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2594	2602	1212	2654	2636	1135	1261	0	0	1150	0	0
Stage 1	1236	1236	-	1351	1351	-	-	-	-	-	-	-
Stage 2	1358	1366	-	1303	1285	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.21	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.309	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 17	25	223	15	24	249	558	-	-	615	-	-
Stage 1	215	250	-	187	221	-	-	-	-	-	-	-
Stage 2	183	217	-	199	237	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	20	222	~ 1	19	249	556	-	-	615	-	-
Mov Cap-2 Maneuver	~ 12	20	-	~ 1	19	-	-	-	-	-	-	-
Stage 1	173	244	-	151	178	-	-	-	-	-	-	-
Stage 2	139	175	-	81	232	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, \$ 2079.6		\$ 5074.2	1.1	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	556	-	-	36 3	615	-	-
HCM Lane V/C Ratio	0.194	-	-	5.128 7.326	0.02	-	-
HCM Control Delay (s)	13	-	-	\$ 2079.6 \$ 5074.2	11	-	-
HCM Lane LOS	B	-	-	F F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-	21.8 4.3	0.1	-	-

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

HCM Signalized Intersection Capacity Analysis

4: Cordon Rd & Center St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	98	231	33	61	32	199	871	38	33	962	179
Future Volume (vph)	241	98	231	33	61	32	199	871	38	33	962	179
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1748	1500	1710	1684		1676	1755		1583	1765	1465
Flt Permitted	0.69	1.00	1.00	0.69	1.00		0.07	1.00		0.09	1.00	1.00
Satd. Flow (perm)	1245	1748	1500	1238	1684		126	1755		154	1765	1465
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	107	251	36	66	35	216	947	41	36	1046	195
RTOR Reduction (vph)	0	0	131	0	20	0	0	1	0	0	0	36
Lane Group Flow (vph)	262	107	120	36	81	0	216	987	0	36	1046	159
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	2%	0%	8%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	23.1	23.1	23.1	23.1	23.1		65.9	59.3		54.6	52.0	52.0
Effective Green, g (s)	23.1	23.1	23.1	23.1	23.1		65.9	59.3		54.6	52.0	52.0
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23		0.66	0.59		0.55	0.52	0.52
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	287	403	346	285	389		236	1040		121	917	761
v/s Ratio Prot		0.06			0.05		c0.09	0.56		0.01	c0.59	
v/s Ratio Perm	c0.21		0.08	0.03			0.51			0.15		0.11
v/c Ratio	0.91	0.27	0.35	0.13	0.21		0.92	0.95		0.30	1.14	0.21
Uniform Delay, d1	37.5	31.5	32.1	30.5	31.1		31.2	18.9		17.6	24.0	12.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.29	0.84		0.67	0.72	0.36
Incremental Delay, d2	30.8	0.1	0.2	0.1	0.2		5.4	2.6		0.1	67.7	0.2
Delay (s)	68.3	31.6	32.4	30.6	31.3		45.6	18.4		12.0	84.9	4.9
Level of Service	E	C	C	C	C		D	B		B	F	A
Approach Delay (s)		47.4			31.1			23.3			70.6	
Approach LOS		D			C			C			E	
Intersection Summary												
HCM 2000 Control Delay			46.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			98.3%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary

4: Cordon Rd & Center St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	98	231	33	61	32	199	871	38	33	962	179
Future Volume (veh/h)	241	98	231	33	61	32	199	871	38	33	962	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1772	1800	1772	1772	1772	1772	1772	1688	1772	1772
Adj Flow Rate, veh/h	262	107	251	36	66	35	216	947	41	36	1046	195
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	2	0	2	2	2	2	2	8	2	2
Cap, veh/h	350	475	405	291	294	156	173	945	41	103	921	779
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.06	0.56	0.56	0.02	0.52	0.52
Sat Flow, veh/h	1245	1758	1502	985	1090	578	1688	1686	73	1607	1772	1499
Grp Volume(v), veh/h	262	107	251	36	0	101	216	0	988	36	1046	195
Grp Sat Flow(s),veh/h/ln	1245	1758	1502	985	0	1668	1688	0	1759	1607	1772	1499
Q Serve(g_s), s	20.7	4.7	14.7	2.9	0.0	4.7	6.0	0.0	56.1	1.1	52.0	7.2
Cycle Q Clear(g_c), s	25.4	4.7	14.7	7.7	0.0	4.7	6.0	0.0	56.1	1.1	52.0	7.2
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	350	475	405	291	0	450	173	0	986	103	921	779
V/C Ratio(X)	0.75	0.23	0.62	0.12	0.00	0.22	1.25	0.00	1.00	0.35	1.14	0.25
Avail Cap(c_a), veh/h	350	475	405	291	0	450	173	0	986	160	921	779
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	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	28.4	32.0	31.4	0.0	28.4	29.1	0.0	22.0	24.4	24.0	13.2
Incr Delay (d2), s/veh	7.8	0.1	2.1	0.1	0.0	0.2	149.9	0.0	29.1	0.7	74.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	2.0	5.5	0.7	0.0	1.9	9.3	0.0	28.9	0.4	39.1	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	28.5	34.1	31.5	0.0	28.5	179.0	0.0	51.1	25.1	98.3	14.0
LnGrp LOS	D	C	C	C	A	C	F	A	F	C	F	B
Approach Vol, veh/h		620			137			1204			1277	
Approach Delay, s/veh		38.2			29.3			74.1			83.4	
Approach LOS		D			C			E			F	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		32.0	10.0	58.0		32.0	5.9	62.1				
Change Period (Y+Rc), s		5.0	4.0	6.0		5.0	4.0	6.0				
Max Green Setting (Gmax), s		27.0	6.0	52.0		27.0	5.5	52.5				
Max Q Clear Time (g_c+I1), s		27.4	8.0	54.0		9.7	3.1	58.1				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			69.0									
HCM 6th LOS			E									

Intersection												
Int Delay, s/veh	69.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	28	2	105	7	2	10	72	1070	32	8	1129	89
Future Vol, veh/h	28	2	105	7	2	10	72	1070	32	8	1129	89
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	110	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	3	0
Mvmt Flow	30	2	114	8	2	11	78	1163	35	9	1227	97

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2640	2651	1279	2689	2682	1181	1327	0	0	1198	0	0
Stage 1	1297	1297	-	1337	1337	-	-	-	-	-	-	-
Stage 2	1343	1354	-	1352	1345	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 16	23	205	14	22	234	527	-	-	590	-	-
Stage 1	201	234	-	191	224	-	-	-	-	-	-	-
Stage 2	189	220	-	187	222	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 12	19	204	~ 5	18	234	525	-	-	590	-	-
Mov Cap-2 Maneuver	~ 12	19	-	~ 5	18	-	-	-	-	-	-	-
Stage 1	171	230	-	163	191	-	-	-	-	-	-	-
Stage 2	152	187	-	80	218	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, \$	1171.9	975.8	0.8	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	525	-	-	46 12	590	-	-
HCM Lane V/C Ratio	0.149	-	-	3.19 1.721	0.015	-	-
HCM Control Delay (s)	13.1	-	-	\$ 1171.9 \$ 975.8	11.2	-	-
HCM Lane LOS	B	-	-	F F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	16 3.4	0	-	-

