



LSC TRANSPORTATION CONSULTANTS, INC.
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MEMORANDUM

DATE: May 30, 2017

TO: Gilbert LaForce – El Paso County Development Services

FROM: Jeff Hodsdon - LSC Transportation Consultants, Inc.

SUBJECT: D-49 Elementary School
Response to Comments Memorandum - TIS
LSC #174040

Following are the LSC Transportation consultants, Inc. responses to the May 15, 2017 El Paso County Planning and Community Development Department comments regarding the May 3, 2017 Traffic Impact Study by LSC. The updated traffic impact study is attached.

Various comments to incorporate the responses [to the previous comments] within the TIS:

LSC Response: The responses have been incorporated into the updated TIS

Are you anticipating a separate plan set or will it be included on the next resubmittal? [re: A Towner striping/signing plan]

LSC Response: A separate plan set will be included on the next resubmittal. A note has also been placed on the Londonderry plan sheet.



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D49 Elementary School Traffic Impact Analysis (LSC #174040) May 30, 2017

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Jeffrey C. Hodsdon, P.E., #31684



Date 5/30/17

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Butt Ridgway

5/18/2017
Date



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May 30, 2017

Mr. Jim Rohr
Purchasing and Contract Manager
School District 49
10850 East Woodmen Road
Peyton, CO 80831

RE: D49 Elementary School
El Paso County, Colorado
Traffic Impact Analysis
LSC #174040

Dear Mr. Rohr:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed new Falcon School District 49 elementary school to be located southeast of the north intersection of Londonderry Drive and Towner Avenue in El Paso County, Colorado. The site location is shown in Figure 1.

REPORT CONTENTS

This report is being prepared as part of a submittal to El Paso County. It identifies the traffic impacts of this development. The report contains the following:

- The traffic count data and street conditions.
- Projections of short-term (2018) and long-term (2040) baseline/background traffic volumes.
- The projected average weekday and peak-hour vehicle-trips to be generated by the site.
- The assignment of the site's projected traffic volumes to the key area streets and intersections for the short and long term and the resulting total traffic volumes for the short and long term.
- The resulting traffic impacts including level of service analysis at key intersections and average daily traffic volumes on key street sections in the vicinity of the site.
- An estimate of the on-site vehicle stacking/queuing distances needed to accommodate busses and morning and afternoon peak parent drop-off and pick-up queues.
- Recommended lane configuration for Towner Avenue and Londonderry Drive.

LAND USE AND ACCESS

The proposed elementary school is to be located southeast of the north intersection of Londonderry Drive and Towner Avenue. Figure 2 shows the proposed site plan. Falcon Middle School is located just south of the site. There are existing single-family homes east and north of the site. Currently the first bell rings at 7:40 a.m. (with classes starting at 7:50 a.m.) and classes end at 3:00 p.m. School times have not been determined for the proposed elementary school, however the school district has indicated that they will likely be within ten minutes of Meridian Ranch Elementary School which runs from 8:30 a.m. to 3:40 p.m.

The vacant parcels generally west of the site are planned to be developed for single-family homes except for a 5.97-acre parcel located just west of the site. That parcel is currently zoned for commercial uses. It will likely be developed with a low intensity use such as a church.

The first phase of the school is planned to support up to 600 students in pre-school through fifth grade. At buildout the school will support up to 900 students.

Full-movement access points is proposed to Towner Avenue and Londonderry Drive. The Towner access point is located about 1,040 feet south of Londonderry Drive (580 feet north of the north Falcon Middle School access). This access is primarily for staff parking and bus pick-up and drop-off. The Londonderry access is located about 400 feet east of Towner Avenue (aligning with Tottenham Court). The Londonderry access is primarily for parent pick-up and drop-off and visitor parking.

Figure 3 shows a pedestrian and bicycle route analysis for the school.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The area roadways in the site's vicinity are shown on Figures 1 and 4 and are described below.

- **Londonderry Drive** is a two-lane Urban Residential Collector that currently extends west from Eastonville Road to Towner Avenue and then loops to the south to intersect Towner Avenue again about one-half mile to the south.
- **Meridian Road** extends north from South Blaney Road to County Line Road. Meridian Road is shown as a four-lane Minor Arterial south of Rex Road and north of Stapleton Drive and a two-lane Minor Arterial north of Rex Road on the *El Paso County Major Transportation Corridors Plan (MTCP)* and *El Paso County Corridor Preservation Plan (CPP)*. Meridian has just been upgraded to four lanes between Stapleton and Indian Paint Trail with the PPRTA project.
- **Stapleton Drive** is classified as a four-lane Urban Principal Arterial on the El Paso County MTCP. However, Stapleton Drive in the vicinity of the site is a two-lane roadway. Stapleton Drive extends east from just west of Towner Drive across Eastonville Road to US Highway 24. Stapleton Drive is planned to be extended south of US 24 to connect with Curtis Road in

2014. Longer-term plans show Stapleton extended west to connect with Briargate Parkway in the future.

- **Towner Avenue** is a 40-foot-wide Urban Residential Collector street (within Paint Brush Hills) that extends south from Londonderry Drive to just south of Woodmen Hills Drive. The posted speed limit is 35 miles per hour.

Existing Traffic Volumes

Figure 4 shows the existing peak-hour traffic volumes and existing lane geometries and traffic controls at the intersections of Towner/Stapleton and Towner/Londonderry (north and south) and the Falcon Middle School access to Towner. The three peak hours shown are from 8:00 to 9:00 a.m. (the presumed morning peak hour of the school), 3:15 to 4:15 p.m. (the presumed afternoon peak hour of the school), and 4:45 to 5:45 p.m. (the evening peak hour of the adjacent street traffic). The traffic volumes are based on counts by LSC in December 2016 and January 2017. Figure 4 also shows estimates of the daily traffic volumes based on the peak-hour counts on key street segments in the vicinity of the site. The traffic count reports are attached.

Existing Level of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1 Intersection Levels of Service Delay Ranges		
Level of Service	Signalized Intersections	Unsignalized Intersections
	Control Delay (seconds per vehicle)	
A	10 sec or less	10 sec or less
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	80 sec or more	50 sec or more

The intersections of Towner/Stapleton and Towner/Londonderry (north and south) and the Falcon Middle School access to Towner have been analyzed to determine the existing levels of service based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 2010 Edition* by the Transportation Research Board. The results of the analysis are shown in Figure 4. The level of service reports are attached.

The intersections of Towner/Stapleton and Towner/Londonderry (north and south) and the Falcon Middle School access to Towner are currently operating at a satisfactory level of service as Stop-sign-controlled intersections.

TRIP GENERATION

Estimates of site-generated vehicle-trips are typically made using the nationally published trip generation rates from *Trip Generation, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE), however the results of results of trip generation estimates for schools based on these rates are significantly lower than the observed traffic patterns at schools within El Paso County. The City of Colorado Springs uses an empirical formula to better estimate traffic generated by schools. Table 2 shows the trip generation estimates for the site based on both ITE trip generation rates and the City of Colorado Springs formula.

Based on the information provided by the City of Colorado Springs, following Phase 1 the school is expected to generate about 1,075 vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 319 vehicles would enter and 244 vehicles would exit the site. During the afternoon peak hour of the school, which was assumed to occur between 2:30 and 3:30 p.m., about 132 vehicles would enter and 207 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic, which generally occurs for one hour between 4:15 and 6:15 p.m., about 44 vehicles would enter and 46 vehicles would exit the site.

At buildout the school is expected to generate about 1,557 vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour 476 vehicles would enter and 366 vehicles would exit the site. During the afternoon peak hour of the school about 198 vehicles would enter and 308 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 66 vehicles would enter and 69 vehicles would exit the site.

SHORT-TERM BACKGROUND TRAFFIC AND ANALYSIS

Figure 5 shows the projected background traffic volumes for the short term (2018). Background traffic is the traffic estimated to be on the area streets and roadways without consideration of the proposed development. These background traffic volumes were based on existing traffic volumes (from Figure 4) plus the traffic projected to be generated by Paint Brush Hills Filings 13B, 13C, and 13D and buildout of the remaining portion of Scenic View at Paint Brush Hills. The traffic volumes for these developments were taken from their respective traffic studies completed by LSC. The short-term scenario assumes Stapleton Drive not yet extended west from its current terminus.

2035 BACKGROUND TRAFFIC

Figure 6 shows the projected background traffic volumes for the year 2040. As Londonderry Drive is a loop that will only serve this neighborhood no growth in through traffic that would typically be estimated using growth rates is expected. The background traffic volumes on Towner Avenue and Londonderry Drive were therefore based on trip generation estimates for the remaining portion

of the Paint Brush Hills neighborhood left to be developed. These volumes assume 380 additional single-family homes in Paint Brush Hills beyond Filing 13D and a church with a daycare on the six-acre parcel located on the southwest corner of the intersection of Londonderry/Towner (north). As Stapleton Drive currently does not extend east of Towner, it was not possible to utilize a growth rate to determine through traffic volumes on Stapleton Drive. Instead these volumes were based on the *El Paso County MTCP 2040 Transportation Plan Update*.

DIRECTIONAL DISTRIBUTION

The directional distribution of the site-generated traffic volumes on the area roadways is an important factor in determining the site's traffic impacts. Table 3 shows the short-term and long-term directional distribution estimates for the site-generated traffic volumes during the morning school peak, the afternoon school peak and the afternoon peak hour of adjacent street traffic. The table shows separate estimates for staff related traffic and student related traffic. The estimates have been based on the following factors: the site's location with respect to the nearby residential, employment, commercial, and activity centers and the balance of the Falcon and Colorado Springs metropolitan area; the site's proposed land use; the site's proposed access points; and the phasing of the existing and future roadway system serving the site. The long-term distribution takes into account the extension of Stapleton west to Briargate Parkway.

The difference in the morning school peak hour, and afternoon school peak hour and afternoon peak hour of adjacent street traffic distribution estimates is due in part to the difference in travel patterns of staff (mainly entering in the morning and exiting in the evening) and student related traffic (assumed to enter and exit the site in a relatively short period of time) and in part due to a phenomenon similar to the "pass-by" phenomena seen in commercial developments. A pass-by trip is made by a motorist who would already be on the adjacent roadways regardless of the proposed development, but who stops in at the site while passing by. In this case in the mornings some parents would leave their homes in the neighborhood, drop their student off at the school and then continue in the same direction for work or other destinations outside the neighborhood. In the afternoon, this would be reversed as some parents would be coming back from work or errands and would pick up their student before returning home.

SITE-GENERATED TRAFFIC

Figure 7 shows short-term Phase 1-only site-generated traffic volumes. Figure 8 shows the long-term buildout site-generated traffic volumes. The site-generated traffic volumes were calculated by applying the directional distribution percentages (from Table 3) to the trip generation estimates from Table 2.

Staff and student related traffic were assigned separately. All staff related traffic was assumed to use the access to Towner Avenue and student related traffic was assumed to use the access on Londonderry Drive. During the morning peak hour, when most staff enter the site, it was assumed that staff related traffic would have a travel preference of entering west on Stapleton, making a right-turn onto Towner and then a right into the staff parking lot rather than traveling to Londonderry Drive and then making a left onto Towner and a left into the site. In the afternoons, when most staff leave the site, it was assumed the preferred travel path would be to turn left onto Towner Avenue and then travel east on Stapleton.

In the short-term all student related traffic with origins or destinations outside of the immediate neighborhood will need to utilize Meridian Road. As the student drop off access is on Londonderry Drive it was assumed that it would be more convenient for most parents to make a right-turn on Londonderry Drive than to make a left onto Londonderry Drive, a left onto Towner Drive and then left again onto Stapleton Drive to get to Meridian. Once Stapleton Road is extended west it was assumed that a portion of the student related traffic would use Towner Avenue to travel to and from the west.

SHORT-TERM (PHASE 1 ONLY) TOTAL TRAFFIC

Figure 9a shows the projected short-term (Phase 1 only) total traffic volumes. The short-term total traffic volumes are the sum of the short-term background traffic volumes (from Figure 5) plus the short-term Phase 1 site-generated traffic volumes from Figure 7.

Figure 9b shows the lane geometry, traffic control, and level of service at the key intersections based on the short-term total volumes.

2040 TOTAL TRAFFIC

Figure 10a shows the projected 2040 total traffic volumes. The 2040 total traffic volumes are the sum of the 2040 background traffic volumes (from Figure 6) plus the long-term buildout site-generated traffic volumes from Figure 8.

Figure 10b shows the lane geometry, traffic control, and level of service at the key intersections based on the 2040 total volumes.

PROJECTED LEVELS OF SERVICE

All of the intersections along Towner Avenue from Stapleton Drive to Londonderry Drive (north) were analyzed to determine the projected levels of service for the short-term and 2040 background and total traffic volumes based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 2010 Edition* by the Transportation Research Board, the Synchro signalized intersection procedures, and SimTraffic. Figures 4, 5, 9b, and 10b show the level of service analysis results. The laneage and traffic control assumed in the analysis are depicted on the figures. The level of service reports are attached.

The intersection of Stapleton Drive and Towner Avenue is currently Stop-sign controlled. All movements at this intersection are projected to operate at a satisfactory level of service during the peak hours based on the projected short-term background and total traffic volumes. By 2040, it was assumed that Stapleton Drive would be extended west and this intersection would be signalized. As a signalized intersection, all movements are projected to operate at a satisfactory level of service (LOS D or better) based on the projected 2040 total traffic volumes.

The south and north intersections of Londonderry Drive and Towner Avenue, and the Falcon Middle School access are projected to operate at a satisfactory level of service as Stop-sign-controlled intersections based on the projected short-term and 2040 total traffic volumes.

All movements at the proposed Towner site access (staff parking) are projected to operate at a satisfactory level of service as a Stop-sign-controlled intersection based on the projected short-term and 2040 total traffic volumes.

All movements at the proposed Londonderry site access (visitor parking and parent pick-up/drop-off loop) are projected to operate at a satisfactory level of service as a Stop-sign-controlled intersection based on the projected short-term total traffic volumes. By 2040 the northbound left-turn and through movements at this intersection are projected to operate at LOS F during the morning peak hour. If the school implements an official school crossing point on the east leg of the intersection this has the potential to improve the LOS for the northbound left-turn and through movements.

QUEUING

The City of Colorado Springs has developed an empirical formula to estimate projected queues at schools. Based a total of 900 students at buildout, the City of Colorado Springs minimum required queue is 1,750 feet and the high demand queue (used for queue design) is 2,100 feet.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- Based on the information provided by the City of Colorado Springs, following Phase 1 the school is expected to generate about 1,075 vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 319 vehicles would enter and 244 vehicles would exit the site. During the afternoon peak hour of the school, which was assumed to occur between 2:30 and 3:30 p.m., about 132 vehicles would enter and 207 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic, which generally occurs for one hour between 4:15 and 6:15 p.m., about 44 vehicles would enter and 46 vehicles would exit the site.
- At buildout the school is expected to generate about 1,557 vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour 476 vehicles would enter and 366 vehicles would exit the site. During the afternoon peak hour of the school about 198 vehicles would enter and 308 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 66 vehicles would enter and 69 vehicles would exit the site.

Intersection Lane Configurations

- Towner Avenue is a 40-foot-wide Urban Residential Collector street. It is currently striped with one through lane in each direction between Stapleton Drive and the north Londonderry intersection. A striping and signing plan for Towner Ave. will be included with the next submittal following coordination with the applicant for Paint Brush Hills Filing Nos. 13 C and D, Falcon Middle School personnel, the School District and El Paso County Public Works.
- Londonderry Drive should be restriped from just west of Towner Avenue east to Glenellen Drive to provide a center two-way, left-turn lane. Please refer to the Londonderry Drive signing and striping modification plan by LSC.
- The intersection of Towner/Stapleton is currently a T intersection with most of the westbound traffic making a right-turn. Currently only about two westbound vehicles turn left at this intersection during the morning peak hour and four westbound vehicles turn left during the afternoon peak hour. A separate right-turn lane would provide little benefit as long as Towner/Stapleton remains a T intersection.

School-Related Signing and Striping

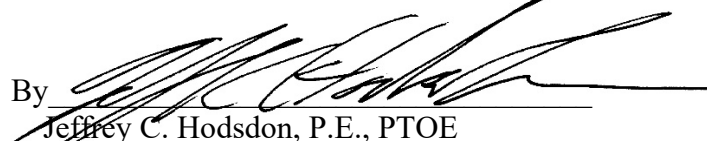
- School 20-mph speed limit zones should be established on Londonderry and potentially extended north along Towner (depending on the outcome of #1 under *Intersection Lane Configurations* above). The designated school crossing locations should likely be established as part of this process. The 20-mph school zone speed limit signs may be supplemented by a programmable flashing beacon system. If the flashing beacon system is not installed now, appropriate time-of-day supplemental plates should be included under the speed limit signs. Please refer to the Londonderry Drive signing and striping modification plan by LSC.

* * * * *

Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 
Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:KDF:bjwb

Enclosures: Tables 2-3
Figures 1-10
Traffic Count Reports
Level of Service Reports

<p style="text-align: center;">Table 2 Trip Generation Estimate Falcon School District 49 Elementary School</p>

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾							Total Trips Generated						
			Average Weekday Traffic	Morning Peak Hour		Mid-Afternoon Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Mid-Afternoon Peak Hour		Afternoon Peak Hour	
				In	Out	In	Out	In	Out		In	Out	In	Out	In	Out
Phase 1																
Trip Generation Estimate Based on ITE Trip Generation Rates																
520	Elementary School	600 Students	1.29	0.25	0.20	0.13	0.15	0.07	0.08	774	149	122	76	92	44	46
Trip Generation Estimate Based on Data Provided by The City of Colorado Springs																
---	Elementary School	Parents	---	---	---	---	---	---	---	909	240	240	128	128	---	---
		Staff	---	---	---	---	---	---	---	150	75	0	0	75	---	---
		Buses	---	---	---	---	---	---	---	16	4	4	4	4	---	---
										1,075	319	244	132	207		
Phase 2																
Trip Generation Estimate Based on ITE Trip Generation Rates																
520	Elementary School	900 Students	1.29	0.25	0.20	0.13	0.15	0.07	0.08	1,161	223	182	113	139	66	69
Trip Generation Estimate Based on Data Provided by The City of Colorado Springs																
---	Elementary School	Parents	---	---	---	---	---	---	---	1313	360	360	192	192	---	---
		Staff	---	---	---	---	---	---	---	220	110	0	0	110	---	---
		Buses	---	---	---	---	---	---	---	24	6	6	6	6	---	---
										1,557	476	366	198	308		

Notes:

(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)

Source: LSC Transportation Consultants, Inc.