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

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	313	157	107	206	146	148	721	130	158	833	228
Future Volume (vph)	312	313	157	107	206	146	148	721	130	158	833	228
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.94		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1644		1693	1655		1710	1702		1660	1782	1483
Flt Permitted	0.16	1.00		0.19	1.00		0.09	1.00		0.09	1.00	1.00
Satd. Flow (perm)	288	1644		339	1655		167	1702		161	1782	1483
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	325	326	164	111	215	152	154	751	135	165	868	238
RTOR Reduction (vph)	0	18	0	0	25	0	0	6	0	0	0	93
Lane Group Flow (vph)	325	472	0	111	342	0	154	880	0	165	868	145
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	7%	1%	2%	2%	0%	3%	3%	3%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	35.0	25.7		26.3	21.0		48.5	43.0		49.5	43.5	43.5
Effective Green, g (s)	35.0	25.7		26.3	21.0		48.5	43.0		49.5	43.5	43.5
Actuated g/C Ratio	0.35	0.26		0.26	0.21		0.48	0.43		0.50	0.44	0.44
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	243	422		160	347		165	731		169	775	645
v/s Ratio Prot	c0.13	0.29		0.04	0.21		0.05	c0.52		c0.06	0.49	
v/s Ratio Perm	c0.33			0.14			0.40			0.42		0.10
v/c Ratio	1.34	1.12		0.69	0.98		0.93	1.20		0.98	1.12	0.23
Uniform Delay, d1	27.9	37.1		30.6	39.3		22.9	28.5		23.4	28.2	17.7
Progression Factor	1.05	1.02		1.00	1.00		1.13	0.84		1.27	0.66	0.40
Incremental Delay, d2	173.4	76.9		10.0	43.8		38.8	100.4		38.1	61.9	0.3
Delay (s)	202.6	114.8		40.6	83.1		64.5	124.4		67.8	80.7	7.5
Level of Service	F	F		D	F		E	F		E	F	A
Approach Delay (s)		149.8			73.3			115.5			65.3	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM 2000 Control Delay			100.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				20.0		
Intersection Capacity Utilization			113.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Cordon Rd & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	313	157	107	206	146	148	721	130	158	833	228
Future Volume (veh/h)	312	313	157	107	206	146	148	721	130	158	833	228
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.98	1.00		0.98
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	1800	1786	1786	1786	1772	1772	1800	1758	1758	1758	1786	1786
Adj Flow Rate, veh/h	325	326	164	111	215	152	154	751	135	165	868	238
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	1	2	2	0	3	3	3	1	1
Cap, veh/h	243	283	142	166	202	143	166	621	112	172	777	645
Arrive On Green	0.17	0.43	0.43	0.05	0.21	0.21	0.05	0.43	0.43	0.06	0.44	0.44
Sat Flow, veh/h	1714	1109	558	1701	963	681	1714	1445	260	1674	1786	1482
Grp Volume(v), veh/h	325	0	490	111	0	367	154	0	886	165	868	238
Grp Sat Flow(s),veh/h/ln	1714	0	1667	1701	0	1644	1714	0	1705	1674	1786	1482
Q Serve(g_s), s	10.0	0.0	25.5	5.1	0.0	21.0	5.1	0.0	43.0	5.6	43.5	10.8
Cycle Q Clear(g_c), s	10.0	0.0	25.5	5.1	0.0	21.0	5.1	0.0	43.0	5.6	43.5	10.8
Prop In Lane	1.00		0.33	1.00		0.41	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	243	0	425	166	0	345	166	0	733	172	777	645
V/C Ratio(X)	1.34	0.00	1.15	0.67	0.00	1.06	0.93	0.00	1.21	0.96	1.12	0.37
Avail Cap(c_a), veh/h	243	0	425	166	0	345	166	0	733	172	777	645
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.00	0.76	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	28.7	31.1	0.0	39.5	23.8	0.0	28.5	23.7	28.2	19.0
Incr Delay (d2), s/veh	170.6	0.0	87.7	8.3	0.0	66.2	48.0	0.0	106.5	55.3	69.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	0.0	18.6	2.5	0.0	14.7	4.1	0.0	38.3	4.7	32.6	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.2	0.0	116.4	39.4	0.0	105.7	71.8	0.0	135.0	79.0	97.8	20.6
LnGrp LOS	F	A	F	D	A	F	E	A	F	E	F	C
Approach Vol, veh/h		815			478			1040			1271	
Approach Delay, s/veh		149.4			90.3			125.6			80.9	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	31.5	9.5	49.5	14.0	27.0	10.0	49.0				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.5	25.5	5.5	43.5	10.0	21.0	6.0	43.0				
Max Q Clear Time (g_c+l1), s	7.1	27.5	7.1	45.5	12.0	23.0	7.6	45.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			110.6									
HCM 6th LOS			F									

Intersection						
Int Delay, s/veh	25.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	33	68	965	1006	90
Future Vol, veh/h	35	33	68	965	1006	90
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	7	4	4	4	3	5
Mvmt Flow	43	40	83	1177	1227	110
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2625	1282	1337	0	-	0
Stage 1	1282	-	-	-	-	-
Stage 2	1343	-	-	-	-	-
Critical Hdwy	6.47	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	~ 25	200	509	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 21	200	509	-	-	-
Mov Cap-2 Maneuver	~ 21	-	-	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	801.3	0.9		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	509	-	37	-	-	
HCM Lane V/C Ratio	0.163	-	2.241	-	-	
HCM Control Delay (s)	13.4	-	\$ 801.3	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.6	-	9.1	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	49.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	4	6	6	5	7	10	984	5	7	907	173
Future Vol, veh/h	77	4	6	6	5	7	10	984	5	7	907	173
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	12	3	0	0	4	2
Mvmt Flow	83	4	6	6	5	8	11	1058	5	8	975	186
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2173	2169	1068	2172	2260	1061	1161	0	0	1063	0	0
Stage 1	1084	1084	-	1083	1083	-	-	-	-	-	-	-
Stage 2	1089	1085	-	1089	1177	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.22	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.308	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 34	47	272	34	42	274	567	-	-	663	-	-
Stage 1	265	296	-	265	296	-	-	-	-	-	-	-
Stage 2	263	295	-	263	267	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 28	43	272	29	39	274	567	-	-	663	-	-
Mov Cap-2 Maneuver	~ 28	43	-	29	39	-	-	-	-	-	-	-
Stage 1	253	285	-	253	282	-	-	-	-	-	-	-
Stage 2	239	281	-	244	257	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1230.5		116.7		0.1		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	567	-	-	30	50	663	-	-				
HCM Lane V/C Ratio	0.019	-	-	3.118	0.387	0.011	-	-				
HCM Control Delay (s)	11.5	0	\$	1230.5	116.7	10.5	0	-				
HCM Lane LOS	B	A	-	F	F	B	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	11.1	1.4	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

HCM Signalized Intersection Capacity Analysis

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	74	0	35	49	56	22	893	101	100	788	31
Future Volume (vph)	52	74	0	35	49	56	22	893	101	100	788	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		1.00			0.95		1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1764			1574		1710	1707		1660	1740	
Flt Permitted		0.66			0.83		0.24	1.00		0.08	1.00	
Satd. Flow (perm)		1180			1323		434	1707		143	1740	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	81	0	38	54	62	24	981	111	110	866	34
RTOR Reduction (vph)	0	0	0	0	29	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	138	0	0	125	0	24	1089	0	110	899	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						2			2			
Heavy Vehicles (%)	0%	0%	0%	5%	0%	11%	0%	4%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.3			12.3		68.0	66.5		76.7	71.2	
Effective Green, g (s)		12.3			12.3		68.0	66.5		76.7	71.2	
Actuated g/C Ratio		0.12			0.12		0.68	0.66		0.77	0.71	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		145			162		314	1135		203	1238	
v/s Ratio Prot							0.00	c0.64		c0.03	0.52	
v/s Ratio Perm		c0.12			0.09		0.05			0.38		
v/c Ratio		0.95			0.77		0.08	0.96		0.54	0.73	
Uniform Delay, d1		43.6			42.5		6.9	15.5		18.9	8.6	
Progression Factor		1.00			1.00		1.39	0.87		2.08	0.77	
Incremental Delay, d2		59.5			18.5		0.0	12.2		0.8	1.8	
Delay (s)		103.1			61.0		9.6	25.6		40.0	8.4	
Level of Service		F			E		A	C		D	A	
Approach Delay (s)		103.1			61.0			25.3			11.9	
Approach LOS		F			E			C			B	
Intersection Summary												
HCM 2000 Control Delay		26.4			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.93										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		86.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

9: Cordon Rd & MacLeay Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	74	0	35	49	56	22	893	101	100	788	31
Future Volume (veh/h)	52	74	0	35	49	56	22	893	101	100	788	31
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	1800	1800	1800	1800	1800	1800	1800	1744	1744	1758	1758	1758
Adj Flow Rate, veh/h	57	81	0	38	54	0	24	981	111	110	866	34
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	4	3	3	3
Cap, veh/h	113	111	0	103	116		362	1089	123	227	1228	48
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.01	0.71	0.71	0.04	0.73	0.73
Sat Flow, veh/h	591	1066	0	499	1105	0	1714	1535	174	1674	1680	66
Grp Volume(v), veh/h	138	0	0	92	0	0	24	0	1092	110	0	900
Grp Sat Flow(s),veh/h/ln	1656	0	0	1604	0	0	1714	0	1708	1674	0	1746
Q Serve(g_s), s	2.7	0.0	0.0	0.0	0.0	0.0	0.4	0.0	51.5	1.8	0.0	28.6
Cycle Q Clear(g_c), s	8.0	0.0	0.0	5.2	0.0	0.0	0.4	0.0	51.5	1.8	0.0	28.6
Prop In Lane	0.41		0.00	0.41		0.00	1.00		0.10	1.00		0.04
Lane Grp Cap(c), veh/h	224	0	0	219	0		362	0	1212	227	0	1276
V/C Ratio(X)	0.62	0.00	0.00	0.42	0.00		0.07	0.00	0.90	0.49	0.00	0.71
Avail Cap(c_a), veh/h	465	0	0	457	0		431	0	1212	258	0	1276
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	0.30	0.00	0.30	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	0.0	42.3	0.0	0.0	7.5	0.0	11.7	20.7	0.0	7.5
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	3.7	0.6	0.0	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(50%),veh/ln	3.4	0.0	0.0	2.2	0.0	0.0	0.1	0.0	17.0	1.7	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	0.0	0.0	42.8	0.0	0.0	7.5	0.0	15.5	21.3	0.0	10.8
LnGrp LOS	D	A	A	D	A		A	A	B	C	A	B
Approach Vol, veh/h	138			92			A			1116		
Approach Delay, s/veh	44.6			42.8			15.3			11.9		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	76.9		15.5	5.5	79.1		15.5				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.5	53.5		26.0	5.5	53.5		26.0				
Max Q Clear Time (g_c+I1), s	3.8	53.5		10.0	2.4	30.6		7.2				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	1.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis

10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	34	72	45	28	208	108	798	28	166	611	95
Future Volume (vph)	74	34	72	45	28	208	108	798	28	166	611	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1618		1710	1513		1710	1753		1644	1734	
Flt Permitted	0.95	1.00		0.95	1.00		0.25	1.00		0.10	1.00	
Satd. Flow (perm)	1710	1618		1710	1513		457	1753		165	1734	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	80	37	77	48	30	224	116	858	30	178	657	102
RTOR Reduction (vph)	0	68	0	0	175	0	0	1	0	0	4	0
Lane Group Flow (vph)	80	46	0	48	79	0	116	887	0	178	755	0
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	3%	0%	2%	5%	4%	2%	0%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases							6			2		
Actuated Green, G (s)	5.4	11.5		4.2	10.3		61.1	54.8		70.3	60.0	
Effective Green, g (s)	5.4	11.5		4.2	10.3		61.1	54.8		70.3	60.0	
Actuated g/C Ratio	0.05	0.12		0.04	0.10		0.61	0.55		0.70	0.60	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	92	186		71	155		358	960		286	1040	
v/s Ratio Prot	c0.05	0.03		0.03	c0.05		0.02	c0.51		c0.07	0.44	
v/s Ratio Perm							0.18			0.37		
v/c Ratio	0.87	0.25		0.68	0.51		0.32	0.92		0.62	0.73	
Uniform Delay, d1	47.0	40.3		47.2	42.5		10.1	20.7		19.0	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.53	1.04	
Incremental Delay, d2	51.8	0.3		18.2	1.2		0.2	15.6		2.2	3.3	
Delay (s)	98.8	40.6		65.4	43.6		10.3	36.3		31.4	18.0	
Level of Service	F	D		E	D		B	D		C	B	
Approach Delay (s)		64.6			47.1			33.3			20.5	
Approach LOS		E			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			32.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			90.3%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary 10: Cordon Rd & Gaffin Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	34	72	45	28	208	108	798	28	166	611	95
Future Volume (veh/h)	74	34	72	45	28	208	108	798	28	166	611	95
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	1800	1800	1800	1800	1730	1730	1800	1772	1772	1744	1772	1772
Adj Flow Rate, veh/h	80	37	77	48	30	224	116	858	30	178	657	102
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	5	5	0	2	2	4	2	2
Cap, veh/h	94	109	226	60	33	249	263	869	30	187	788	122
Arrive On Green	0.05	0.21	0.21	0.04	0.19	0.19	0.05	0.51	0.51	0.06	0.53	0.53
Sat Flow, veh/h	1714	521	1084	1714	176	1317	1714	1700	59	1661	1498	232
Grp Volume(v), veh/h	80	0	114	48	0	254	116	0	888	178	0	759
Grp Sat Flow(s),veh/h/ln	1714	0	1605	1714	0	1493	1714	0	1760	1661	0	1730
Q Serve(g_s), s	4.6	0.0	6.0	2.8	0.0	16.6	3.2	0.0	49.8	5.9	0.0	37.0
Cycle Q Clear(g_c), s	4.6	0.0	6.0	2.8	0.0	16.6	3.2	0.0	49.8	5.9	0.0	37.0
Prop In Lane	1.00		0.68	1.00		0.88	1.00		0.03	1.00		0.13
Lane Grp Cap(c), veh/h	94	0	335	60	0	282	263	0	899	187	0	910
V/C Ratio(X)	0.85	0.00	0.34	0.80	0.00	0.90	0.44	0.00	0.99	0.95	0.00	0.83
Avail Cap(c_a), veh/h	94	0	417	94	0	388	277	0	899	187	0	910
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.65	0.00	0.65
Uniform Delay (d), s/veh	46.8	0.0	33.7	47.9	0.0	39.6	18.0	0.0	24.1	26.2	0.0	20.0
Incr Delay (d2), s/veh	46.0	0.0	0.2	10.1	0.0	15.5	0.4	0.0	27.2	39.2	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	2.4	1.3	0.0	7.2	1.2	0.0	26.0	4.2	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.9	0.0	33.9	58.0	0.0	55.2	18.4	0.0	51.3	65.4	0.0	26.0
LnGrp LOS	F	A	C	E	A	E	B	A	D	E	A	C
Approach Vol, veh/h	194			302			1004			937		
Approach Delay, s/veh	58.2			55.6			47.5			33.5		
Approach LOS	E			E			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	58.6	9.5	22.9	10.5	57.1	7.5	24.9				
Change Period (Y+Rc), s	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0				
Max Green Setting (Gmax), s	5.8	44.7	5.5	26.0	6.5	44.0	5.5	26.0				
Max Q Clear Time (g_c+I1), s	5.2	39.0	6.6	18.6	7.9	51.8	4.8	8.0				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.3	0.0	0.0	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay	44.0											
HCM 6th LOS	D											

HCM Signalized Intersection Capacity Analysis

11: Lancaster Dr & Center St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	255	731	308	163	425	189	312	1149	111	270	1037	182
Future Volume (vph)	255	731	308	163	425	189	312	1149	111	270	1037	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1693	3353	1439	1693	3139		1676	3282		1676	3296	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1693	3353	1439	1693	3139		1676	3282		1676	3296	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	260	746	314	166	434	193	318	1172	113	276	1058	186
RTOR Reduction (vph)	0	0	89	0	39	0	0	6	0	0	11	0
Lane Group Flow (vph)	260	746	225	166	588	0	318	1279	0	276	1233	0
Confl. Peds. (#/hr)	17		18	18		17	10		21	21		10
Confl. Bikes (#/hr)			1						1			4
Heavy Vehicles (%)	1%	2%	2%	1%	3%	2%	2%	2%	4%	2%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	19.4	31.1	31.1	13.6	25.3		24.5	49.2		20.1	44.8	
Effective Green, g (s)	19.4	31.1	31.1	13.6	25.3		24.5	49.2		20.1	44.8	
Actuated g/C Ratio	0.15	0.24	0.24	0.10	0.19		0.19	0.38		0.15	0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	252	802	344	177	610		315	1242		259	1135	
v/s Ratio Prot	c0.15	c0.22		0.10	0.19		c0.19	c0.39		0.16	0.37	
v/s Ratio Perm			0.16									
v/c Ratio	1.03	0.93	0.65	0.94	0.96		1.01	1.03		1.07	1.09	
Uniform Delay, d1	55.3	48.4	44.6	57.8	51.9		52.8	40.4		55.0	42.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.02	1.10		0.75	1.12	
Incremental Delay, d2	65.2	17.0	3.4	48.8	27.1		38.1	26.3		65.6	49.8	
Delay (s)	120.5	65.4	48.0	106.6	79.0		92.2	70.9		106.7	97.6	
Level of Service	F	E	D	F	E		F	E		F	F	
Approach Delay (s)		72.1			84.8			75.1			99.2	
Approach LOS		E			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			82.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			103.0%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

11: Lancaster Dr & Center St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	731	308	163	425	189	312	1149	111	270	1037	182
Future Volume (veh/h)	255	731	308	163	425	189	312	1149	111	270	1037	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1772	1772	1786	1758	1758	1772	1772	1772	1772	1786	1786
Adj Flow Rate, veh/h	260	746	314	166	434	193	318	1172	113	276	1058	186
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	2	2	1	3	3	2	2	2	2	1	1
Cap, veh/h	254	813	350	183	447	197	309	1168	112	252	989	173
Arrive On Green	0.15	0.24	0.24	0.11	0.20	0.20	0.37	0.76	0.76	0.15	0.34	0.34
Sat Flow, veh/h	1701	3367	1449	1701	2236	983	1688	3087	297	1688	2869	503
Grp Volume(v), veh/h	260	746	314	166	323	304	318	638	647	276	624	620
Grp Sat Flow(s),veh/h/ln	1701	1683	1449	1701	1670	1549	1688	1683	1701	1688	1697	1676
Q Serve(g_s), s	19.4	28.1	27.3	12.5	24.9	25.4	23.8	49.2	49.2	19.4	44.8	44.8
Cycle Q Clear(g_c), s	19.4	28.1	27.3	12.5	24.9	25.4	23.8	49.2	49.2	19.4	44.8	44.8
Prop In Lane	1.00		1.00	1.00		0.63	1.00		0.17	1.00		0.30
Lane Grp Cap(c), veh/h	254	813	350	183	334	310	309	637	644	252	585	577
V/C Ratio(X)	1.02	0.92	0.90	0.91	0.97	0.98	1.03	1.00	1.01	1.10	1.07	1.07
Avail Cap(c_a), veh/h	254	813	350	183	334	310	309	637	644	252	585	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.39	0.39	0.39	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	48.0	47.7	57.4	51.6	51.8	41.2	15.8	15.8	55.3	42.6	42.6
Incr Delay (d2), s/veh	62.9	14.9	23.9	40.2	40.1	45.8	39.7	22.6	23.5	84.8	56.7	58.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	13.4	12.1	7.4	14.1	13.8	11.7	11.8	12.1	14.2	27.7	27.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	118.2	62.9	71.7	97.6	91.6	97.6	80.9	38.4	39.3	140.1	99.3	101.2
LnGrp LOS	F	E	E	F	F	F	F	F	F	F	F	F
Approach Vol, veh/h	1320			793			1603			1520		
Approach Delay, s/veh	75.9			95.2			47.2			107.5		
Approach LOS	E			F			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.8	48.8	23.4	30.0	23.4	53.2	18.0	35.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	23.8	44.8	19.4	26.0	19.4	49.2	14.0	31.4				
Max Q Clear Time (g_c+I1), s	25.8	46.8	21.4	27.4	21.4	51.2	14.5	30.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	79.2											
HCM 6th LOS	E											