Table 3
Directional Distribution Estimate
Falcon School District 49 Elementary School

		Paint Brush Hills Neighborhood East of Towner Avenue		Paint Brush Hills Neighborhood West of Towner Avenue		Towner Ave. South of Stapleton	Meridian Road Via Londonderry	Meridian Road Via Stapleton	Stapleton West of Towner Ave.	Total
		Londonderry North	Londonderry South	Tottenham	Other					
Short-Term										
AM School Peak Hour										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
Parents/ Visitors	TO SCHOOL	22.5%	2.5%	3.5%	31.5%	5.0%	35.0%	0.0%	0.0%	100%
	FROM SCHOOL	8.0%	2.0%	1.4%	12.6%	5.0%	71.0%	0.0%	0.0%	100%
PM School Peak Hour										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
Parents/ Visitors	TO SCHOOL	18.0%	2.0%	2.3%	20.7%	5.0%	52.0%	0.0%	0.0%	100%
	FROM SCHOOL	20.0%	5.0%	3.5%	31.5%	5.0%	35.0%	0.0%	0.0%	100%
PM Peak Hour of Adjacent Street Traffic										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	14.0%	86.0%	0.0%	100%
Parents/ Visitors	TO SCHOOL	9.0%	1.0%	1.2%	10.8%	5.0%	73.0%	0.0%	0.0%	100%
	FROM SCHOOL	20.0%	5.0%	3.5%	31.5%	5.0%	35.0%	0.0%	0.0%	100%
Long-Term										
AM School Peak Hour										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
Parents/ Visitors	TO SCHOOL	22.5%	2.5%	3.5%	31.5%	5.0%	20.0%	0.0%	15.0%	100%
	FROM SCHOOL	8.0%	2.0%	1.4%	12.6%	5.0%	32.0%	0.0%	39.0%	100%
PM School Peak Hour										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
Parents/ Visitors	TO SCHOOL	18.0%	2.0%	2.3%	20.7%	5.0%	26.0%	0.0%	26.0%	100%
	FROM SCHOOL	20.0%	5.0%	3.5%	31.5%	5.0%	20.0%	0.0%	15.0%	100%
PM Peak Hour of Adjacent Street Traffic										
Staff	TO SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
	FROM SCHOOL	0.0%	0.0%	0.0%	0.0%	0.0%	12.0%	40.0%	48.0%	100%
Parents/ Visitors	TO SCHOOL	9.0%	1.0%	1.2%	10.8%	5.0%	32.0%	0.0%	41.0%	100%
	FROM SCHOOL	20.0%	5.0%	3.5%	31.5%	5.0%	20.0%	0.0%	15.0%	100%

Source: LSC Transportation Consultants, Inc.



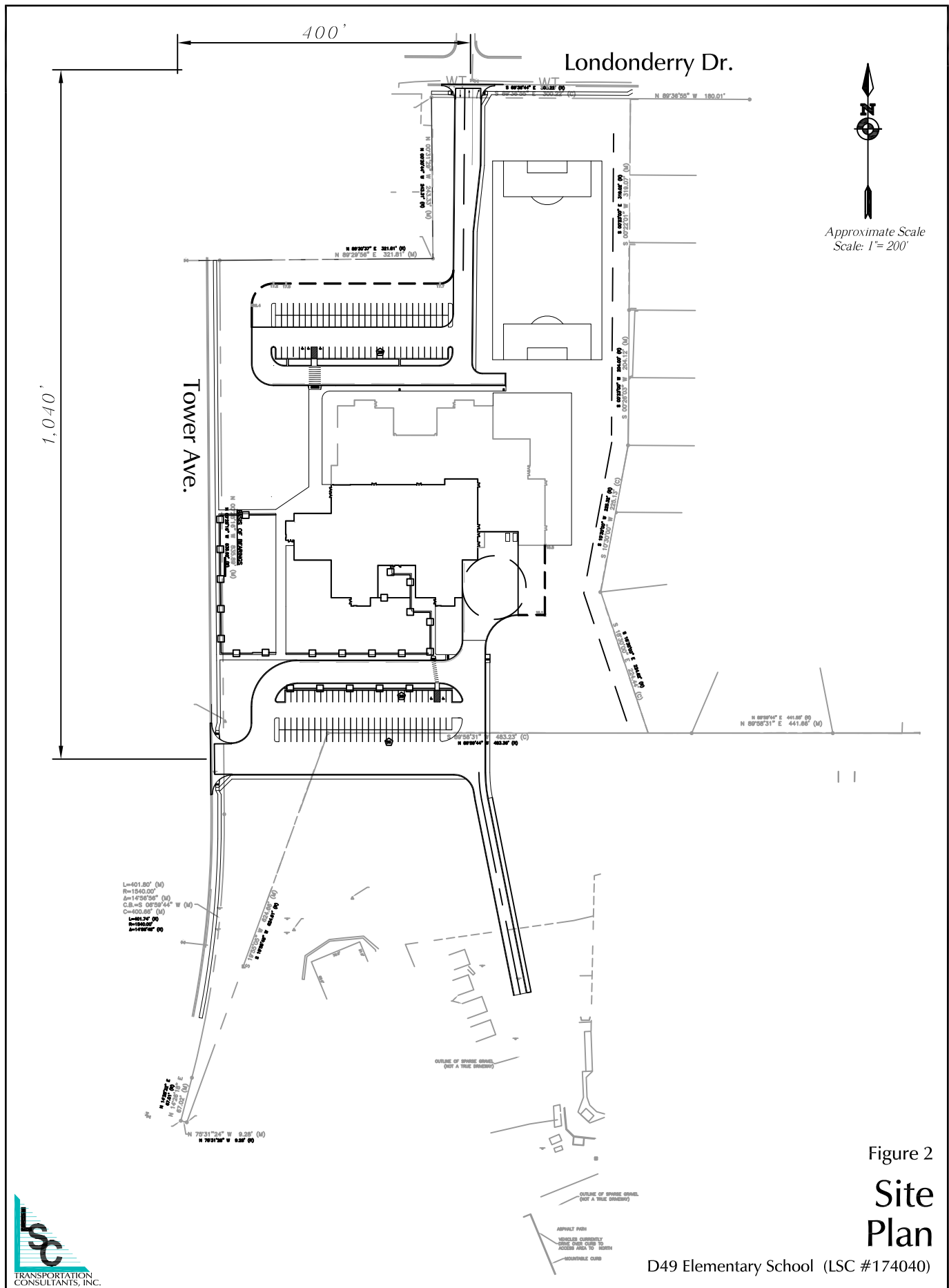
Approximate Scale
Scale: 1" = 1,200'

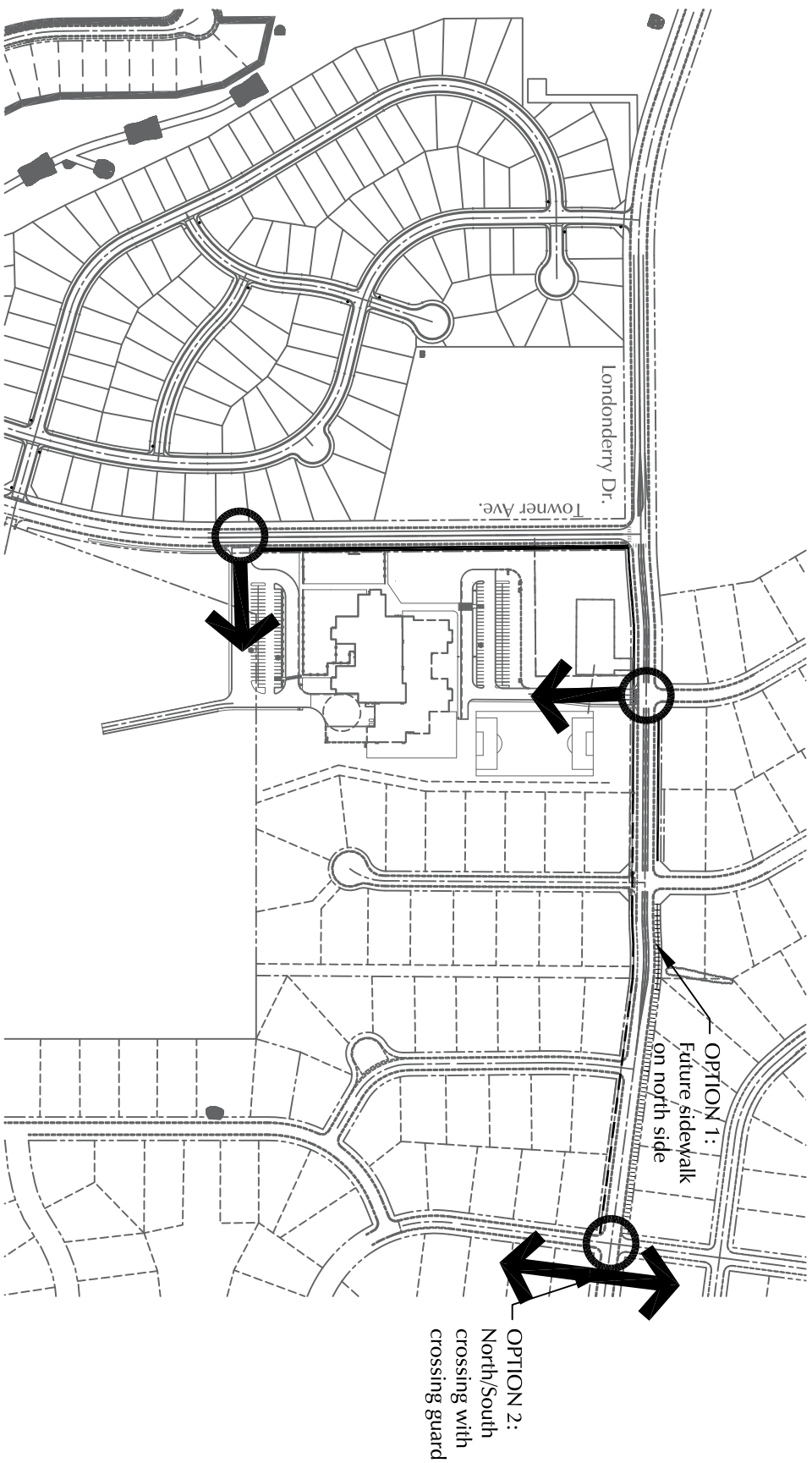


Figure 1

Vicinity Map

D49 Elementary School (LSC #174040)





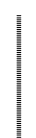
LEGEND:



Pedestrian Crossing Location



Existing or site-planned sidewalk



Future sidewalk (option 2 only)

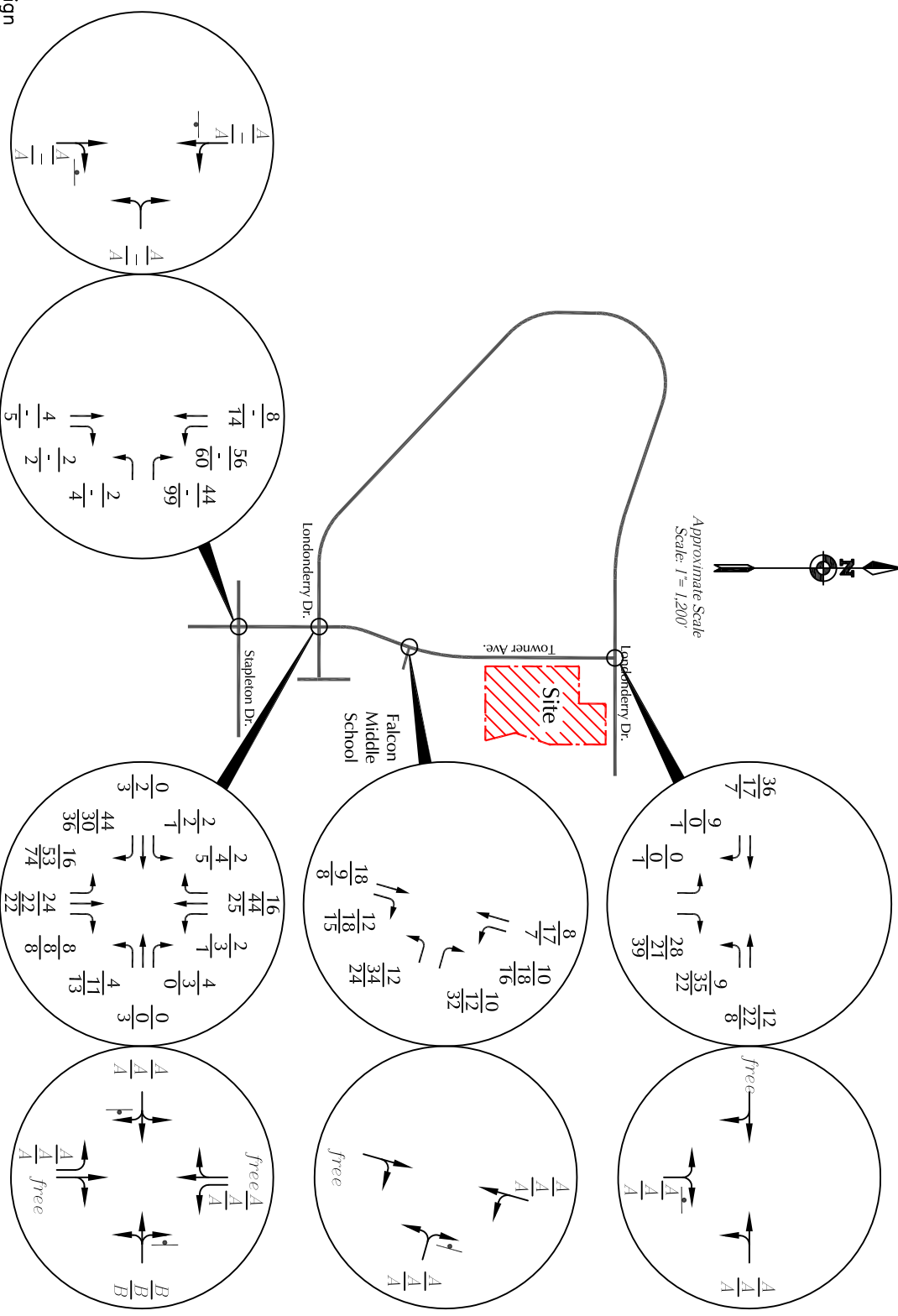
Figure 3

School Pedestrian Routes

D49 Elementary School (LSC #174040)



Approximate Scale
Scale: 1" = 1,200'



LEGEND:

Stop Sign

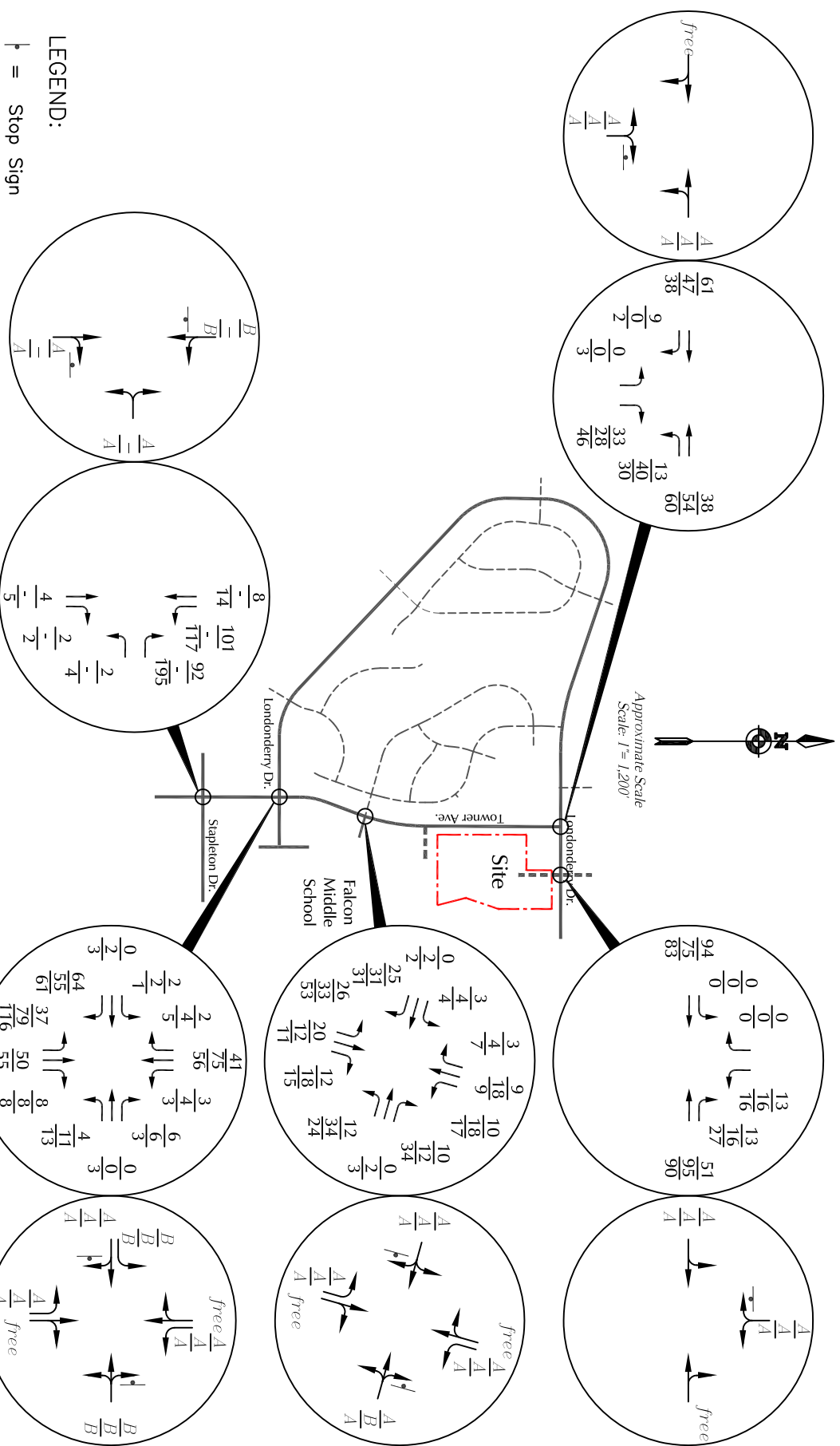
XX AM School Weekday Peak Hour Traffic (8:00-9:00am)
XX PM School Weekday Peak Hour Traffic (3:15-4:15pm)
XX PM Weekday Peak Hour Traffic
A/B = Individual Movement Peak-Hour Level of Service
C = School Individual Movement Peak-Hour Level of Service
X,XXX = Average Weekday Traffic (vehicles per day)

Based on counts by LSC
Dec 2016 & Jan 2017

Figure 4

Existing Traffic, Lane Geometry, Traffic Control and Level of Service

D49 Elementary School (LSC #174040)



Short-Term Background Traffic, Lane Geometry, Traffic Control and Level of Service