HCM Signalized Intersection Capacity Analysis

12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	29	31	147	13	105	44	1544	207	192	1274	36
Future Volume (vph)	30	29	31	147	13	105	44	1544	207	192	1274	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.95			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1667			1683	1485	1710	3308		1693	3370	
Flt Permitted		0.75			0.62	1.00	0.16	1.00		0.05	1.00	
Satd. Flow (perm)		1264			1084	1485	293	3308		83	3370	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	32	31	33	158	14	113	47	1660	223	206	1370	39
RTOR Reduction (vph)	0	15	0	0	0	94	0	7	0	0	1	0
Lane Group Flow (vph)	0	81	0	0	172	19	47	1876	0	206	1408	0
Confl. Peds. (#/hr)	4		10	10		4	3		4	4		3
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6			2		
Actuated Green, G (s)		21.7			21.7	21.7	85.5	82.3		99.3	92.1	
Effective Green, g (s)		21.7			21.7	21.7	85.5	82.3		99.3	92.1	
Actuated g/C Ratio		0.17			0.17	0.17	0.66	0.63		0.76	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		0.5			0.5	0.5	0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		210			180	247	227	2094		224	2387	
v/s Ratio Prot							0.01	0.57		c0.09	0.42	
v/s Ratio Perm		0.06			c0.16	0.01	0.13			c0.61		
v/c Ratio		0.39			0.96	0.08	0.21	0.90		0.92	0.59	
Uniform Delay, d1		48.2			53.7	45.7	8.4	20.2		44.3	9.5	
Progression Factor		1.00			1.00	1.00	1.85	1.69		1.14	0.79	
Incremental Delay, d2		0.4			53.3	0.0	0.1	4.4		17.4	0.4	
Delay (s)		48.6			107.0	45.7	15.8	38.6		67.8	7.9	
Level of Service		D			F	D	B	D		E	A	
Approach Delay (s)		48.6			82.7			38.0			15.5	
Approach LOS		D			F			D			B	
Intersection Summary												
HCM 2000 Control Delay		32.3										
HCM 2000 Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		90.2%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 12: Lancaster Dr & Auburn Rd

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	29	31	147	13	105	44	1544	207	192	1274	36
Future Volume (veh/h)	30	29	31	147	13	105	44	1544	207	192	1274	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		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	1800	1800	1800	1800	1800	1786	1800	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	32	31	33	158	14	113	47	1660	223	206	1370	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	1	0	1	1	1	1	1
Cap, veh/h	37	34	18	164	10	263	329	1958	258	226	2368	67
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.02	0.65	0.65	0.15	1.00	1.00
Sat Flow, veh/h	0	190	100	629	56	1488	1714	3013	397	1701	3369	96
Grp Volume(v), veh/h	96	0	0	172	0	113	47	920	963	206	689	720
Grp Sat Flow(s),veh/h/ln	290	0	0	684	0	1488	1714	1697	1713	1701	1697	1768
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	8.8	1.2	53.9	58.5	7.5	0.0	0.0
Cycle Q Clear(g_c), s	23.0	0.0	0.0	23.0	0.0	8.8	1.2	53.9	58.5	7.5	0.0	0.0
Prop In Lane	0.33		0.34	0.92		1.00	1.00		0.23	1.00		0.05
Lane Grp Cap(c), veh/h	88	0	0	174	0	263	329	1103	1113	226	1193	1243
V/C Ratio(X)	1.09	0.00	0.00	0.99	0.00	0.43	0.14	0.83	0.87	0.91	0.58	0.58
Avail Cap(c_a), veh/h	88	0	0	174	0	263	372	1103	1113	298	1193	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.14	0.14	0.14	0.09	0.09	0.09
Uniform Delay (d), s/veh	52.8	0.0	0.0	56.9	0.0	47.7	7.3	17.4	18.2	33.1	0.0	0.0
Incr Delay (d2), s/veh	121.6	0.0	0.0	64.2	0.0	0.4	0.0	1.1	1.4	3.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	8.8	0.0	3.3	0.4	20.0	21.9	6.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	174.4	0.0	0.0	121.1	0.0	48.1	7.3	18.5	19.6	36.1	0.2	0.2
LnGrp LOS	F	A	A	F	A	D	A	B	B	D	A	A
Approach Vol, veh/h		96			285			1930			1615	
Approach Delay, s/veh		174.4			92.1			18.8			4.8	
Approach LOS		F			F			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	96.4		27.0	13.5	89.5		27.0				
Change Period (Y+Rc), s	4.0	5.0		4.0	4.0	5.0		4.0				
Max Green Setting (Gmax), s	5.9	88.1		23.0	15.0	79.0		23.0				
Max Q Clear Time (g_c+I1), s	3.2	2.0		25.0	9.5	60.5		25.0				
Green Ext Time (p_c), s	0.0	2.4		0.0	0.0	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								

HCM Signalized Intersection Capacity Analysis

13: Lancaster Dr & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	425	947	414	105	423	206	210	854	94	229	995	247
Future Volume (vph)	425	947	414	105	423	206	210	854	94	229	995	247
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3252	3201		1710	3160		1644	3329		1693	3259	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3252	3201		1710	3160		1644	3329		1693	3259	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	443	986	431	109	441	215	219	890	98	239	1036	257
RTOR Reduction (vph)	0	37	0	0	45	0	0	6	0	0	17	0
Lane Group Flow (vph)	443	1380	0	109	611	0	219	982	0	239	1276	0
Confl. Peds. (#/hr)	27		5	5		27	7		3	3		7
Confl. Bikes (#/hr)			2			2			2			
Heavy Vehicles (%)	2%	1%	2%	0%	1%	1%	4%	1%	0%	1%	1%	3%
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	19.5	44.7		10.3	35.5		13.0	38.0		19.0	44.0	
Effective Green, g (s)	19.5	44.7		10.3	35.5		13.0	38.0		19.0	44.0	
Actuated g/C Ratio	0.15	0.34		0.08	0.27		0.10	0.29		0.15	0.34	
Clearance Time (s)	4.0	5.0		4.0	5.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)	487	1100		135	862		164	973		247	1103	
v/s Ratio Prot	c0.14	c0.43		0.06	0.19		c0.13	0.29		c0.14	c0.39	
v/s Ratio Perm												
v/c Ratio	0.91	1.25		0.81	0.71		1.34	1.01		0.97	1.16	
Uniform Delay, d1	54.4	42.6		58.9	42.6		58.5	46.0		55.2	43.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.93	0.82	
Incremental Delay, d2	20.3	122.0		27.2	2.2		186.3	31.0		41.5	79.3	
Delay (s)	74.7	164.6		86.1	44.8		244.8	77.0		93.1	114.3	
Level of Service	E	F		F	D		F	E		F	F	
Approach Delay (s)		143.2			50.7			107.5			111.0	
Approach LOS		F			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			112.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			112.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Lancaster Dr & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	425	947	414	105	423	206	210	854	94	229	995	247
Future Volume (veh/h)	425	947	414	105	423	206	210	854	94	229	995	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.99
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	1772	1786	1786	1800	1786	1786	1744	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	443	986	431	109	441	215	219	890	98	239	1036	257
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	0	1	1	4	1	1	1	1	1
Cap, veh/h	488	755	324	131	564	272	166	946	104	249	954	236
Arrive On Green	0.15	0.33	0.33	0.08	0.26	0.26	0.10	0.31	0.31	0.05	0.12	0.12
Sat Flow, veh/h	3274	2283	979	1714	2183	1052	1661	3070	338	1701	2693	665
Grp Volume(v), veh/h	443	728	689	109	342	314	219	492	496	239	651	642
Grp Sat Flow(s),veh/h/ln	1637	1697	1565	1714	1697	1539	1661	1697	1711	1701	1697	1662
Q Serve(g_s), s	17.3	43.0	43.0	8.2	24.3	24.8	13.0	36.7	36.7	18.2	46.0	46.0
Cycle Q Clear(g_c), s	17.3	43.0	43.0	8.2	24.3	24.8	13.0	36.7	36.7	18.2	46.0	46.0
Prop In Lane	1.00		0.63	1.00		0.68	1.00		0.20	1.00		0.40
Lane Grp Cap(c), veh/h	488	561	518	131	438	398	166	523	527	249	601	588
V/C Ratio(X)	0.91	1.30	1.33	0.83	0.78	0.79	1.32	0.94	0.94	0.96	1.08	1.09
Avail Cap(c_a), veh/h	529	561	518	158	444	402	166	523	527	249	601	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	54.4	43.5	43.5	59.2	44.8	44.9	58.5	43.8	43.8	61.5	57.4	57.4
Incr Delay (d2), s/veh	17.9	146.4	161.9	22.2	7.7	9.3	179.3	27.2	27.0	39.7	57.3	60.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	40.7	39.7	4.4	11.2	10.5	13.7	19.3	19.4	11.1	30.6	30.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.3	189.9	205.4	81.4	52.5	54.2	237.8	71.0	70.9	101.2	114.7	117.8
LnGrp LOS	E	F	F	F	D	D	F	E	E	F	F	F
Approach Vol, veh/h		1860			765			1207			1532	
Approach Delay, s/veh		167.7			57.3			101.2			113.9	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	51.0	23.4	38.6	23.0	45.0	14.0	48.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	13.0	44.0	21.0	34.0	19.0	38.0	12.0	43.0				
Max Q Clear Time (g_c+I1), s	15.0	48.0	19.3	26.8	20.2	38.7	10.2	45.0				
Green Ext Time (p_c), s	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			121.6									
HCM 6th LOS			F									

Intersection						
Int Delay, s/veh	27.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	256	745	573	70	85	215
Future Vol, veh/h	256	745	573	70	85	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	267	776	597	73	89	224
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	670	0	-	0	1944	634
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	1310	-
Critical Hdwy	4.12	-	-	-	6.42	6.21
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.309
Pot Cap-1 Maneuver	920	-	-	-	~ 71	481
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	252	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	920	-	-	-	~ 50	481
Mov Cap-2 Maneuver	-	-	-	-	~ 50	-
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	252	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.7	0		168.2		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	920	-	-	-	50	481
HCM Lane V/C Ratio	0.29	-	-	-	1.771	0.466
HCM Control Delay (s)	10.5	-	-	-	\$ 546.2	18.8
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	1.2	-	-	-	8.7	2.4
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	111	22	18	115	28	14	134	6	41	158	20
Future Vol, veh/h	23	111	22	18	115	28	14	134	6	41	158	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	4	0	0	0	12	0	0	0	0	0	0
Mvmt Flow	27	129	26	21	134	33	16	156	7	48	184	23
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	167	0	0	155	0	0	492	405	145	474	402	151
Stage 1	-	-	-	-	-	-	196	196	-	193	193	-
Stage 2	-	-	-	-	-	-	296	209	-	281	209	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1423	-	-	1438	-	-	490	538	908	504	540	901
Stage 1	-	-	-	-	-	-	810	742	-	813	745	-
Stage 2	-	-	-	-	-	-	717	733	-	730	733	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1423	-	-	1438	-	-	337	518	905	372	520	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	518	-	372	520	-
Stage 1	-	-	-	-	-	-	793	726	-	796	733	-
Stage 2	-	-	-	-	-	-	515	721	-	555	718	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	1.1		0.8			16.1			19.3			
HCM LOS						C			C			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	502	1423	-	-	1438	-	-	502				
HCM Lane V/C Ratio	0.357	0.019	-	-	0.015	-	-	0.507				
HCM Control Delay (s)	16.1	7.6	0	-	7.5	0	-	19.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0	-	-	2.8				

HCM Signalized Intersection Capacity Analysis

16: 49th Ave & State St

Pictsweet Master Plan

02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	657	102	39	455	87	47	23	23	103	6	63
Future Volume (vph)	145	657	102	39	455	87	47	23	23	103	6	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.98			0.97			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1804	1846		1805	1847			1764			1753	
Flt Permitted	0.41	1.00		0.28	1.00			0.79			0.84	
Satd. Flow (perm)	785	1846		523	1847			1425			1518	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	154	699	109	41	484	93	50	24	24	110	6	67
RTOR Reduction (vph)	0	6	0	0	8	0	0	21	0	0	58	0
Lane Group Flow (vph)	154	802	0	41	569	0	0	77	0	0	125	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.0	34.0		34.0	34.0			7.0			7.0	
Effective Green, g (s)	34.0	34.0		34.0	34.0			7.0			7.0	
Actuated g/C Ratio	0.68	0.68		0.68	0.68			0.14			0.14	
Clearance Time (s)	5.0	5.0		5.0	5.0			4.0			4.0	
Vehicle Extension (s)	0.5	0.5		0.5	0.5			0.5			0.5	
Lane Grp Cap (vph)	533	1255		355	1255			199			212	
v/s Ratio Prot		c0.43			0.31							
v/s Ratio Perm	0.20			0.08				0.05			c0.08	
v/c Ratio	0.29	0.64		0.12	0.45			0.39			0.59	
Uniform Delay, d1	3.2	4.5		2.8	3.7			19.6			20.2	
Progression Factor	1.00	1.00		0.89	0.91			1.00			1.00	
Incremental Delay, d2	1.4	2.5		0.5	0.8			0.5			2.9	
Delay (s)	4.6	7.0		2.9	4.2			20.0			23.1	
Level of Service	A	A		A	A			C			C	
Approach Delay (s)		6.6			4.1			20.0			23.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			8.1			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			69.8%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
16: 49th Ave & State St

Pictsweet Master Plan
02/25/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	657	102	39	455	87	47	23	23	103	6	63
Future Volume (veh/h)	145	657	102	39	455	87	47	23	23	103	6	63
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		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	1900	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	154	699	109	41	484	93	50	24	24	110	6	67
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, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	665	1069	167	428	1036	199	209	96	64	248	17	86
Arrive On Green	0.67	0.67	0.67	0.89	0.89	0.89	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	849	1592	248	685	1543	296	675	648	429	894	112	581
Grp Volume(v), veh/h	154	0	808	41	0	577	98	0	0	183	0	0
Grp Sat Flow(s),veh/h/ln	849	0	1840	685	0	1839	1752	0	0	1588	0	0
Q Serve(g_s), s	4.3	0.0	12.9	1.5	0.0	2.9	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	7.2	0.0	12.9	14.3	0.0	2.9	2.4	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.16	0.51		0.24	0.60		0.37
Lane Grp Cap(c), veh/h	665	0	1236	428	0	1235	369	0	0	351	0	0
V/C Ratio(X)	0.23	0.00	0.65	0.10	0.00	0.47	0.27	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	665	0	1236	428	0	1235	720	0	0	691	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.56	0.00	0.56	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.6	0.0	4.8	4.8	0.0	1.0	19.2	0.0	0.0	20.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	2.7	0.2	0.0	0.7	0.1	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.4	0.1	0.0	0.6	0.9	0.0	0.0	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	0.0	7.5	5.0	0.0	1.7	19.3	0.0	0.0	20.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	C	A	A
Approach Vol, veh/h	962			618			98			183		
Approach Delay, s/veh	7.2			2.0			19.3			20.7		
Approach LOS	A			A			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	11.4			38.6			11.4			38.6		
Change Period (Y+Rc), s	4.0			5.0			4.0			5.0		
Max Green Setting (Gmax), s	19.0			22.0			19.0			22.0		
Max Q Clear Time (g_c+I1), s	4.4			14.9			7.4			16.3		
Green Ext Time (p_c), s	0.1			1.3			0.2			0.7		
Intersection Summary												
HCM 6th Ctrl Delay	7.4											
HCM 6th LOS	A											