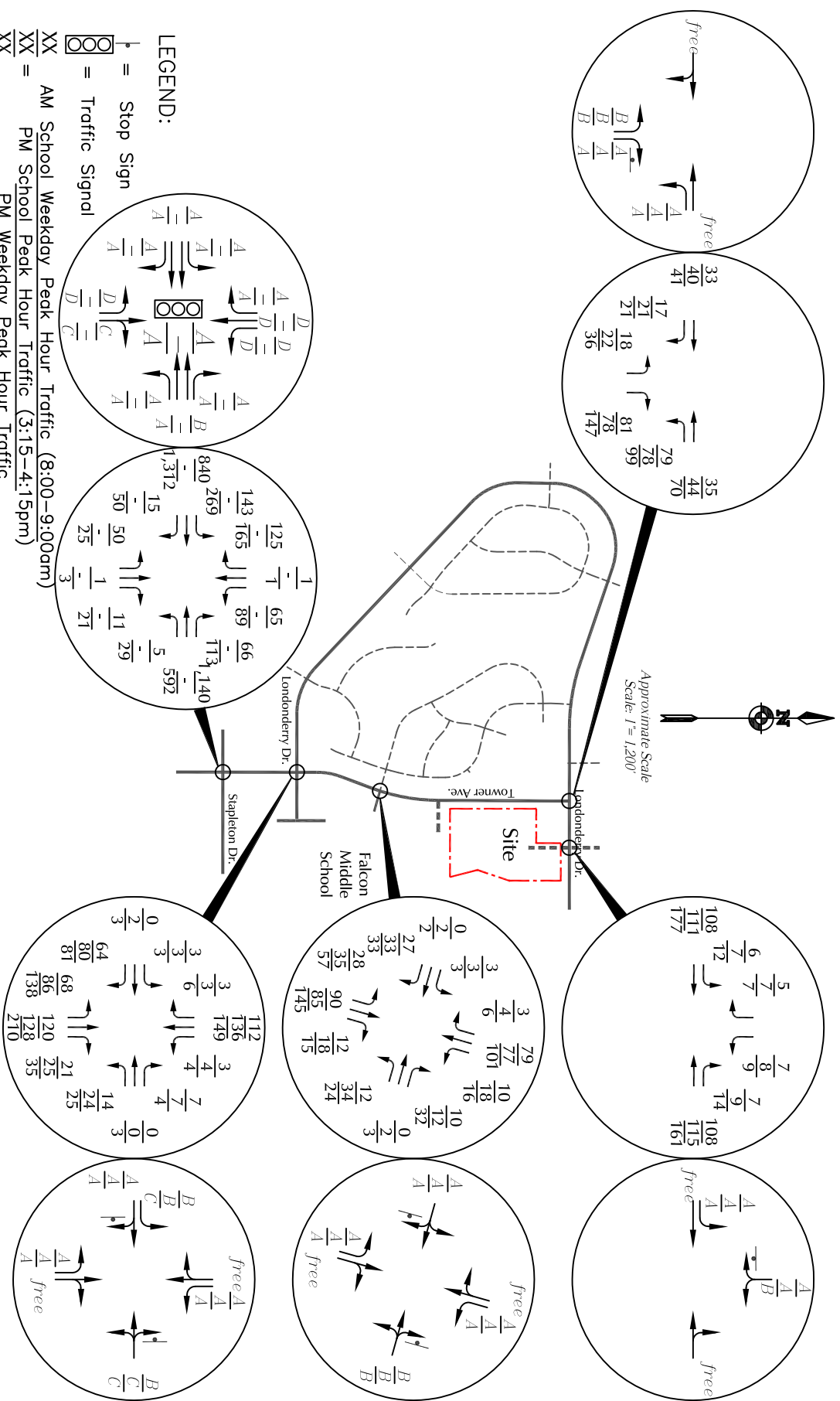
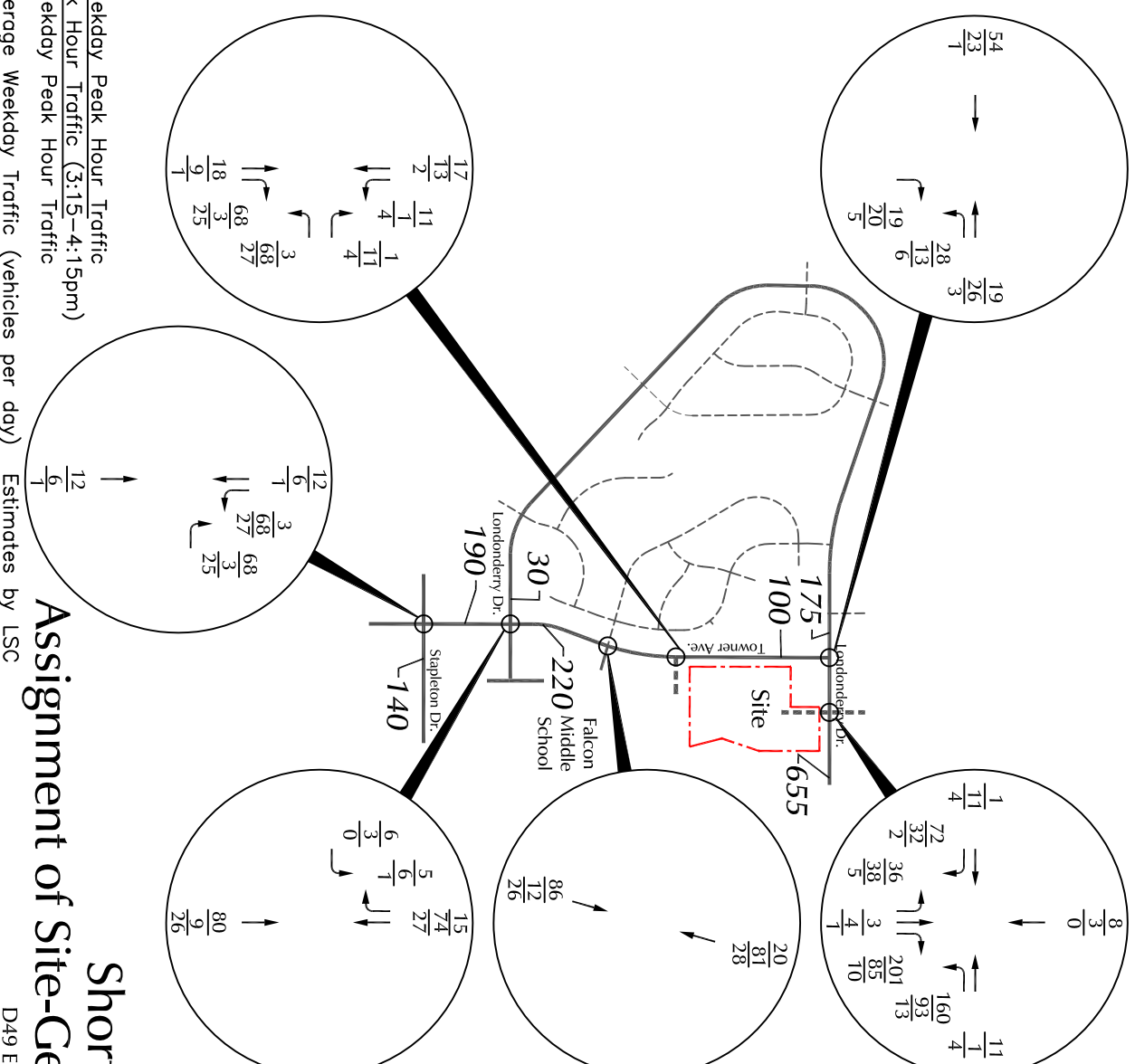


Figure 6

Year 2040 Background Traffic, Lane Geometry, Traffic Control and Level of Service



Approximate Scale
Scale: 1" = 1,200'



LEGEND:

XX
XX = AM Weekday Peak Hour Traffic (3:15-4:15pm)
XX = PM Weekday Peak Hour Traffic
X,XXX = Average Weekday Traffic (vehicles per day)

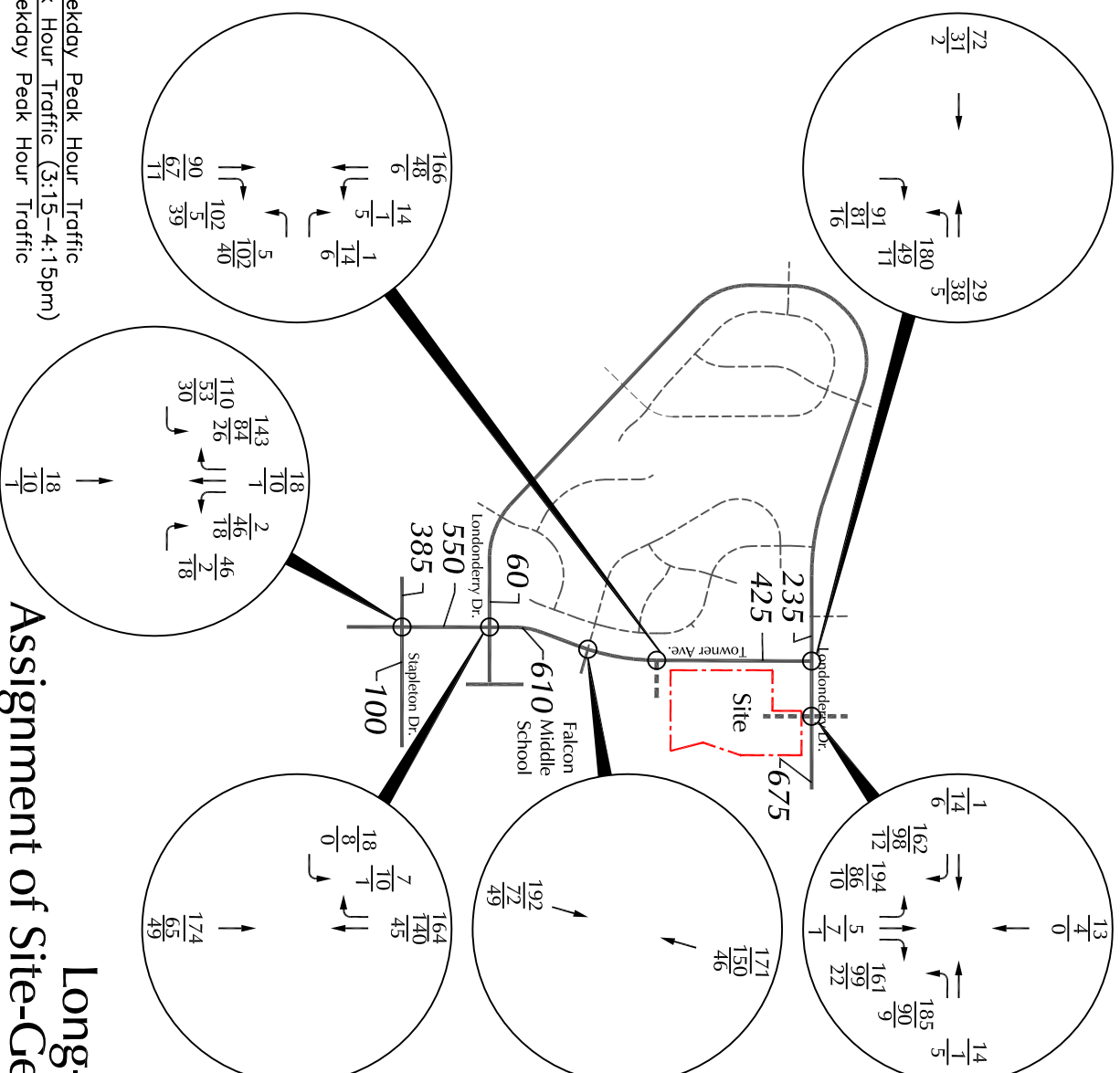
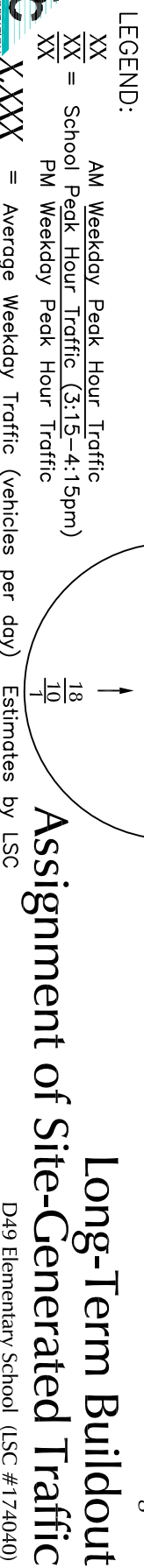
Short-Term Phase 1 Assignment of Site-Generated Traffic

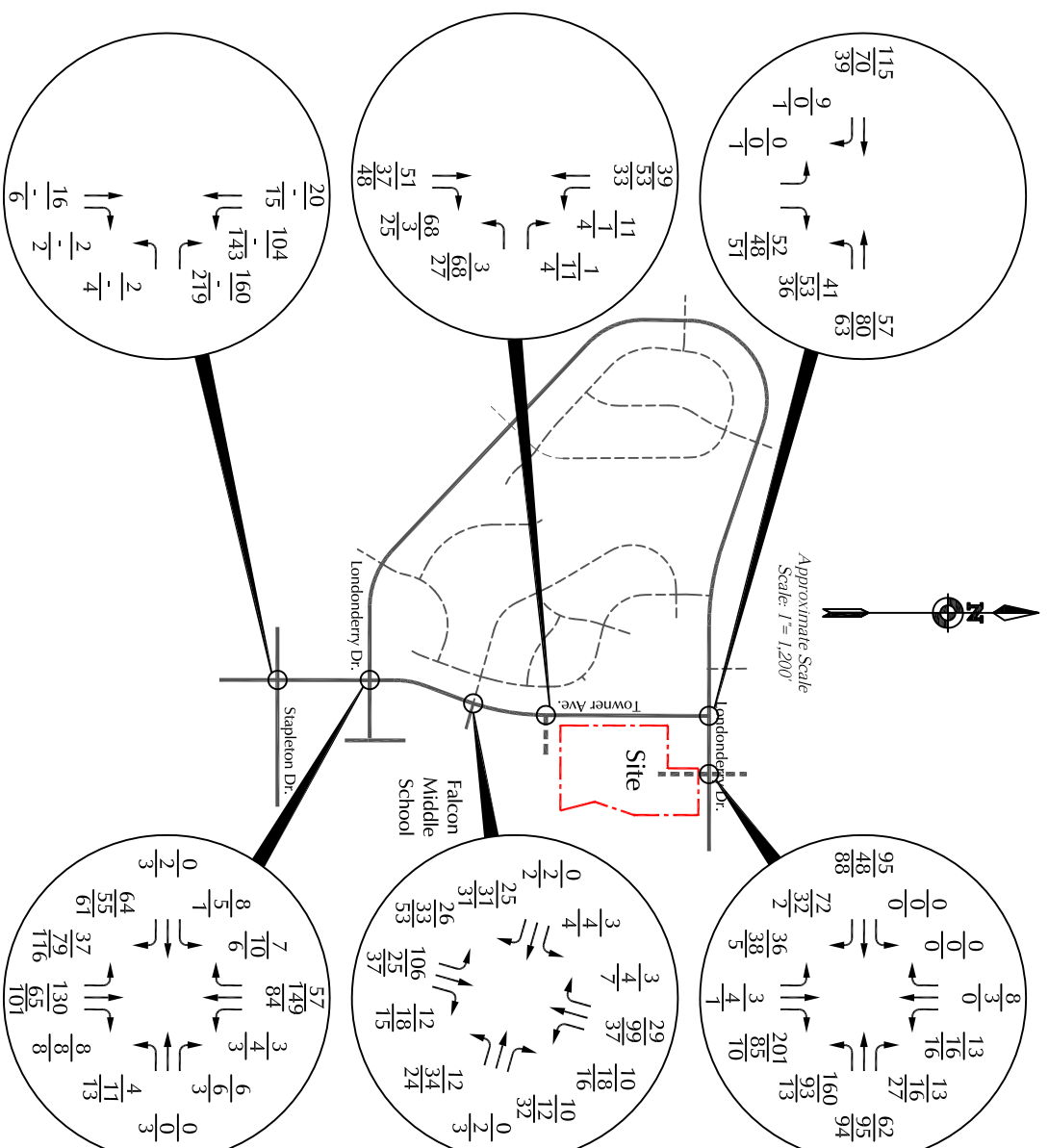
D49 Elementary School (LSC #174040)





Approximate Scale
Scale: 1" = 1,200'





LEGEND:

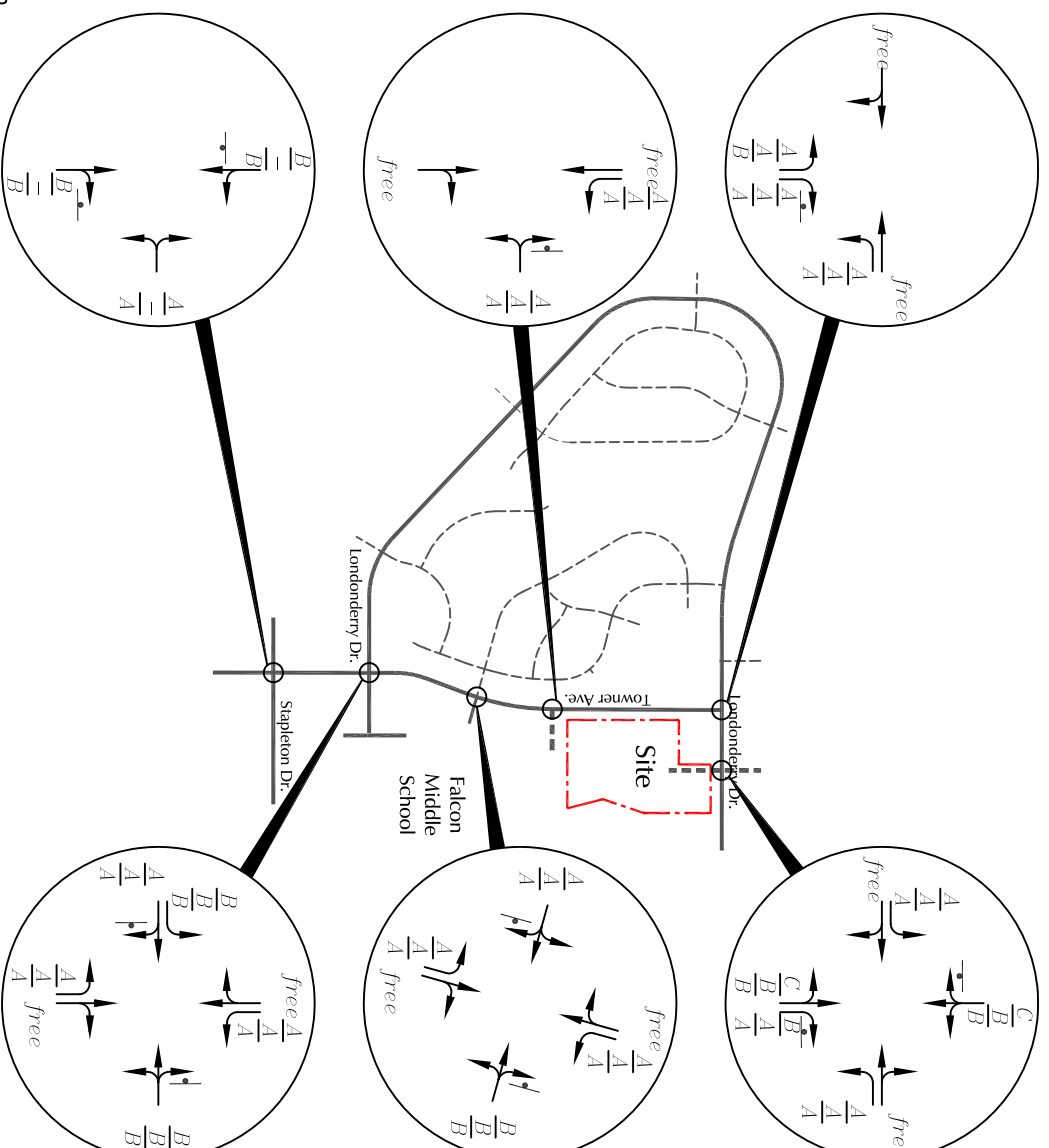
XX AM School Weekday Peak Hour Traffic (8:00–9:00am)
XX PM School Weekday Peak Hour Traffic (3:15–4:15pm)
XX PM Weekday Peak Hour Traffic