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	149	9	4	189	3	3
Future Vol, veh/h	149	9	4	189	3	3
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	4	0	0	0	0	0
Mvmt Flow	173	10	5	220	3	3
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	183	0	408	181
Stage 1	-	-	-	-	178	-
Stage 2	-	-	-	-	230	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1404	-	603	867
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	813	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1404	-	601	865
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	813	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	709	-	-	1404	-	
HCM Lane V/C Ratio	0.01	-	-	0.003	-	
HCM Control Delay (s)	10.1	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	129	22	18	145	17	6
Future Vol, veh/h	129	22	18	145	17	6
Conflicting Peds, #/hr	0	0	0	0	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	4	0	0	0	0	0
Mvmt Flow	150	26	21	169	20	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	176	0	374	166
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	211	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1412	-	631	884
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	621	881
Mov Cap-2 Maneuver	-	-	-	-	621	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	829	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.8		10.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	673	-	-	1412	-	
HCM Lane V/C Ratio	0.04	-	-	0.015	-	
HCM Control Delay (s)	10.6	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	887	0	0	539	27	0	0	0	17	0	47
Future Vol, veh/h	54	887	0	0	539	27	0	0	0	17	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	3	3	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	4	0	0	0	12	0	0	0	0	0	0
Mvmt Flow	63	1031	0	0	627	31	0	0	0	20	0	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	658	0	0	1031	0	0	1827	1815	1034	1803	1800	643
Stage 1	-	-	-	-	-	-	1157	1157	-	643	643	-
Stage 2	-	-	-	-	-	-	670	658	-	1160	1157	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	939	-	-	682	-	-	60	79	285	62	81	477
Stage 1	-	-	-	-	-	-	241	273	-	465	472	-
Stage 2	-	-	-	-	-	-	450	464	-	240	273	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	939	-	-	682	-	-	50	74	284	59	76	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	74	-	59	76	-
Stage 1	-	-	-	-	-	-	225	255	-	434	472	-
Stage 2	-	-	-	-	-	-	398	464	-	223	255	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	0	43.2
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	939	-	-	682	-	-	166
HCM Lane V/C Ratio	-	0.067	-	-	-	-	-	0.448
HCM Control Delay (s)	0	9.1	-	-	0	-	-	43.2
HCM Lane LOS	A	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	2.1

Appendix G
Mitigated Year 2039
Operational Worksheets

HCM Signalized Intersection Capacity Analysis

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	74	156	57	63	48	168	830	72	56	943	116
Future Volume (vph)	97	74	156	57	63	48	168	830	72	56	943	116
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1710	1605		1676	1650		1693	3368		1710	3314	
Flt Permitted	0.55	1.00		0.29	1.00		0.14	1.00		0.25	1.00	
Satd. Flow (perm)	993	1605		519	1650		247	3368		450	3314	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	80	170	62	68	52	183	902	78	61	1025	126
RTOR Reduction (vph)	0	81	0	0	29	0	0	6	0	0	8	0
Lane Group Flow (vph)	105	169	0	62	91	0	183	974	0	61	1143	0
Confl. Peds. (#/hr)							12		1	1		12
Confl. Bikes (#/hr)									1			3
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%	1%	0%	2%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.1	14.7		18.9	13.6		66.5	56.9		56.7	51.6	
Effective Green, g (s)	21.1	14.7		18.9	13.6		66.5	56.9		56.7	51.6	
Actuated g/C Ratio	0.21	0.15		0.19	0.14		0.66	0.57		0.57	0.52	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	255	235		159	224		314	1916		319	1710	
v/s Ratio Prot	c0.03	c0.11		0.02	0.05		c0.06	0.29		0.01	c0.34	
v/s Ratio Perm	0.06			0.05			0.33			0.10		
v/c Ratio	0.41	0.72		0.39	0.40		0.58	0.51		0.19	0.67	
Uniform Delay, d1	33.2	40.7		34.5	39.5		11.5	13.1		10.0	17.9	
Progression Factor	1.00	1.00		1.00	1.00		0.85	0.84		1.08	0.91	
Incremental Delay, d2	1.1	10.1		1.6	1.2		1.5	0.5		0.0	0.2	
Delay (s)	34.3	50.7		36.1	40.7		11.2	11.5		10.8	16.4	
Level of Service	C	D		D	D		B	B		B	B	
Approach Delay (s)		45.9			39.1			11.4			16.1	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			74.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

2: Cordon Rd & Sunnyview Rd

Pictsweet Master Plan

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	74	156	57	63	48	168	830	72	56	943	116
Future Volume (veh/h)	97	74	156	57	63	48	168	830	72	56	943	116
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		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1800	1800	1772	1772	1772	1786	1800	1800	1800	1786	1786
Adj Flow Rate, veh/h	105	80	170	62	68	52	183	902	78	61	1025	126
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	2	2	2	1	0	0	0	1	1
Cap, veh/h	288	90	191	167	142	108	328	1785	154	356	1615	198
Arrive On Green	0.06	0.18	0.18	0.04	0.15	0.15	0.07	0.56	0.56	0.04	0.53	0.53
Sat Flow, veh/h	1714	513	1091	1688	931	712	1701	3176	275	1714	3029	372
Grp Volume(v), veh/h	105	0	250	62	0	120	183	486	494	61	574	577
Grp Sat Flow(s),veh/h/ln	1714	0	1604	1688	0	1644	1701	1710	1740	1714	1697	1704
Q Serve(g_s), s	5.1	0.0	15.2	3.1	0.0	6.7	4.7	17.4	17.4	1.6	23.9	23.9
Cycle Q Clear(g_c), s	5.1	0.0	15.2	3.1	0.0	6.7	4.7	17.4	17.4	1.6	23.9	23.9
Prop In Lane	1.00		0.68	1.00		0.43	1.00		0.16	1.00		0.22
Lane Grp Cap(c), veh/h	288	0	281	167	0	250	328	961	978	356	905	909
V/C Ratio(X)	0.36	0.00	0.89	0.37	0.00	0.48	0.56	0.51	0.51	0.17	0.63	0.64
Avail Cap(c_a), veh/h	288	0	313	190	0	304	439	961	978	388	905	909
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	32.9	0.0	40.3	34.6	0.0	38.8	13.5	13.4	13.4	10.6	16.5	16.5
Incr Delay (d2), s/veh	0.8	0.0	23.8	1.4	0.0	1.4	1.5	1.9	1.9	0.2	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	7.8	1.3	0.0	2.8	1.8	6.8	6.9	0.6	9.6	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	64.0	36.0	0.0	40.2	15.0	15.3	15.3	10.8	19.8	19.8
LnGrp LOS	C	A	E	D	A	D	B	B	B	B	B	B
Approach Vol, veh/h		355			182			1163			1212	
Approach Delay, s/veh		55.0			38.8			15.2			19.4	
Approach LOS		E			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	60.7	8.7	22.0	11.5	57.8	11.0	19.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.9	51.1	5.5	19.5	13.5	43.5	6.5	18.5				
Max Q Clear Time (g_c+I1), s	3.6	19.4	5.1	17.2	6.7	25.9	7.1	8.7				
Green Ext Time (p_c), s	0.0	7.6	0.0	0.3	0.3	7.5	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			23.3									
HCM 6th LOS			C									

HCM Signalized Intersection Capacity Analysis

3: Cordon Rd & Swegle Rd

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	16	112	7	2	11	98	1019	27	11	1055	90
Future Volume (vph)	40	16	112	7	2	11	98	1019	27	11	1055	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1597			1638		1710	3374		1710	3308	
Flt Permitted		0.91			0.70		0.17	1.00		0.24	1.00	
Satd. Flow (perm)		1473			1165		313	3374		424	3308	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	44	18	123	8	2	12	108	1120	30	12	1159	99
RTOR Reduction (vph)	0	81	0	0	11	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	104	0	0	11	0	108	1149	0	12	1254	0
Confl. Peds. (#/hr)							3					3
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	0%	1%	0%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.3			10.3		78.7	73.7		70.5	69.5	
Effective Green, g (s)		10.3			10.3		78.7	73.7		70.5	69.5	
Actuated g/C Ratio		0.10			0.10		0.79	0.74		0.70	0.70	
Clearance Time (s)		5.0			5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5			0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		151			119		318	2486		311	2299	
v/s Ratio Prot							c0.02	0.34		0.00	c0.38	
v/s Ratio Perm		c0.07			0.01		0.25			0.03		
v/c Ratio		0.69			0.09		0.34	0.46		0.04	0.55	
Uniform Delay, d1		43.3			40.6		4.1	5.2		4.4	7.5	
Progression Factor		1.00			1.00		1.23	0.54		0.70	0.82	
Incremental Delay, d2		10.4			0.1		0.2	0.6		0.0	0.1	
Delay (s)		53.8			40.8		5.3	3.4		3.1	6.2	
Level of Service		D			D		A	A		A	A	
Approach Delay (s)		53.8			40.8			3.5			6.2	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		8.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.55										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		64.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

3: Cordon Rd & Swegle Rd

Pictsweet Master Plan

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	16	112	7	2	11	98	1019	27	11	1055	90
Future Volume (veh/h)	40	16	112	7	2	11	98	1019	27	11	1055	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
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	1800	1800	1800	1800	1800	1800	1800	1786	1786	1800	1772	1772
Adj Flow Rate, veh/h	44	18	123	8	2	12	108	1120	30	12	1159	99
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	1	1	0	2	2
Cap, veh/h	83	33	142	101	38	108	351	2350	63	353	2077	177
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.05	0.70	0.70	0.01	0.66	0.66
Sat Flow, veh/h	273	238	1014	370	272	770	1714	3376	90	1714	3133	267
Grp Volume(v), veh/h	185	0	0	22	0	0	108	563	587	12	622	636
Grp Sat Flow(s),veh/h/ln	1525	0	0	1412	0	0	1714	1697	1769	1714	1683	1716
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	1.9	15.1	15.1	0.2	19.8	19.8
Cycle Q Clear(g_c), s	11.8	0.0	0.0	1.2	0.0	0.0	1.9	15.1	15.1	0.2	19.8	19.8
Prop In Lane	0.24		0.66	0.36		0.55	1.00		0.05	1.00		0.16
Lane Grp Cap(c), veh/h	257	0	0	246	0	0	351	1181	1232	353	1116	1138
V/C Ratio(X)	0.72	0.00	0.00	0.09	0.00	0.00	0.31	0.48	0.48	0.03	0.56	0.56
Avail Cap(c_a), veh/h	363	0	0	345	0	0	424	1181	1232	431	1116	1138
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	42.0	0.0	0.0	37.5	0.0	0.0	7.1	6.9	6.9	6.0	9.0	9.0
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.1	0.0	0.0	0.2	1.4	1.3	0.0	2.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	0.5	0.0	0.0	0.6	5.1	5.3	0.1	7.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.0	0.0	37.6	0.0	0.0	7.3	8.3	8.2	6.0	11.0	11.0
LnGrp LOS	D	A	A	D	A	A	A	A	A	A	B	B
Approach Vol, veh/h		185			22			1258			1270	
Approach Delay, s/veh		43.7			37.6			8.2			11.0	
Approach LOS		D			D			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	75.6		19.0	8.8	72.3		19.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	6.0	58.0		21.0	9.0	55.0		21.0				
Max Q Clear Time (g_c+I1), s	2.2	17.1		13.8	3.9	21.8		3.2				
Green Ext Time (p_c), s	0.0	1.8		0.2	0.0	2.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				12.1								
HCM 6th LOS				B								

HCM Signalized Intersection Capacity Analysis

Pictsweet Master Plan

4: Cordon Rd & Center St

Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	98	201	33	61	32	179	941	38	33	987	154
Future Volume (vph)	171	98	201	33	61	32	179	941	38	33	987	154
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1748	1500	1710	1684		1676	3336		1583	3353	1465
Flt Permitted	0.69	1.00	1.00	0.68	1.00		0.19	1.00		0.26	1.00	1.00
Satd. Flow (perm)	1245	1748	1500	1226	1684		335	3336		428	3353	1465
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	107	218	36	66	35	195	1023	41	36	1073	167
RTOR Reduction (vph)	0	0	179	0	21	0	0	2	0	0	0	47
Lane Group Flow (vph)	186	107	39	36	80	0	195	1062	0	36	1073	120
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	0%	3%	2%	0%	2%	0%	2%	2%	0%	8%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	18.0	18.0	18.0	18.0	18.0		71.0	64.5		59.6	57.1	57.1
Effective Green, g (s)	18.0	18.0	18.0	18.0	18.0		71.0	64.5		59.6	57.1	57.1
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.71	0.64		0.60	0.57	0.57
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5	0.5	2.5	2.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	224	314	270	220	303		370	2151		283	1914	836
v/s Ratio Prot		0.06			0.05		c0.05	0.32		0.00	c0.32	
v/s Ratio Perm	c0.15		0.03	0.03			0.32			0.07		0.08
v/c Ratio	0.83	0.34	0.15	0.16	0.26		0.53	0.49		0.13	0.56	0.14
Uniform Delay, d1	39.5	35.8	34.5	34.6	35.3		7.4	9.2		8.4	13.5	10.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.01	1.05		0.82	0.82	0.62
Incremental Delay, d2	21.3	0.2	0.1	0.3	0.3		0.6	0.7		0.0	0.3	0.1
Delay (s)	60.9	36.1	34.6	34.9	35.6		8.1	10.5		6.9	11.4	6.4
Level of Service	E	D	C	C	D		A	B		A	B	A
Approach Delay (s)		44.5			35.4			10.1			10.6	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			16.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			68.4%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 4: Cordon Rd & Center St

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	98	201	33	61	32	179	941	38	33	987	154
Future Volume (veh/h)	171	98	201	33	61	32	179	941	38	33	987	154
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1772	1800	1772	1772	1772	1772	1772	1688	1772	1772
Adj Flow Rate, veh/h	186	107	218	36	66	35	195	1023	41	36	1073	167
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	2	0	2	2	2	2	2	8	2	2
Cap, veh/h	281	384	328	242	238	126	340	2022	81	372	1897	844
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.14	1.00	1.00	0.02	0.56	0.56
Sat Flow, veh/h	1245	1758	1502	1015	1090	578	1688	3299	132	1607	3367	1499
Grp Volume(v), veh/h	186	107	218	36	0	101	195	522	542	36	1073	167
Grp Sat Flow(s),veh/h/ln	1245	1758	1502	1015	0	1668	1688	1683	1748	1607	1683	1499
Q Serve(g_s), s	14.6	5.1	13.3	3.1	0.0	5.0	4.8	0.0	0.0	1.0	20.4	5.5
Cycle Q Clear(g_c), s	19.7	5.1	13.3	8.1	0.0	5.0	4.8	0.0	0.0	1.0	20.4	5.5
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	281	384	328	242	0	364	340	1032	1071	372	1897	844
V/C Ratio(X)	0.66	0.28	0.67	0.15	0.00	0.28	0.57	0.51	0.51	0.10	0.57	0.20
Avail Cap(c_a), veh/h	345	475	405	295	0	450	485	1032	1071	431	1897	844
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	32.5	35.8	35.9	0.0	32.5	10.4	0.0	0.0	8.9	14.0	10.7
Incr Delay (d2), s/veh	1.9	0.1	1.6	0.2	0.0	0.3	0.5	1.6	1.5	0.0	1.2	0.5
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(50%),veh/ln	4.6	2.2	4.9	0.8	0.0	2.1	1.4	0.4	0.4	0.3	7.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	32.7	37.4	36.1	0.0	32.8	10.9	1.6	1.5	9.0	15.2	11.3
LnGrp LOS	D	C	D	D	A	C	B	A	A	A	B	B
Approach Vol, veh/h		511			137			1259			1276	
Approach Delay, s/veh		38.3			33.7			3.0			14.5	
Approach LOS		D			C			A			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.8	10.9	62.3		26.8	5.9	67.3				
Change Period (Y+Rc), s		5.0	4.0	6.0		5.0	4.0	6.0				
Max Green Setting (Gmax), s		27.0	15.4	42.6		27.0	5.6	52.4				
Max Q Clear Time (g_c+I1), s		21.7	6.8	22.4		10.1	3.0	2.0				
Green Ext Time (p_c), s		0.2	0.0	2.2		0.5	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis

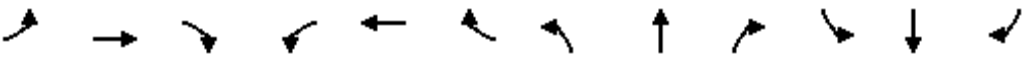
5: Cordon Rd & Auburn Rd

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	2	135	7	2	10	92	1014	32	8	1079	134
Future Volume (vph)	134	2	135	7	2	10	92	1014	32	8	1079	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.0	5.0		5.0		4.0	6.0		4.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.93		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715	1492		1641		1710	3339		1710	3265	
Flt Permitted		0.71	1.00		0.88		0.15	1.00		0.23	1.00	
Satd. Flow (perm)		1285	1492		1475		276	3339		411	3265	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	2	147	8	2	11	100	1102	35	9	1173	146
RTOR Reduction (vph)	0	0	126	0	9	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	148	21	0	12	0	100	1135	0	9	1312	0
Confl. Peds. (#/hr)							3					3
Confl. Bikes (#/hr)			2									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		14.5	14.5		14.5		73.8	69.8		67.2	66.5	
Effective Green, g (s)		14.5	14.5		14.5		73.8	69.8		67.2	66.5	
Actuated g/C Ratio		0.14	0.14		0.14		0.74	0.70		0.67	0.66	
Clearance Time (s)		5.0	5.0		5.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		0.5	0.5		0.5		0.5	0.5		0.5	0.5	
Lane Grp Cap (vph)		186	216		213		261	2330		285	2171	
v/s Ratio Prot							c0.02	0.34		0.00	c0.40	
v/s Ratio Perm		c0.12	0.01		0.01		0.27			0.02		
v/c Ratio		0.80	0.10		0.05		0.38	0.49		0.03	0.60	
Uniform Delay, d1		41.3	37.1		36.8		5.9	6.9		5.6	9.4	
Progression Factor		1.00	1.00		1.00		1.35	1.37		1.40	1.89	
Incremental Delay, d2		19.3	0.1		0.0		0.0	0.1		0.0	1.1	
Delay (s)		60.6	37.2		36.9		8.0	9.5		7.8	18.9	
Level of Service		E	D		D		A	A		A	B	
Approach Delay (s)		48.9			36.9			9.4			18.8	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			68.5%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 5: Cordon Rd & Auburn Rd