X,XXX = Average Weekday Traffic (vehicles per day)

Figure 9a

Short-Term
Total Traffic

D49 Elementary School (LSC #174040)

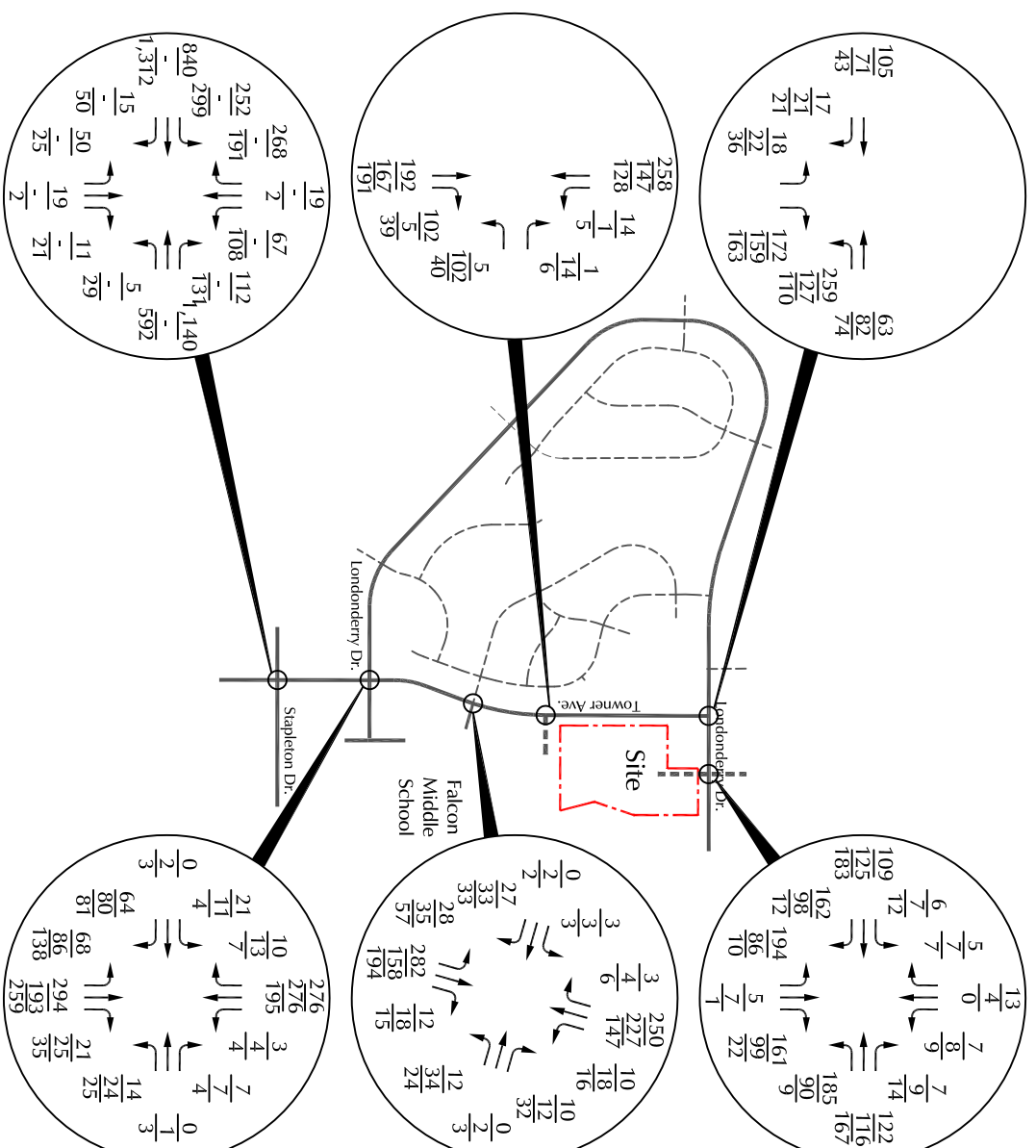


Approximate Scale
Scale: 1" = 1,200'

Figure 9b

Short-Term Total Lane Geometry and Traffic Control

D49 Elementary School (LSC #174040)



Approximate Scale
Scale: 1" = 1,200'

LEGEND:

XX AM School Weekday Peak Hour Traffic (8:00–9:00am)

XX PM School Weekday Peak Hour Traffic (3:15–4:15pm)

XX PM Weekday Peak Hour Traffic

X,XXX = Average Weekday Traffic (vehicles per day) Estimates by LSC

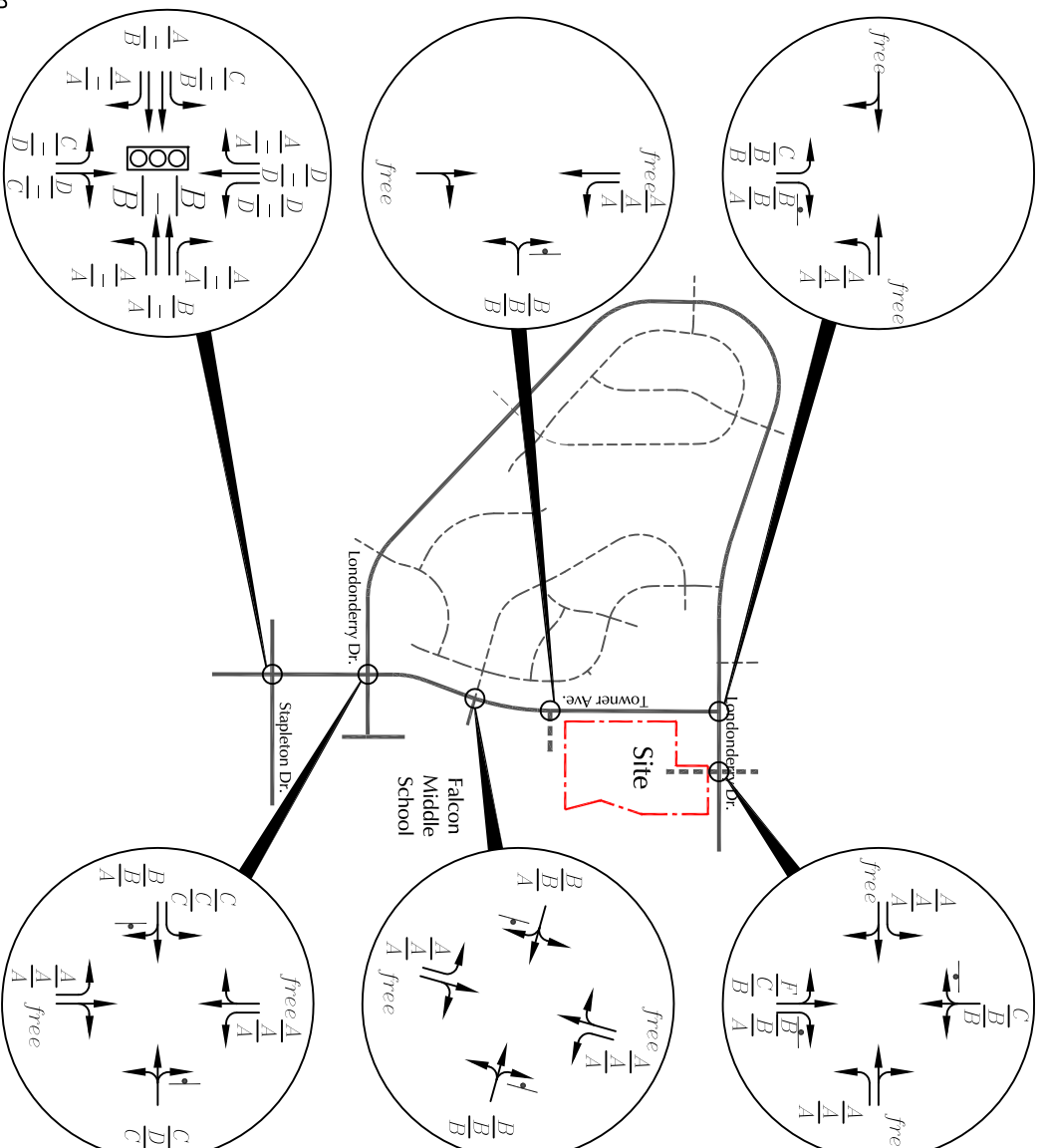
Figure 10a

Year 2040

Total Traffic

D49 Elementary School (LSC #174040)





Approximate Scale
Scale: 1" = 1,200'



LEGEND:

⊥ = Stop Sign

⊞ = Traffic Signal

$\frac{A}{B}$ = AM School Individual Movement Peak-Hour Level of Service

$\frac{B}{C}$ = PM School Individual Movement Peak-Hour Level of Service

$\frac{C}{D}$ = PM Individual Movement Peak-Hour Level of Service

$\frac{D}{A}$ = AM School Entire Intersection Peak-Hour Level of Service

$\frac{A}{B}$ = PM School Entire Intersection Peak-Hour Level of Service

$\frac{B}{C}$ = PM Entire Intersection Peak-Hour Level of Service

Figure 10b

Year 2040 Total Lane Geometry and Traffic Control

D49 Elementary School (LSC #174040)

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc.

Project Name : N Towner Av - Londonderry Dr AM
 Site Code : 00164920
 Start Date : 01/11/2017
 Page No : 1

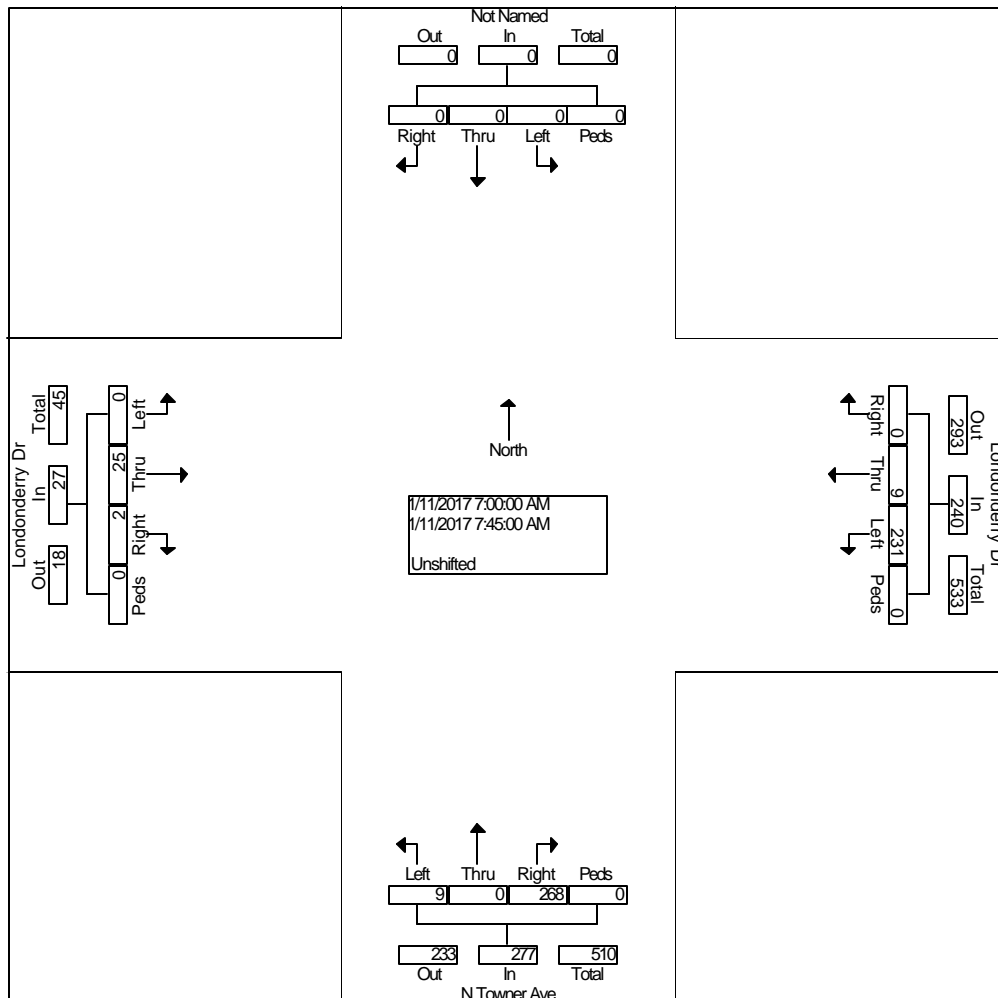
Groups Printed- Unshifted

	From North				Londonderry Dr From East				N Towner Ave From South				Londonderry Dr From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	2	2	0	1	0	0	0	0	1	0	0	6
06:45 AM	0	0	0	0	0	2	12	0	8	0	0	0	0	5	0	0	27
Total	0	0	0	0	0	4	14	0	9	0	0	0	0	6	0	0	33
07:00 AM	0	0	0	0	0	2	49	0	24	0	0	0	0	9	0	0	84
07:15 AM	0	0	0	0	0	3	107	0	82	0	3	0	0	6	0	0	201
07:30 AM	0	0	0	0	0	1	70	0	142	0	6	0	2	8	0	0	229
07:45 AM	0	0	0	0	0	3	5	0	20	0	0	0	0	2	0	0	30
Total	0	0	0	0	0	9	231	0	268	0	9	0	2	25	0	0	544
08:00 AM	0	0	0	0	0	3	1	0	4	0	0	0	1	9	0	0	18
Grand Total	0	0	0	0	0	16	246	0	281	0	9	0	3	40	0	0	595
Apprch %	0.0	0.0	0.0	0.0	0.0	6.1	93.9	0.0	96.9	0.0	3.1	0.0	7.0	93.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	2.7	41.3	0.0	47.2	0.0	1.5	0.0	0.5	6.7	0.0	0.0	

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Project Name : N Towner Av - Londonderry Dr AM
 Site Code : 00164920
 Start Date : 01/11/2017
 Page No : 2

	From North					Londonderry Dr From East					N Towner Ave From South					Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:00 AM - Peak 1 of 1																					
Intersection 07:00 AM																					
Volume	0	0	0	0	0	0	9	23	0	240	26	0	9	0	277	2	25	0	0	27	544
Percent	0.0	0.0	0.0	0.0		0.0	3.8	96.3	0.0		96.8	0.0	3.2	0.0		7.4	92.6	0.0	0.0		
07:30 Volume	0	0	0	0	0	0	1	70	0	71	14	0	6	0	148	2	8	0	0	10	229
Peak Factor																					0.594
High Int.	6:15:00 AM					07:15 AM					07:30 AM					07:30 AM					
Volume	0	0	0	0	0	0	3	10	0	110	14	0	6	0	148	2	8	0	0	10	
Peak Factor											0.54					0.46					0.67
											5					8					5



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LSC Transportation Consultants, Inc.

Project Name : N Towner Av - Londonderry Dr Mid
 Site Code : 00170040
 Start Date : 01/24/2017
 Page No : 1

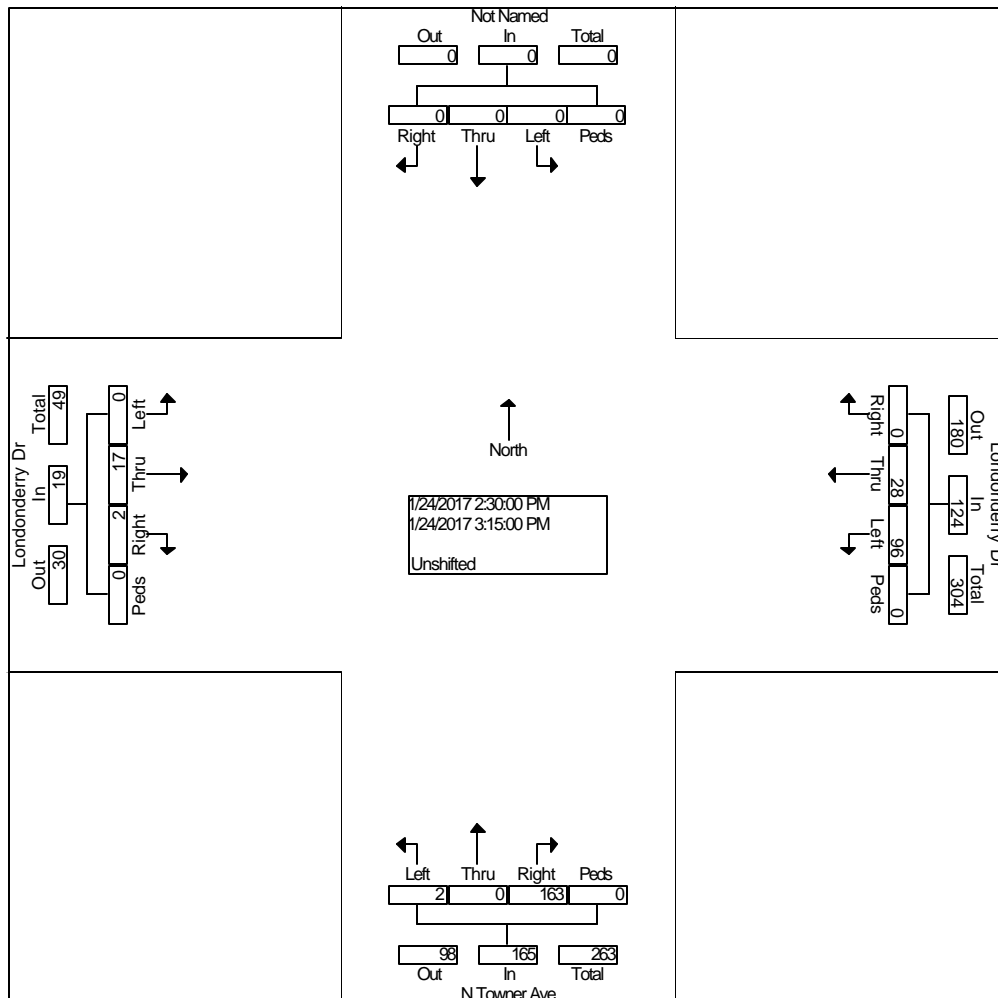
Groups Printed- Unshifted

	From North				Londonderry Dr From East				N Towner Ave From South				Londonderry Dr From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
01:45 PM	0	0	0	0	0	2	5	0	3	0	1	0	0	1	0	0	12
Total	0	0	0	0	0	2	5	0	3	0	1	0	0	1	0	0	12
02:00 PM	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	4
02:15 PM	0	0	0	0	0	0	11	0	3	0	0	0	0	1	0	0	15
02:30 PM	0	0	0	0	0	1	20	0	3	0	0	0	0	3	0	0	27
02:45 PM	0	0	0	0	0	22	49	0	8	0	1	0	1	4	0	0	85
Total	0	0	0	0	0	24	81	0	15	0	1	0	1	9	0	0	131
03:00 PM	0	0	0	0	0	4	22	0	138	0	1	0	1	6	0	0	172
03:15 PM	0	0	0	0	0	1	5	0	14	0	0	0	0	4	0	0	24
03:30 PM	0	0	0	0	0	5	4	0	5	0	0	0	0	3	0	0	17
Grand Total	0	0	0	0	0	36	117	0	175	0	3	0	2	23	0	0	356
Apprch %	0.0	0.0	0.0	0.0	0.0	23.5	76.5	0.0	98.3	0.0	1.7	0.0	8.0	92.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	10.1	32.9	0.0	49.2	0.0	0.8	0.0	0.6	6.5	0.0	0.0	

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Project Name : N Towner Av - Londonderry Dr Mid
 Site Code : 00170040
 Start Date : 01/24/2017
 Page No : 2

	From North					Londonderry Dr From East					N Towner Ave From South					Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 01:45 PM to 03:30 PM - Peak 1 of 1																					
Intersection	02:30 PM																				
Volume	0	0	0	0	0	0	28	96	0	124	16	0	2	0	165	2	17	0	0	19	308
Percent	0.0	0.0	0.0	0.0		0.0	22.6	77.4	0.0		98.8	0.0	1.2	0.0		10.5	89.5	0.0	0.0		
03:00 Volume	0	0	0	0	0	0	4	22	0	26	13	0	1	0	139	1	6	0	0	7	172
Peak Factor																					0.448
High Int.	1:30:00 PM					02:45 PM					03:00 PM					03:00 PM					
Volume	0	0	0	0	0	0	22	49	0	71	13	0	1	0	139	1	6	0	0	7	
Peak Factor										0.437					0.297					0.679	



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Project Name : N Towner Av - Londonderry Dr PM
 Site Code : 00164920
 Start Date : 01/10/2017
 Page No : 1

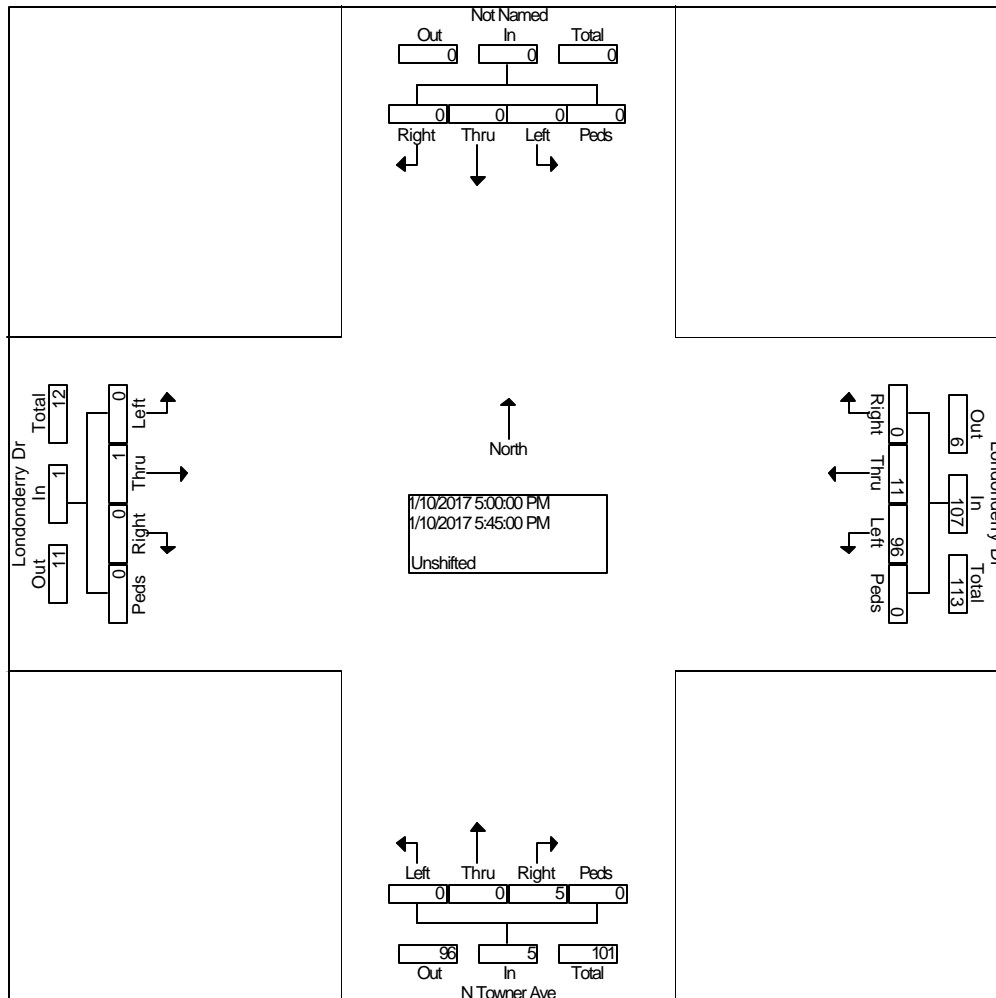
Groups Printed- Unshifted

	From North				Londonderry Dr From East				N Towner Ave From South				Londonderry Dr From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	0	0	0	0	8	5	0	8	0	0	0	0	5	0	0	26
04:15 PM	0	0	0	0	0	3	5	0	1	0	1	0	1	4	0	0	15
04:30 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	3	0	0	9
04:45 PM	0	0	0	0	0	1	3	0	3	0	0	0	0	0	0	0	7
Total	0	0	0	0	0	15	13	0	15	0	1	0	1	12	0	0	57
05:00 PM	0	0	0	0	0	1	3	0	3	0	0	0	0	0	0	0	7
05:15 PM	0	0	0	0	0	4	21	0	2	0	0	0	0	1	0	0	28
05:30 PM	0	0	0	0	0	3	35	0	0	0	0	0	0	0	0	0	38
05:45 PM	0	0	0	0	0	3	37	0	0	0	0	0	0	0	0	0	40
Total	0	0	0	0	0	11	96	0	5	0	0	0	0	1	0	0	113
Grand Total	0	0	0	0	0	26	109	0	20	0	1	0	1	13	0	0	170
Apprch %	0.0	0.0	0.0	0.0	0.0	19.3	80.7	0.0	95.2	0.0	4.8	0.0	7.1	92.9	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	15.3	64.1	0.0	11.8	0.0	0.6	0.0	0.6	7.6	0.0	0.0	

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Project Name : N Towner Av - Londonderry Dr PM
 Site Code : 00164920
 Start Date : 01/10/2017
 Page No : 2

	From North					Londonderry Dr From East					N Towner Ave From South					Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	0	0	0	0	0	0	11	96	0	107	5	0	0	0	5	0	1	0	0	1	113
Percent	0.0	0.0	0.0	0.0		0.0	10.3	89.7	0.0		10.0	0.0	0.0	0.0		0.0	10.0	0.0	0.0		
05:45																					
Volume	0	0	0	0	0	0	3	37	0	40	0	0	0	0	0	0	0	0	0	0	40
Peak Factor																					0.706
High Int.	3:45:00 PM					05:45 PM					05:00 PM					05:15 PM					
Volume	0	0	0	0	0	0	3	37	0	40	3	0	0	0	3	0	1	0	0	1	
Peak Factor											0.669					0.417					0.250



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LSC Transportation Consultants, Inc.

File Name : S Towner Ave - Londonderry Dr Mid
 Site Code : 00174040
 Start Date : 02/01/2017
 Page No : 1

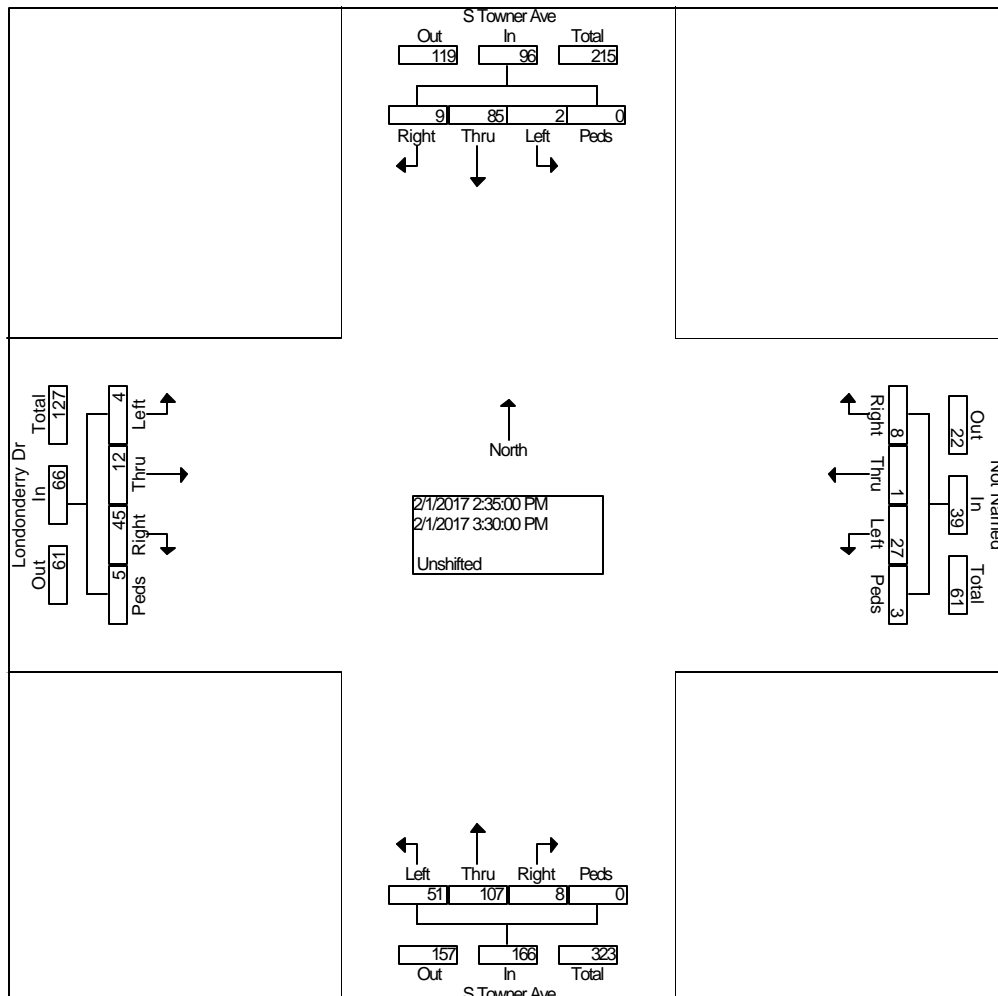
Groups Printed- Unshifted

	S Towner Ave From North				From East				S Towner Ave From South				Londonderry Dr From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
02:30 PM	2	2	0	0	1	0	0	0	2	22	6	0	9	0	1	0	45
02:45 PM	2	6	1	0	0	0	1	0	6	39	15	0	14	11	1	0	96
03:00 PM	3	70	1	0	4	1	19	3	0	41	11	0	13	1	1	1	169
03:15 PM	2	8	0	0	3	0	6	0	1	7	14	0	9	0	2	4	56
03:30 PM	1	5	0	0	0	0	3	0	0	5	16	0	5	0	0	0	35
03:45 PM	1	7	3	0	0	0	1	0	6	4	18	0	9	1	0	0	50
Grand Total	11	98	5	0	8	1	30	3	15	118	80	0	59	13	5	5	451
Apprch %	9.6	86.0	4.4	0.0	19.0	2.4	71.4	7.1	7.0	55.4	37.6	0.0	72.0	15.9	6.1	6.1	
Total %	2.4	21.7	1.1	0.0	1.8	0.2	6.7	0.7	3.3	26.2	17.7	0.0	13.1	2.9	1.1	1.1	

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Site Name : S Towner Ave - Londonderry Dr Mid
 Site Code : 00174040
 Start Date : 02/01/2017
 Page No : 2

	S Towner Ave From North					From East					S Towner Ave From South					Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 02:30 PM to 03:55 PM - Peak 1 of 1																					
Intersection	02:35 PM																				
Volume	9	85	2	0	96	8	1	27	3	39	8	10	51	0	166	45	12	4	5	66	367
Percent	9.4	88.5	2.1	0.0		20.5	2.6	69.2	7.7		4.8	64.5	30.7	0.0		68.2	18.2	6.1	7.6		
03:05 Volume	2	28	1	0	31	2	0	10	0	12	0	12	4	0	16	7	0	1	0	8	67
Peak Factor																					0.456
High Int.	03:00 PM					03:05 PM					03:00 PM					02:55 PM					
Volume	1	30	0	0	31	2	0	10	0	12	0	21	3	0	24	6	9	0	0	15	
Peak Factor					0.25					0.27					0.57					0.36	
					8					1					6					7	



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LSC Transportation Consultants, Inc.

Project : Towner Ave - S Londonderry Dr AM
 Site Code : 00164900
 Start Date : 12/06/2016
 Page No : 1

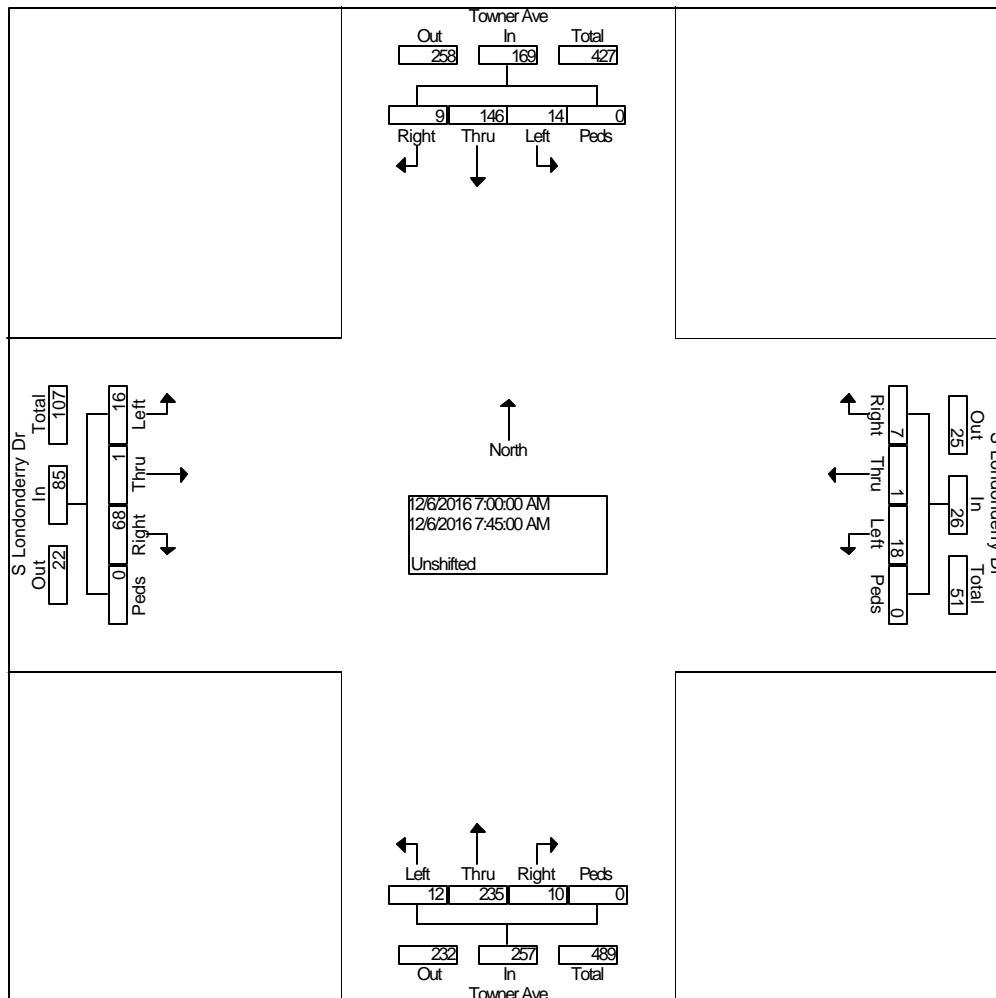
Groups Printed- Unshifted

	Towner Ave From North				S Londonderry Dr From East				Towner Ave From South				S Londonderry Dr From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	12	2	0	0	1	0	0	0	9	1	0	7	0	1	0	33
06:45 AM	0	22	6	0	0	0	0	0	0	12	2	0	10	0	2	0	54
Total	0	34	8	0	0	1	0	0	0	21	3	0	17	0	3	0	87
07:00 AM	1	32	8	0	0	0	1	0	2	53	2	0	19	0	3	0	121
07:15 AM	2	42	5	0	5	1	11	0	6	70	3	0	11	1	5	0	162
07:30 AM	6	51	1	0	2	0	3	0	1	102	4	0	20	0	7	0	197
07:45 AM	0	21	0	0	0	0	3	0	1	10	3	0	18	0	1	0	57
Total	9	146	14	0	7	1	18	0	10	235	12	0	68	1	16	0	537
08:00 AM	1	2	0	0	0	0	0	0	2	7	1	0	8	0	1	0	22
08:15 AM	0	6	1	0	2	0	2	0	2	5	7	0	14	0	0	0	39
Grand Total	10	188	23	0	9	2	20	0	14	268	23	0	107	1	20	0	685
Apprch %	4.5	85.1	10.4	0.0	29.0	6.5	64.5	0.0	4.6	87.9	7.5	0.0	83.6	0.8	15.6	0.0	
Total %	1.5	27.4	3.4	0.0	1.3	0.3	2.9	0.0	2.0	39.1	3.4	0.0	15.6	0.1	2.9	0.0	

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Project : Towner Ave - S Londonderry Dr AM
 Site Code : 00164900
 Start Date : 12/06/2016
 Page No : 2

	Towner Ave From North					S Londonderry Dr From East					Towner Ave From South					S Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	9	14	14	0	169	7	1	18	0	26	10	23	12	0	257	68	1	16	0	85	537
Percent	5.3	86.4	8.3	0.0		26.9	3.8	69.2	0.0		3.9	91.4	4.7	0.0		80.0	1.2	18.8	0.0		
07:30 Volume	6	51	1	0	58	2	0	3	0	5	1	10	4	0	107	20	0	7	0	27	197
Peak Factor																					0.681
High Int.	07:30 AM					07:15 AM					07:30 AM					07:30 AM					
Volume	6	51	1	0	58	5	1	11	0	17	1	10	4	0	107	20	0	7	0	27	
Peak Factor					0.728					0.382					0.600					0.787	



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545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
(719) 633-2868

LSC Transportation Consultants, Inc. **Project Name : Towner Ave - Londonderry Dr PM**
Site Code : 00164900
Start Date : 12/06/2016
Page No : 1

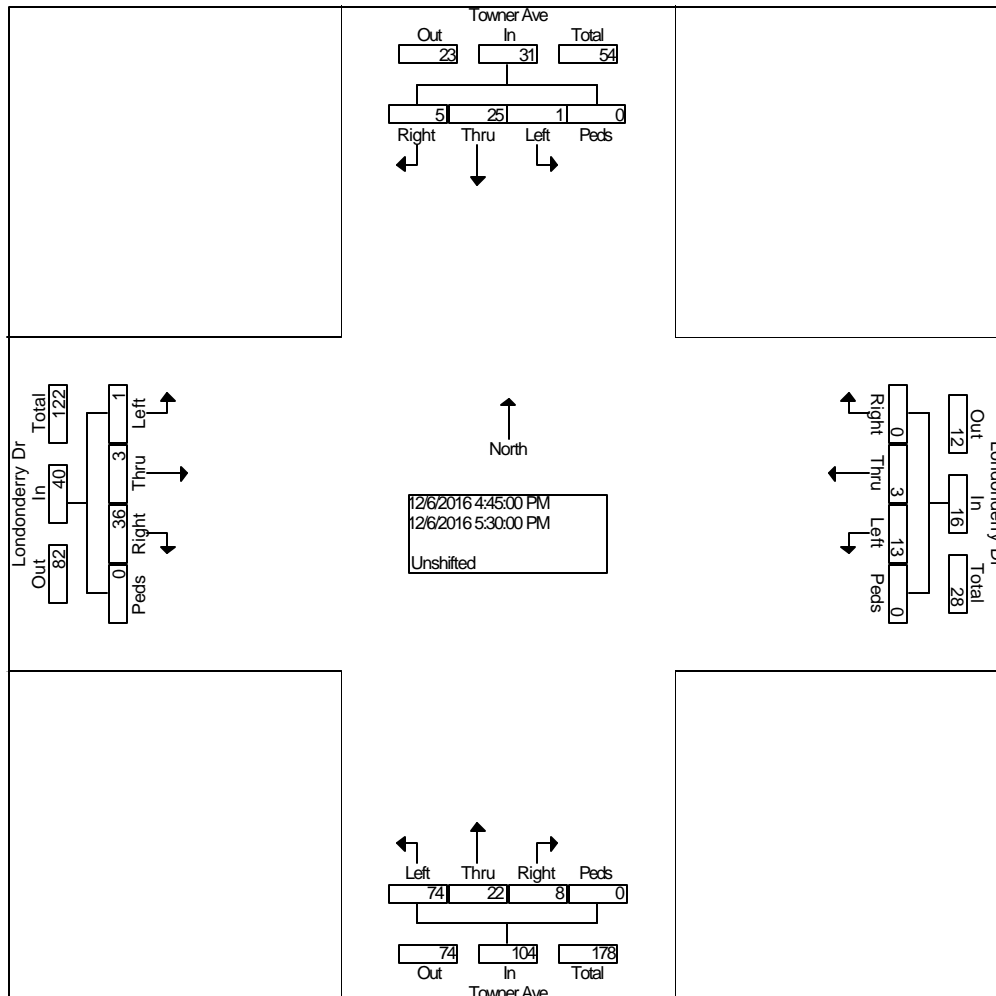
Groups Printed- Unshifted

	Towner Ave From North				Londonderry Dr From East				Towner Ave From South				Londonderry Dr From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	7	0	0	0	0	1	0	1	0	5	0	7	1	0	0	22
04:15 PM	0	5	0	0	0	0	1	0	0	4	22	0	8	0	0	0	40
04:30 PM	1	3	1	0	0	0	3	0	0	1	17	0	5	0	0	0	31
04:45 PM	0	6	0	0	0	1	0	0	1	6	15	0	11	0	1	0	41
Total	1	21	1	0	0	1	5	0	2	11	59	0	31	1	1	0	134
05:00 PM	2	3	1	0	0	0	2	0	1	7	19	0	5	2	0	0	42
05:15 PM	3	11	0	0	0	2	9	0	6	7	16	0	10	1	0	0	65
05:30 PM	0	5	0	0	0	0	2	0	0	2	24	0	10	0	0	0	43
05:45 PM	1	5	0	0	0	0	1	0	0	1	19	0	8	1	0	0	36
Total	6	24	1	0	0	2	14	0	7	17	78	0	33	4	0	0	186
Grand Total	7	45	2	0	0	3	19	0	9	28	137	0	64	5	1	0	320
Apprch %	13.0	83.3	3.7	0.0	0.0	13.6	86.4	0.0	5.2	16.1	78.7	0.0	91.4	7.1	1.4	0.0	
Total %	2.2	14.1	0.6	0.0	0.0	0.9	5.9	0.0	2.8	8.8	42.8	0.0	20.0	1.6	0.3	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80903
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Project Name : Towner Ave - Londonderry Dr PM
 Site Code : 00164900
 Start Date : 12/06/2016
 Page No : 2

	Towner Ave From North					Londonderry Dr From East					Towner Ave From South					Londonderry Dr From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	5	25	1	0	31	0	3	13	0	16	8	22	74	0	104	36	3	1	0	40	191
Percent	16.	80.	3.2	0.0		0.0	18.	81.	0.0		7.7	21.	71.	0.0		90.	7.5	2.5	0.0		
	1	6					8	3				2	2			0					
05:15 Volume	3	11	0	0	14	0	2	9	0	11	6	7	16	0	29	10	1	0	0	11	65
Peak Factor																					0.735
High Int.	05:15 PM					05:15 PM					05:15 PM					04:45 PM					
Volume	3	11	0	0	14	0	2	9	0	11	6	7	16	0	29	11	0	1	0	12	
Peak Factor					0.55					0.36					0.89					0.83	
					4					4					7					3	



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903
 Site Code : 00174040
 (719) 633-2868
 Start Date : 02/01/2017

Page No : 1

Groups Printed- Unshifted

	Towner Ave From North				Falcon Middle School N Access From East				Towner From South				From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	5	0	3	0	5	0	3	0	0	0	0	0	0	0	16
06:45 AM	0	1	11	0	5	0	11	0	28	4	0	0	0	0	0	0	60
07:00 AM	0	13	23	0	13	0	31	0	40	4	0	0	0	0	0	0	124
07:15 AM	0	26	63	0	61	0	18	0	68	27	0	0	0	0	0	0	263
07:30 AM	0	47	27	0	84	0	16	0	50	43	0	0	0	0	0	0	267
07:45 AM	0	4	5	0	8	0	8	0	10	0	0	0	0	0	0	0	35
08:00 AM	0	0	2	0	2	0	4	0	3	2	0	0	0	0	0	0	13
08:15 AM	0	2	3	0	3	0	2	0	3	4	0	0	0	0	0	0	17
Grand Total	0	93	139	0	179	0	95	0	205	84	0	0	0	0	0	0	795
Apprch %	0.0	40.1	59.9	0.0	65.3	0.0	34.7	0.0	70.9	29.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	11.7	17.5	0.0	22.5	0.0	11.9	0.0	25.8	10.6	0.0	0.0	0.0	0.0	0.0	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

Colorado Springs, CO 80903

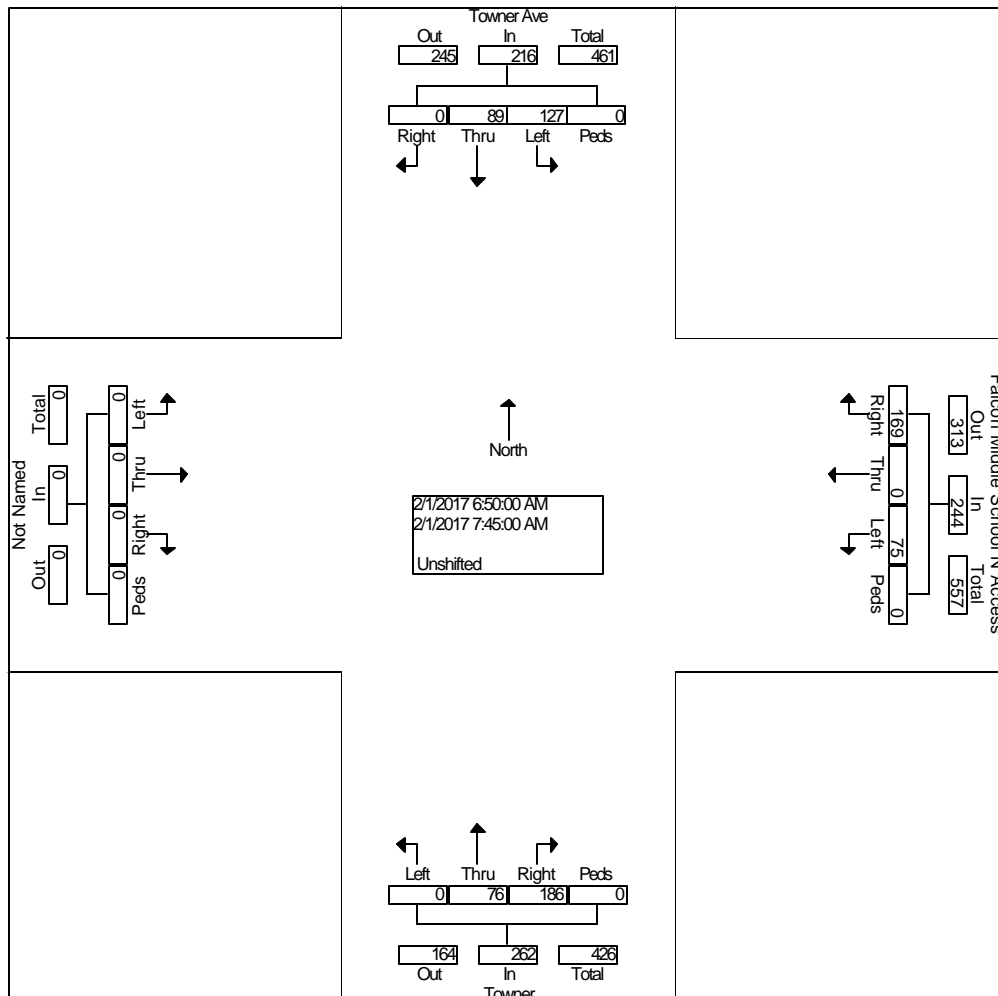
(719) 633-2868

Site Code : 00174040
 Start Date : 02/01/2017

Page No : 2

545 E. Pikes Peak Ave - Falcon Middle School N Access AM

	Towner Ave From North					Falcon Middle School N Access From East					Towner From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:25 AM - Peak 1 of 1																					
Intersection	06:50 AM																				
Volume	0	89	127	0	216	169	0	75	0	244	186	76	0	0	262	0	0	0	0	0	722
Percent	0.0	41.2	58.8	0.0		69.3	0.0	30.7	0.0		71.0	29.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:30 Volume	0	15	15	0	30	30	0	0	0	30	25	14	0	0	39	0	0	0	0	0	99
Peak Factor																					0.608
High Int.	07:25 AM					07:40 AM					07:30 AM					6:25:00 AM					
Volume	0	15	22	0	37	25	0	11	0	36	25	14	0	0	39						
Peak Factor					0.486					0.565					0.560						



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903 - Falcon Middle School N Access Mid
 Site Code : 00174040
 (719) 633-2868
 Start Date : 01/31/2017

Page No : 1

Groups Printed- Unshifted

	Towner Ave From North				Falcon Middle School N Access From East				Towner Ave From South				From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
02:30 PM	0	3	4	0	1	0	1	0	8	7	0	0	0	0	0	0	24
02:45 PM	0	11	10	0	4	0	4	0	19	6	0	0	0	0	0	0	54
03:00 PM	0	46	6	0	49	0	19	0	13	39	0	0	0	0	0	0	172
03:15 PM	0	3	3	0	4	0	7	0	6	4	0	0	0	0	0	0	27
03:30 PM	0	2	1	0	3	0	6	0	2	1	0	0	0	0	0	0	15
03:45 PM	0	8	10	0	0	0	11	0	4	2	0	0	0	0	0	0	35
Grand Total	0	73	34	0	61	0	48	0	52	59	0	0	0	0	0	0	327
Apprch %	0.0	68.2	31.8	0.0	56.0	0.0	44.0	0.0	46.8	53.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	22.3	10.4	0.0	18.7	0.0	14.7	0.0	15.9	18.0	0.0	0.0	0.0	0.0	0.0	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

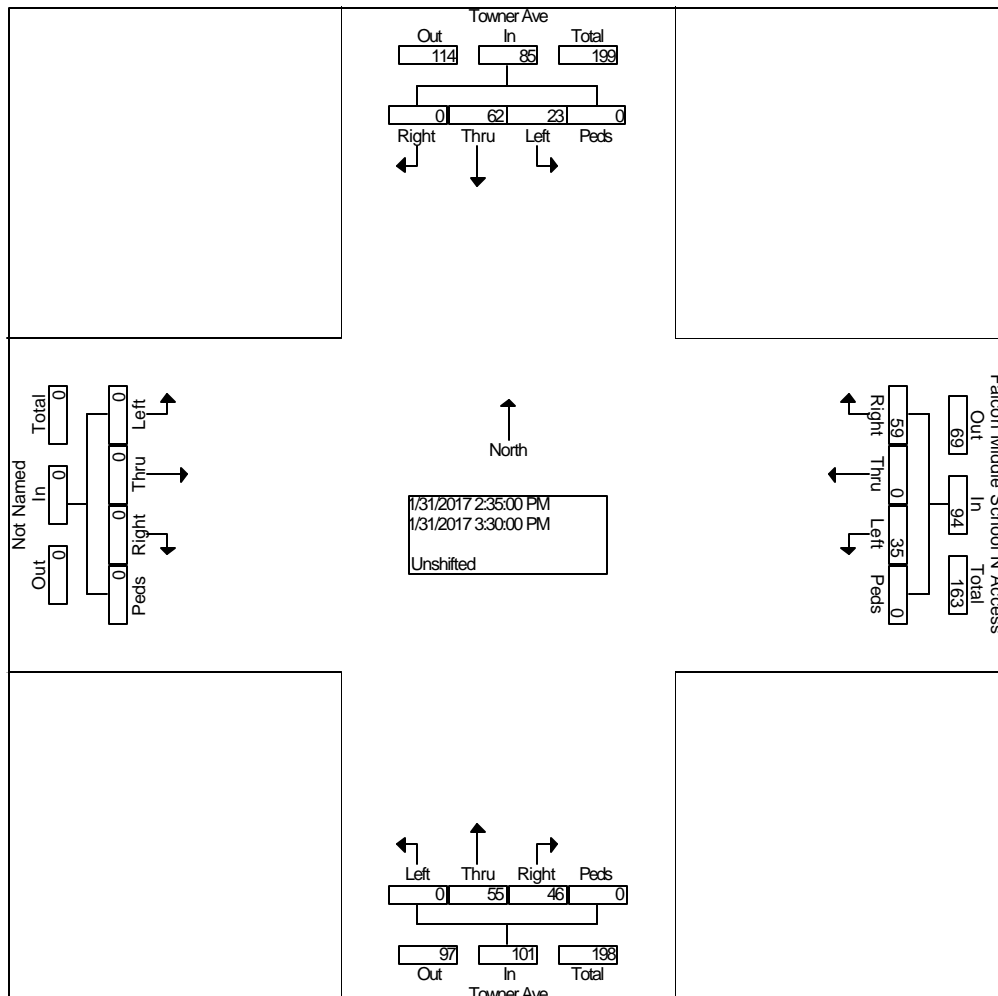
Colorado Springs, CO 80903
 Project: Pikes Peak Ave - Falcon Middle School N Access Mid

(719) 633-2868
 Site Code: 00174040

Start Date : 01/31/2017

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	Towner Ave From North					Falcon Middle School N Access From East					Towner Ave From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 02:30 PM to 03:55 PM - Peak 1 of 1																					
Intersection	02:35 PM																				
Volume	0	62	23	0	85	59	0	35	0	94	46	55	0	0	101	0	0	0	0	0	280
Percent	0.0	72.9	27.1	0.0		62.8	0.0	37.2	0.0		45.5	54.5	0.0	0.0		0.0	0.0	0.0	0.0		
03:00 Volume	0	25	2	0	27	21	0	1	0	22	6	22	0	0	28	0	0	0	0	0	77
Peak Factor																					0.303
High Int.	03:00 PM					03:05 PM					03:00 PM					2:25:00 PM					
Volume	0	25	2	0	27	24	0	10	0	34	6	22	0	0	28						
Peak Factor					0.26					0.23					0.30						
					2					0					1						



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

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 Site Code : 00174040
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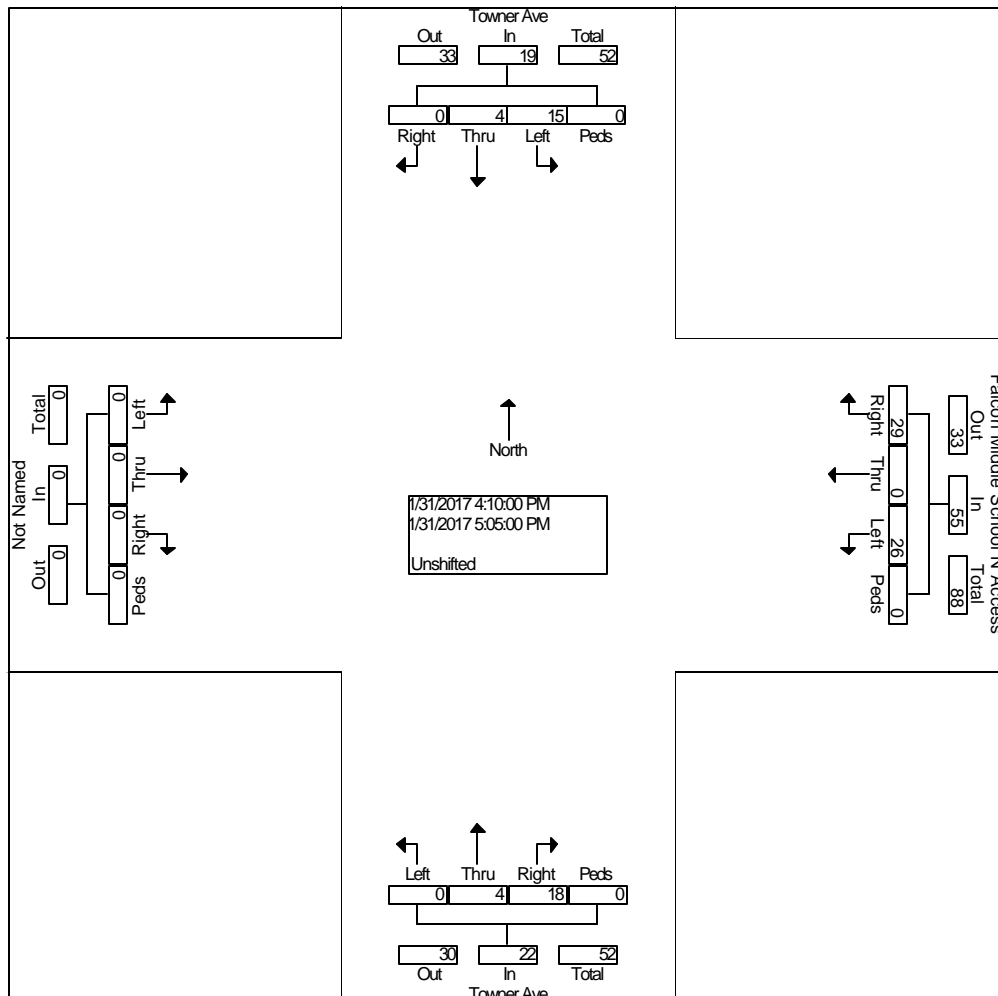
Groups Printed- Unshifted

	Towner Ave From North				Falcon Middle School N Access From East				Towner Ave From South				From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	4	4	0	5	0	10	0	6	2	0	0	1	0	0	0	32
04:15 PM	0	2	3	0	15	0	9	0	6	3	0	0	0	0	0	0	38
04:30 PM	0	0	1	0	1	0	4	0	2	0	0	0	0	0	0	0	8
04:45 PM	0	1	6	0	3	0	3	0	4	0	0	0	0	0	0	0	17
05:00 PM	0	1	6	0	13	0	8	0	3	1	0	0	0	0	0	0	32
05:15 PM	0	1	0	0	2	0	3	0	1	1	0	0	0	0	0	0	8
05:30 PM	0	2	3	0	4	0	10	0	0	1	0	0	0	0	0	0	20
05:45 PM	0	3	1	0	1	0	1	0	0	0	0	0	0	0	0	0	6
Grand Total	0	14	24	0	44	0	48	0	22	8	0	0	1	0	0	0	161
Apprch %	0.0	36.8	63.2	0.0	47.8	0.0	52.2	0.0	73.3	26.7	0.0	0.0	100.0	0.0	0.0	0.0	
Total %	0.0	8.7	14.9	0.0	27.3	0.0	29.8	0.0	13.7	5.0	0.0	0.0	0.6	0.0	0.0	0.0	

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 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
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Site Code: 00174040
 Start Date: 01/31/2017
 Page No: 2

	Towner Ave From North					Falcon Middle School N Access From East					Towner Ave From South					From West					
Start Time	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:55 PM - Peak 1 of 1																					
Intersection	04:10 PM																				
Volume	0	4	15	0	19	29	0	26	0	55	18	4	0	0	22	0	0	0	0	0	96
Percent	0.0	21.1	78.9	0.0		52.7	0.0	47.3	0.0		81.8	18.2	0.0	0.0		0.0	0.0	0.0	0.0		
04:15 Volume	0	0	1	0	1	5	0	6	0	11	3	2	0	0	5	0	0	0	0	0	17
Peak Factor																					0.471
High Int.	04:25 PM					05:05 PM					04:15 PM					3:55:00 PM					
Volume	0	2	1	0	3	8	0	4	0	12	3	2	0	0	5						
Peak Factor	0.52					0.38					0.36										
	8					2					7										



LSC Transportation Consultants, Inc.

516 N. Tejon St.

LSC Transportation Consultants, Inc.

Colorado Springs, CO

(719) 633-2868

File Name : Towner Av - Stapleton Dr AM

Site Code : 00000000

Start Date : 10/02/2013

Page No : 1

Groups Printed- Unshifted

	Towner Av From North				Stapleton Dr From East				Towner Av From South				From West				Int. Total
Start Time	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	19	0	6	0	0	0	0	1	0	0	0	0	0	0	26
06:45 AM	0	0	30	0	20	0	0	0	0	1	0	0	0	0	0	0	51
Total	0	0	49	0	26	0	0	0	0	2	0	0	0	0	0	0	77
07:00 AM	0	4	33	0	38	0	0	0	2	3	0	0	0	0	0	0	80
07:15 AM	0	12	76	0	100	0	1	0	0	12	0	0	0	0	0	0	201
07:30 AM	0	8	72	0	127	0	1	0	1	18	0	0	0	0	0	0	227
07:45 AM	0	4	34	0	11	0	0	0	2	0	0	0	0	0	0	0	51
Total	0	28	215	0	276	0	2	0	5	33	0	0	0	0	0	0	559
08:00 AM	0	2	14	0	9	0	1	0	1	0	0	0	0	0	0	0	27
08:15 AM	0	2	14	0	11	0	0	0	0	2	0	0	0	0	0	0	29
Grand Total	0	32	292	0	322	0	3	0	6	37	0	0	0	0	0	0	692
Apprch %	0.0	9.9	90.1	0.0	99.1	0.0	0.9	0.0	14.0	86.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	4.6	42.2	0.0	46.5	0.0	0.4	0.0	0.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0	

LSC Transportation Consultants, Inc.

516 N. Tejon St.

Colorado Springs, CO

(719) 633-2868

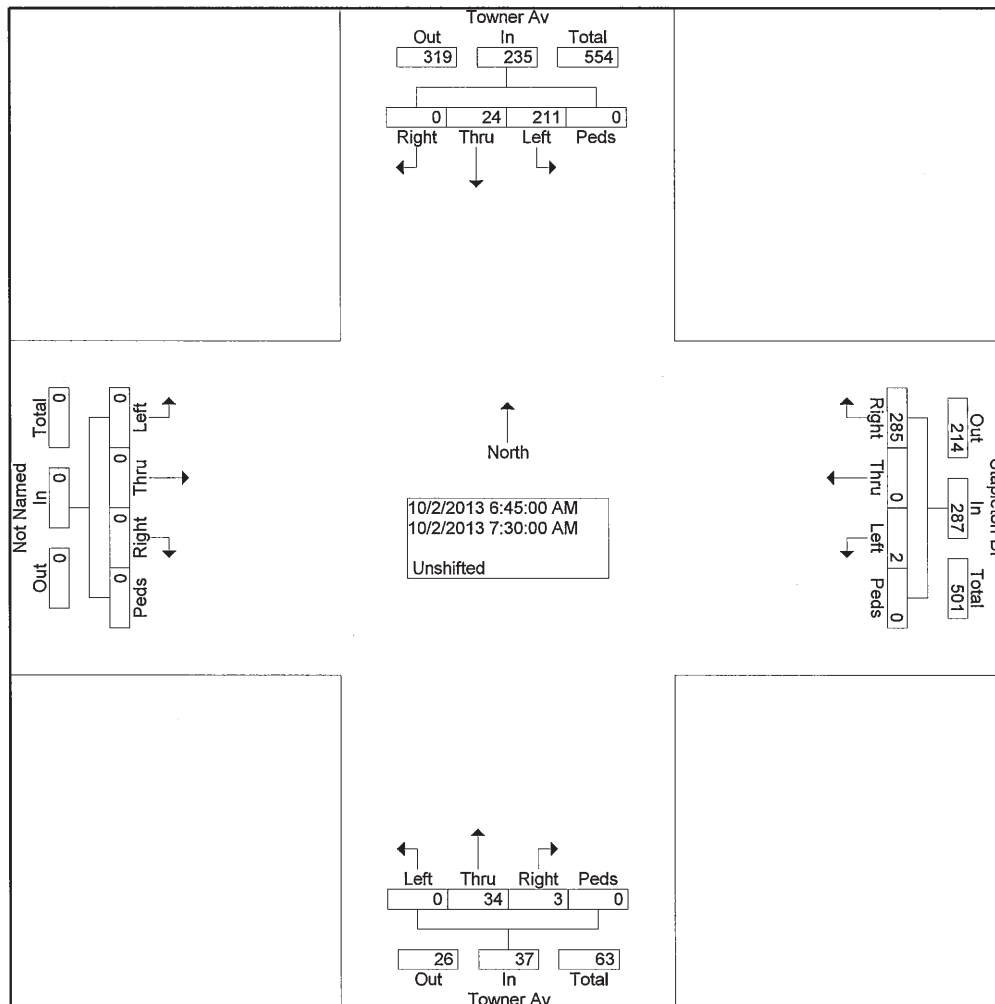
File Name : Towner Av - Stapleton Dr AM

Site Code : 00000000

Start Date : 10/02/2013

Page No : 2

	Towner Av From North					Stapleton Dr From East					Towner Av From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour Intersecti on	From 06:30 AM to 08:15 AM - Peak 1 of 1																				
06:45 AM																					
Volume	0	24	21	0	235	28	0	2	0	287	3	34	0	0	37	0	0	0	0	0	559
Percent	0.0	10.2	89.8	0.0		99.3	0.0	0.7	0.0		8.1	91.9	0.0	0.0		0.0	0.0	0.0	0.0		
07:30 Volume	0	8	72	0	80	12	0	1	0	128	1	18	0	0	19	0	0	0	0	0	227
Peak Factor	0.616																				
High Int.	07:15 AM					07:30 AM					07:30 AM					6:15:00 AM					
Volume	0	12	76	0	88	12	0	1	0	128	1	18	0	0	19						
Peak Factor	0.668					0.561					0.487										



LSC Transportation Consultants, Inc.

516 N. Tejon St.

LSC Transportation Consultants, Inc.

Colorado Springs, CO

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Bus Access

File Name : Towner Av - Stapleton Dr AM

Site Code : 00000000

Start Date : 10/02/2013

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Groups Printed- Bank 1

Start Time	Towner Av From North				Stapleton Dr From East				Towner Av From South				From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	3	0	10	0	0	0	0	0	0	0	0	0	0	0	13
07:30 AM	0	3	3	0	1	0	0	0	0	1	0	0	0	0	0	0	8
07:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	3	9	0	11	0	0	0	0	1	0	0	0	0	0	0	24
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	10	0	11	0	0	0	0	1	0	0	0	0	0	0	25
Apprch %	0.0	23.1	76.9	0.0	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	12.0	40.0	0.0	44.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	

LSC Transportation Consultants, Inc.

516 N. Tejon St.

Colorado Springs, CO

(719) 633-2868

Bus Access

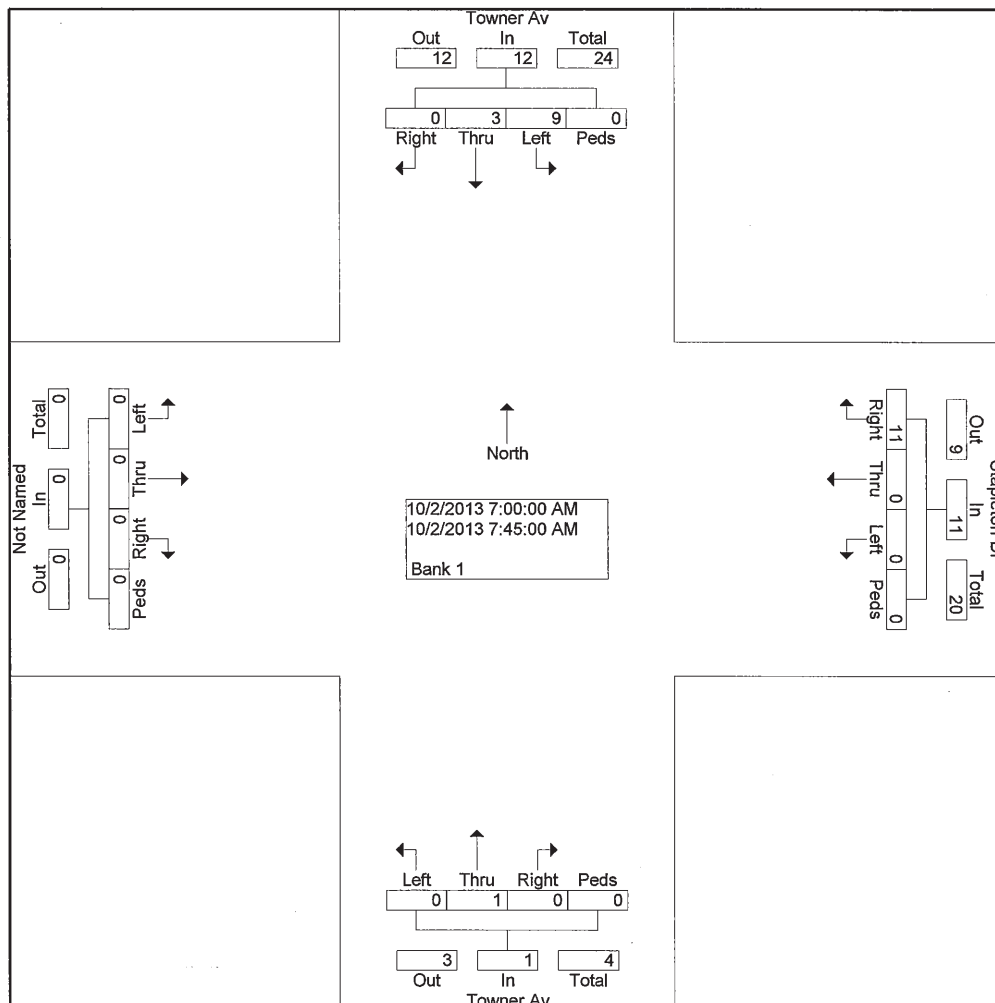
File Name : Towner Av - Stapleton Dr AM

Site Code : 00000000

Start Date : 10/02/2013

Page No : 2

	Towner Av From North					Stapleton Dr From East					Towner Av From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection 07:00 AM																					
Volume	0	3	9	0	12	11	0	0	0	11	0	1	0	0	1	0	0	0	0	0	24
Percent	0.0	25.0	75.0	0.0		100.0	0.0	0.0	0.0		0.0	10.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:15 Volume	0	0	3	0	3	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	13
Peak Factor																					0.462
High Int. Volume	07:30 AM	0	3	3	0	6	07:15 AM	10	0	0	0	10	07:30 AM	0	1	0	0	1	6:15:00 AM		
Peak Factor					0.50					0.27					0.25						
					0					5					0						



LSC Transportation Consultants, Inc.

516 N. Tejon St.

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Colorado Springs, CO

(719) 633-2868

File Name : Towner Av - Stapleton Dr PM

Site Code : 00000000

Start Date : 10/01/2013

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Groups Printed- Unshifted

	Towner Av From North				Stapleton Dr From East				Towner Av From South				From West				Int. Total
Start Time	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	Righ t	Thru	Left	Ped s	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:15 PM	0	2	22	0	34	0	0	0	3	3	0	0	0	0	0	0	64
04:30 PM	0	4	22	0	44	0	0	0	1	4	0	0	0	0	0	0	75
04:45 PM	0	1	18	0	30	0	2	0	0	2	0	0	0	0	0	0	53
Total	0	7	62	0	108	0	2	0	4	9	0	0	0	0	0	0	192
05:00 PM	0	0	16	0	43	0	1	0	1	0	0	0	0	0	0	0	61
05:15 PM	0	7	57	0	40	0	1	0	0	3	0	0	0	0	0	0	108
05:30 PM	0	6	57	0	40	0	0	0	1	0	0	0	0	0	0	0	104
05:45 PM	0	1	17	0	29	0	2	0	1	0	0	0	0	0	0	0	50
Total	0	14	147	0	152	0	4	0	3	3	0	0	0	0	0	0	323
06:00 PM	0	3	17	0	20	0	1	0	0	7	0	0	0	0	0	0	48
Grand Total	0	24	226	0	280	0	7	0	7	19	0	0	0	0	0	0	563
Apprch %	0.0	9.6	90.4	0.0	97.6	0.0	2.4	0.0	26.9	73.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	4.3	40.1	0.0	49.7	0.0	1.2	0.0	1.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	

LSC Transportation Consultants, Inc.

516 N. Tejon St.

Colorado Springs, CO

(719) 633-2868

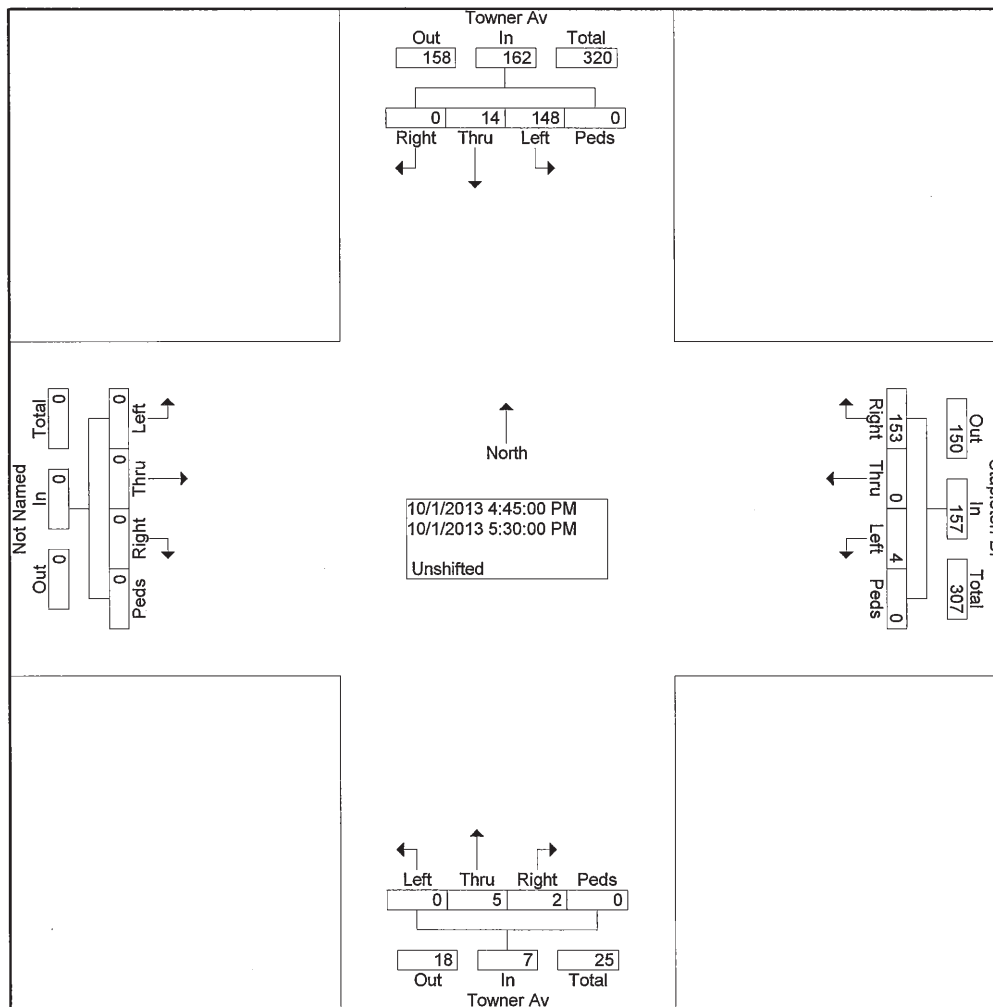
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Site Code : 00000000

Start Date : 10/01/2013

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	Towner Av From North					Stapleton Dr From East					Towner Av From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour From 04:15 PM to 06:00 PM - Peak 1 of 1																					
Intersection 04:45 PM																					
Volume	0	14	14	0	162	15	0	4	0	157	2	5	0	0	7	0	0	0	0	0	326
Percent	0.0	8.6	91.4	0.0		97.5	0.0	2.5	0.0		28.6	71.4	0.0	0.0		0.0	0.0	0.0	0.0		
05:15 Volume	0	7	57	0	64	40	0	1	0	41	0	3	0	0	3	0	0	0	0	0	108
Peak Factor																					0.755
High Int. Volume	05:15 PM	0	7	57	0	64	05:00 PM	43	0	1	0	44	05:15 PM	0	3	0	0	3	4:00:00 PM		
Peak Factor					0.63	3				0.89	2				0.58	3					



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Bus Access
Townes Av - Stapleton Dr

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Site Code : 00000000
Start Date : 10/01/2013
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Groups Printed- Bank 1

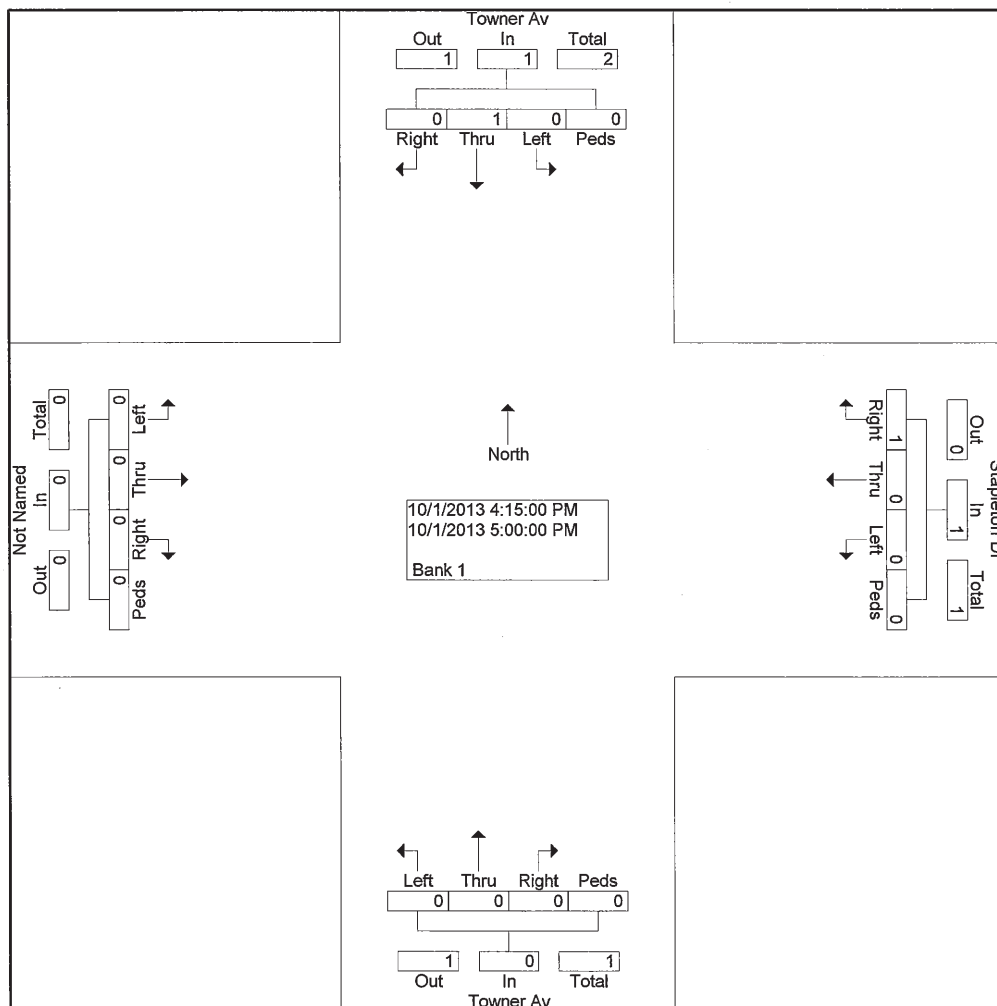
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Bus Access
 Towner Av - Stapleton Dr




File Name : untitled2
 Site Code : 00000000
 Start Date : 10/01/2013
 Page No : 2

	Towner Av From North					Stapleton Dr From East					Towner Av From South					From West					
Start Time	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Int. Total
Peak Hour	From 04:15 PM to 06:00 PM - Peak 1 of 1																				
Intersection	04:15 PM																				
Volume	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Percent	0.0	10.0	0.0	0.0		10.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
04:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Volume																					
Peak																					
Factor																					0.500
High Int.	04:15 PM					04:30 PM					4:00:00 PM					4:00:00 PM					
Volume	0	1	0	0	1	1	0	0	0	1											
Peak																					
Factor					0.25					0.25											
					0					0											









HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Existing Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	9	9	12	0	28
Future Vol, veh/h	36	9	9	12	0	28
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	92	70	70	92	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	13	13	13	0	33
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	85	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	-	-	4.12	-	7.12	6.22
Critical Hdwy Stg 1	-	-	-	-	6.12	-
Critical Hdwy Stg 2	-	-	-	-	6.12	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1554	-	901	1023
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1554	-	896	1023
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	968	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.6		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1023	-	-	1554	-	
HCM Lane V/C Ratio	0.032	-	-	0.008	-	
HCM Control Delay (s)	8.6	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	





HCM 2010 TWSC
6: Towner Ave & Londonderry Dr (South)




Existing Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	44	4	0	4	16	24	8	2	16	2
Future Vol, veh/h	2	0	44	4	0	4	16	24	8	2	16	2
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	-	-	-	-	-	-	285	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	2	0	54	8	0	8	19	28	9	3	23	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	104	104	24	126	101	33	25	0	0	37	0	0
Stage 1	30	30	-	70	70	-	-	-	-	-	-	-
Stage 2	74	74	-	56	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	876	704	1052	665	637	818	1577	-	-	1241	-	-
Stage 1	987	784	-	744	679	-	-	-	-	-	-	-
Stage 2	935	748	-	758	709	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	858	694	1052	624	628	818	1577	-	-	1241	-	-
Mov Cap-2 Maneuver	858	694	-	624	628	-	-	-	-	-	-	-
Stage 1	975	782	-	735	671	-	-	-	-	-	-	-
Stage 2	915	739	-	718	707	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.7			10.2			2.4			0.8		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1577	-	-	1042	708	1241	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.054	0.023	0.002	-	-				
HCM Control Delay (s)	7.3	-	-	8.7	10.2	7.9	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-				

HCM 2010 TWSC
7: Towner Ave & Stapleton Dr




Existing Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	2	0	44	0	4	2	56	8	0
Future Vol, veh/h	0	0	0	2	0	44	0	4	2	56	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	2	2	2	2	4	2	3	2	4	10	2
Mvmt Flow	0	0	0	4	0	88	0	5	2	79	11	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	1	0	0	59	97	1	57	53	44
Stage 1	-	-	-	-	-	-	1	1	-	52	52	-
Stage 2	-	-	-	-	-	-	58	96	-	5	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.53	6.22	7.14	6.6	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.027	3.318	3.536	4.09	3.318
Pot Cap-1 Maneuver	1508	-	-	1622	-	-	937	791	1084	935	823	1026
Stage 1	-	-	-	-	-	-	1022	893	-	956	836	-
Stage 2	-	-	-	-	-	-	954	814	-	1012	879	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1508	-	-	1622	-	-	925	789	1084	927	821	1026
Mov Cap-2 Maneuver	-	-	-	-	-	-	925	789	-	927	821	-
Stage 1	-	-	-	-	-	-	1022	893	-	956	833	-
Stage 2	-	-	-	-	-	-	938	812	-	1005	879	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			9.2			9.4		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	868	1508	-	-	1622	-	-	912				
HCM Lane V/C Ratio	0.008	-	-	-	0.002	-	-	0.099				
HCM Control Delay (s)	9.2	0	-	-	7.2	0	-	9.4				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3				

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	10	18	12	10	8
Future Vol, veh/h	12	10	18	12	10	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	86	86	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	11	21	14	14	11
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	68	28	0	0	35	0
Stage 1	28	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	937	1047	-	-	1576	-
Stage 1	995	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	929	1047	-	-	1576	-
Mov Cap-2 Maneuver	929	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	8.8		0		4.1	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	979	1576	-	
HCM Lane V/C Ratio	-	-	0.024	0.009	-	
HCM Control Delay (s)	-	-	8.8	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	







HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Existing Traffic
Afternoon School Peak Hour

Intersection						
Int Delay, s/veh	4.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	17	2	35	22	2	21
Future Vol, veh/h	17	2	35	22	2	21
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	85	85	79	79	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	2	44	28	2	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	22	0	137	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1593	-	856	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1593	-	832	1056
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	884	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.5		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1032	-	-	1593	-	
HCM Lane V/C Ratio	0.022	-	-	0.028	-	
HCM Control Delay (s)	8.6	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	




HCM 2010 TWSC
6: Towner Ave & Londonderry Dr (South)

Existing Traffic
Afternoon School Peak Hour

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	2	30	11	0	3	53	22	8	3	44	4
Future Vol, veh/h	2	2	30	11	0	3	53	22	8	3	44	4
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	-	-	-	-	-	-	285	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	39	39	39	88	88	88	85	85	85
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	3	3	39	28	0	8	60	25	9	4	52	5
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	215	216	54	232	214	30	56	0	0	34	0	0
Stage 1	61	61	-	150	150	-	-	-	-	-	-	-
Stage 2	154	155	-	82	64	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	742	606	1013	558	542	821	1536	-	-	1244	-	-
Stage 1	950	759	-	666	620	-	-	-	-	-	-	-
Stage 2	848	687	-	731	683	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	711	580	1013	518	519	821	1536	-	-	1244	-	-
Mov Cap-2 Maneuver	711	580	-	518	519	-	-	-	-	-	-	-
Stage 1	913	757	-	640	596	-	-	-	-	-	-	-
Stage 2	807	660	-	698	681	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9			11.8			4.8			0.5		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1536	-	-	948	562	1244	-	-				
HCM Lane V/C Ratio	0.039	-	-	0.047	0.064	0.003	-	-				
HCM Control Delay (s)	7.4	-	-	9	11.8	7.9	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0	-	-				




HCM 2010 TWSC
20: Towner Ave & Falcon M.S.

Existing Traffic
Afternoon School Peak Hour

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	12	9	18	18	17
Future Vol, veh/h	34	12	9	18	18	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	49	49
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	12	9	18	37	35
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	126	18	0	0	27	0
Stage 1	18	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	869	1061	-	-	1587	-
Stage 1	1005	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	848	1061	-	-	1587	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.2		0		3.8	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 895	1587	-		
HCM Lane V/C Ratio	-	- 0.051	0.023	-		
HCM Control Delay (s)	-	- 9.2	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.2	0.1	-		







HCM 2010 TWSC
5: Towner Ave & Londonderry Dr (North)

Existing Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	5.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	7	1	22	8	1	39
Future Vol, veh/h	7	1	22	8	1	39
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	40	40	59	59	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	3	37	14	1	39
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	20	0	107	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1596	-	891	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	935	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1596	-	871	1059
Mov Cap-2 Maneuver	-	-	-	-	871	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	913	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.4		8.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1053	-	-	1596	-	
HCM Lane V/C Ratio	0.038	-	-	0.023	-	
HCM Control Delay (s)	8.6	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr (South)

Existing Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	36	13	3	0	74	22	8	1	25	5
Future Vol, veh/h	1	3	36	13	3	0	74	22	8	1	25	5
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	-	-	-	-	-	-	285	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	36	36	36	90	90	90	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	40	36	8	0	82	24	9	2	45	9
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	251	252	50	268	251	29	55	0	0	33	0	0
Stage 1	54	54	-	193	193	-	-	-	-	-	-	-
Stage 2	197	198	-	75	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	702	651	1018	685	652	1046	1550	-	-	1579	-	-
Stage 1	958	850	-	809	741	-	-	-	-	-	-	-
Stage 2	805	737	-	934	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	666	616	1018	629	617	1046	1550	-	-	1579	-	-
Mov Cap-2 Maneuver	666	616	-	629	617	-	-	-	-	-	-	-
Stage 1	907	849	-	766	702	-	-	-	-	-	-	-
Stage 2	753	698	-	893	846	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.9			11.2			5.3			0.2		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1550	-	-	958	627	1579	-	-				
HCM Lane V/C Ratio	0.053	-	-	0.046	0.071	0.001	-	-				
HCM Control Delay (s)	7.5	-	-	8.9	11.2	7.3	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.2	0	-	-				




HCM 2010 TWSC
7: Towner Ave & Stapleton Dr

Existing Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	4	1	99	0	5	2	60	14	0
Future Vol, veh/h	0	1	0	4	1	99	0	5	2	60	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	96	96	96	58	58	58	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	4	1	103	0	9	3	95	22	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	104	0	0	1	0	0	73	114	1	68	62	53
Stage 1	-	-	-	-	-	-	1	1	-	61	61	-
Stage 2	-	-	-	-	-	-	72	113	-	7	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1488	-	-	1622	-	-	918	776	1084	925	829	1014
Stage 1	-	-	-	-	-	-	1022	895	-	950	844	-
Stage 2	-	-	-	-	-	-	938	802	-	1015	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1488	-	-	1622	-	-	897	774	1084	912	827	1014
Mov Cap-2 Maneuver	-	-	-	-	-	-	897	774	-	912	827	-
Stage 1	-	-	-	-	-	-	1022	895	-	950	841	-
Stage 2	-	-	-	-	-	-	910	800	-	1002	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			9.3			9.6		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	843	1488	-	-	1622	-	-	895				
HCM Lane V/C Ratio	0.014	-	-	-	0.003	-	-	0.131				
HCM Control Delay (s)	9.3	0	-	-	7.2	0	-	9.6				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5				




HCM 2010 TWSC
20: Towner Ave & Falcon M.S.

Existing Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	32	8	15	16	7
Future Vol, veh/h	24	32	8	15	16	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	53	53	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	55	15	28	16	7
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	68	29	0	0	43	0
Stage 1	29	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	937	1046	-	-	1566	-
Stage 1	994	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	928	1046	-	-	1566	-
Mov Cap-2 Maneuver	928	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9		0		5.1	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 992	1566	-		
HCM Lane V/C Ratio	-	- 0.097	0.01	-		
HCM Control Delay (s)	-	- 9	7.3	0		
HCM Lane LOS	-	- A	A	A		
HCM 95th %tile Q(veh)	-	- 0.3	0	-		








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Background Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	9	13	38	0	33
Future Vol, veh/h	61	9	13	38	0	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	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	70	70	92	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	13	19	41	0	38
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	79	0	151	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1519	-	841	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1519	-	830	989
Mov Cap-2 Maneuver	-	-	-	-	830	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	933	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.3		8.8	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	989	-	-	1519	-	
HCM Lane V/C Ratio	0.039	-	-	0.012	-	
HCM Control Delay (s)	8.8	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access





Short-Term Background Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	64	4	0	6	37	50	8	3	41	2
Future Vol, veh/h	2	0	64	4	0	6	37	50	8	3	41	2
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	2	0	78	8	0	12	43	58	9	4	58	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	223	221	59	217	218	63	61	0	0	67	0	0
Stage 1	68	68	-	149	149	-	-	-	-	-	-	-
Stage 2	155	153	-	68	69	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	733	602	1007	572	539	784	1530	-	-	1206	-	-
Stage 1	942	753	-	667	620	-	-	-	-	-	-	-
Stage 2	847	688	-	746	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	705	583	1007	515	522	784	1530	-	-	1206	-	-
Mov Cap-2 Maneuver	705	583	-	515	522	-	-	-	-	-	-	-
Stage 1	916	751	-	648	603	-	-	-	-	-	-	-
Stage 2	811	669	-	686	678	-	-	-	-	-	-	-







Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	10.7	2.9	0.5
HCM LOS	A	B		




Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1530	-	-	705	1007	649	1206	-	-
HCM Lane V/C Ratio	0.028	-	-	0.003	0.078	0.031	0.004	-	-
HCM Control Delay (s)	7.4	-	-	10.1	8.9	10.7	8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.3	0.1	0	-	-

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1	0	2	0	92	0	4	2	101	8	0
Future Vol, veh/h	0	1	0	2	0	92	0	4	2	101	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	2	2	2	2	4	2	3	2	4	10	2
Mvmt Flow	0	1	0	4	0	184	0	5	2	142	11	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	184	0	0	1	0	0	107	193	1	105	101	92
Stage 1	-	-	-	-	-	-	1	1	-	100	100	-
Stage 2	-	-	-	-	-	-	106	192	-	5	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.53	6.22	7.14	6.6	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.027	3.318	3.536	4.09	3.318
Pot Cap-1 Maneuver	1391	-	-	1622	-	-	872	700	1084	870	774	965
Stage 1	-	-	-	-	-	-	1022	893	-	901	797	-
Stage 2	-	-	-	-	-	-	900	740	-	1012	879	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1391	-	-	1622	-	-	860	698	1084	862	772	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	860	698	-	862	772	-
Stage 1	-	-	-	-	-	-	1022	893	-	901	795	-
Stage 2	-	-	-	-	-	-	885	738	-	1005	879	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			9.6			10.1		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	792	1391	-	-	1622	-	-	855				
HCM Lane V/C Ratio	0.009	-	-	-	0.002	-	-	0.18				
HCM Control Delay (s)	9.6	0	-	-	7.2	0	-	10.1				
HCM Lane LOS	A	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.7				

HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.




Short-Term Background Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	25	12	0	10	26	20	12	10	9	3
Future Vol, veh/h	3	0	25	12	0	10	26	20	12	10	9	3
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	27	16	0	14	28	22	19	18	10	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	143	146	12	150	138	32	13	0	0	42	0	0
Stage 1	48	48	-	88	88	-	-	-	-	-	-	-
Stage 2	95	98	-	62	50	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	826	749	1069	822	757	1048	1606	-	-	1580	-	-
Stage 1	965	859	-	925	826	-	-	-	-	-	-	-
Stage 2	912	818	-	954	857	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	798	728	1069	784	735	1048	1606	-	-	1580	-	-
Mov Cap-2 Maneuver	798	728	-	784	735	-	-	-	-	-	-	-
Stage 1	948	849	-	909	812	-	-	-	-	-	-	-
Stage 2	885	804	-	919	847	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.6			9.2			2.9			4.2		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1606	-	-	1031	885	1580	-	-				
HCM Lane V/C Ratio	0.018	-	-	0.03	0.034	0.012	-	-				
HCM Control Delay (s)	7.3	-	-	8.6	9.2	7.3	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-				

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	94	51	13	13	0
Future Vol, veh/h	0	94	51	13	13	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	102	55	14	14	0
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	70	0	-	0	165	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	102	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1531	-	-	-	826	1002
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	922	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1531	-	-	-	826	1002
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	922	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		9.6	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1531	-	-	-	805	
HCM Lane V/C Ratio	-	-	-	-	0.018	
HCM Control Delay (s)	0	-	-	-	9.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	0	40	54	0	28
Future Vol, veh/h	47	0	40	54	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	79	79	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	0	51	68	0	28
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	225	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	170	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	763	1012
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	860	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1550	-	737	1012
Mov Cap-2 Maneuver	-	-	-	-	737	-
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	831	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.1		8.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	1012	-	-	1550	-	
HCM Lane V/C Ratio	0.028	-	-	0.033	-	
HCM Control Delay (s)	8.7	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	2	55	11	0	6	79	55	8	4	75	4
Future Vol, veh/h	2	2	55	11	0	6	79	55	8	4	75	4
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	39	39	39	88	88	88	85	85	85
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	3	3	71	28	0	15	90	63	9	5	88	5







Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	354	351	91	348	349	67	93	0	0	72	0	0
Stage 1	100	100	-	247	247	-	-	-	-	-	-	-
Stage 2	254	251	-	101	102	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	601	504	967	459	446	779	1489	-	-	1201	-	-
Stage 1	906	728	-	582	554	-	-	-	-	-	-	-
Stage 2	750	619	-	713	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	560	472	967	403	417	779	1489	-	-	1201	-	-
Mov Cap-2 Maneuver	560	472	-	403	417	-	-	-	-	-	-	-
Stage 1	851	725	-	547	521	-	-	-	-	-	-	-
Stage 2	691