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰		↰	↰		↰	↰	
Traffic Volume (veh/h)	134	2	135	7	2	10	92	1014	32	8	1079	134
Future Volume (veh/h)	134	2	135	7	2	10	92	1014	32	8	1079	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1800	1800	1800	1800	1800	1800	1800	1772	1772	1800	1758	1758
Adj Flow Rate, veh/h	146	2	147	8	2	11	100	1102	35	9	1173	146
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	2	0	3	3
Cap, veh/h	243	2	323	62	28	44	378	2088	66	366	1770	220
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.08	1.00	1.00	0.01	1.00	1.00
Sat Flow, veh/h	791	11	1490	55	131	204	1714	3330	106	1714	2981	370
Grp Volume(v), veh/h	148	0	147	21	0	0	100	557	580	9	656	663
Grp Sat Flow(s),veh/h/ln	802	0	1490	390	0	0	1714	1683	1753	1714	1670	1681
Q Serve(g_s), s	0.0	0.0	8.6	0.2	0.0	0.0	2.2	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	19.4	0.0	8.6	19.7	0.0	0.0	2.2	0.0	0.0	0.2	0.0	0.0
Prop In Lane	0.99		1.00	0.38		0.52	1.00		0.06	1.00		0.22
Lane Grp Cap(c), veh/h	245	0	323	134	0	0	378	1055	1099	366	991	998
V/C Ratio(X)	0.60	0.00	0.46	0.16	0.00	0.00	0.26	0.53	0.53	0.02	0.66	0.66
Avail Cap(c_a), veh/h	263	0	343	153	0	0	471	1055	1099	451	991	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09	0.83	0.83	0.83
Uniform Delay (d), s/veh	38.3	0.0	34.1	32.4	0.0	0.0	6.4	0.0	0.0	8.0	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.4	0.2	0.0	0.0	0.0	0.2	0.2	0.0	2.9	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(50%),veh/ln	3.6	0.0	3.1	0.4	0.0	0.0	0.7	0.1	0.1	0.1	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	0.0	34.4	32.6	0.0	0.0	6.4	0.2	0.2	8.0	2.9	2.9
LnGrp LOS	D	A	C	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		295			21			1237			1328	
Approach Delay, s/veh		37.4			32.6			0.7			2.9	
Approach LOS		D			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	68.7		26.7	8.0	65.4		26.7				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	5.6	56.4		23.0	9.4	52.6		23.0				
Max Q Clear Time (g_c+I1), s	2.2	2.0		21.4	4.2	2.0		21.7				
Green Ext Time (p_c), s	0.0	1.8		0.1	0.0	2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									

HCM Signalized Intersection Capacity Analysis

6: Cordon Rd & State St

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	277	313	157	107	206	146	148	721	130	158	833	208
Future Volume (vph)	277	313	157	107	206	146	148	721	130	158	833	208
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.94		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1710	1644		1692	1655		1710	3234		1660	3386	1483
Flt Permitted	0.18	1.00		0.23	1.00		0.19	1.00		0.17	1.00	1.00
Satd. Flow (perm)	315	1644		410	1655		350	3234		295	3386	1483
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	289	326	164	111	215	152	154	751	135	165	868	217
RTOR Reduction (vph)	0	19	0	0	26	0	0	14	0	0	0	119
Lane Group Flow (vph)	289	471	0	111	341	0	154	872	0	165	868	98
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1						1			1
Heavy Vehicles (%)	0%	1%	7%	1%	2%	2%	0%	3%	3%	3%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	40.3	30.6		28.1	22.4		42.7	35.8		44.7	36.8	36.8
Effective Green, g (s)	40.3	30.6		28.1	22.4		42.7	35.8		44.7	36.8	36.8
Actuated g/C Ratio	0.40	0.31		0.28	0.22		0.43	0.36		0.45	0.37	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	320	503		188	370		243	1157		239	1246	545
v/s Ratio Prot	c0.13	c0.29		0.03	0.21		0.04	c0.27		c0.05	0.26	
v/s Ratio Perm	0.24			0.13			0.23			0.25		0.07
v/c Ratio	0.90	0.94		0.59	0.92		0.63	0.75		0.69	0.70	0.18
Uniform Delay, d1	23.7	33.8		28.5	38.0		19.5	28.2		19.1	26.9	21.4
Progression Factor	1.24	0.90		1.00	1.00		0.68	0.70		1.22	0.70	1.11
Incremental Delay, d2	23.3	21.9		3.3	27.7		2.6	3.1		5.7	2.7	0.6
Delay (s)	52.7	52.1		31.7	65.6		15.9	22.9		29.1	21.6	24.2
Level of Service	D	D		C	E		B	C		C	C	C
Approach Delay (s)		52.3			57.8			21.9			23.0	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			33.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			88.4%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

6: Cordon Rd & State St

Pictsweet Master Plan
Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	313	157	107	206	146	148	721	130	158	833	208
Future Volume (veh/h)	277	313	157	107	206	146	148	721	130	158	833	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.98	1.00		0.98
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	1800	1786	1786	1786	1772	1772	1800	1758	1758	1758	1786	1786
Adj Flow Rate, veh/h	289	326	164	111	215	152	154	751	135	165	868	217
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	1	2	2	0	3	3	3	1	1
Cap, veh/h	339	361	181	224	230	163	287	938	169	266	1171	511
Arrive On Green	0.24	0.54	0.54	0.06	0.24	0.24	0.07	0.33	0.33	0.17	0.69	0.69
Sat Flow, veh/h	1714	1110	558	1701	964	682	1714	2818	506	1674	3393	1482
Grp Volume(v), veh/h	289	0	490	111	0	367	154	445	441	165	868	217
Grp Sat Flow(s),veh/h/ln	1714	0	1668	1701	0	1646	1714	1670	1654	1674	1697	1482
Q Serve(g_s), s	12.4	0.0	26.4	4.9	0.0	21.8	5.9	24.2	24.2	6.5	16.2	6.4
Cycle Q Clear(g_c), s	12.4	0.0	26.4	4.9	0.0	21.8	5.9	24.2	24.2	6.5	16.2	6.4
Prop In Lane	1.00		0.33	1.00		0.41	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	542	224	0	393	287	556	551	266	1171	511
V/C Ratio(X)	0.85	0.00	0.90	0.50	0.00	0.93	0.54	0.80	0.80	0.62	0.74	0.42
Avail Cap(c_a), veh/h	359	0	564	224	0	395	287	556	551	266	1171	511
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.75	0.00	0.75	1.00	0.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	22.0	0.0	21.5	28.3	0.0	37.3	21.1	30.3	30.3	20.7	12.7	11.1
Incr Delay (d2), s/veh	12.4	0.0	13.5	0.6	0.0	28.7	1.1	11.5	11.6	2.6	3.4	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	9.6	2.0	0.0	11.8	2.4	11.3	11.2	2.4	4.1	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	35.0	28.9	0.0	66.1	22.1	41.8	41.9	23.3	16.0	13.2
LnGrp LOS	C	A	D	C	A	E	C	D	D	C	B	B
Approach Vol, veh/h	779			478			1040			1250		
Approach Delay, s/veh	34.8			57.4			39.0			16.5		
Approach LOS	C			E			D			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	38.5	11.2	40.5	18.4	29.9	12.4	39.3				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	5.8	33.8	7.2	33.2	15.6	24.0	8.4	32.0				
Max Q Clear Time (g_c+I1), s	6.9	28.4	7.9	18.2	14.4	23.8	8.5	26.2				
Green Ext Time (p_c), s	0.0	0.5	0.0	1.6	0.0	0.0	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	32.6											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	9.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	33	68	965	1006	90
Future Vol, veh/h	35	33	68	965	1006	90
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	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	7	4	4	4	3	5
Mvmt Flow	43	40	83	1177	1227	110
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2037	669	1337	0	-	0
Stage 1	1282	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Critical Hdwy	6.94	6.98	4.18	-	-	-
Critical Hdwy Stg 1	5.94	-	-	-	-	-
Critical Hdwy Stg 2	5.94	-	-	-	-	-
Follow-up Hdwy	3.57	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	46	395	501	-	-	-
Stage 1	215	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 38	395	501	-	-	-
Mov Cap-2 Maneuver	~ 38	-	-	-	-	-
Stage 1	179	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	284.8	0.9		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	501	-	68	-	-	
HCM Lane V/C Ratio	0.166	-	1.22	-	-	
HCM Control Delay (s)	13.6	-	284.8	-	-	
HCM Lane LOS	B	-	F	-	-	
HCM 95th %tile Q(veh)	0.6	-	6.6	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon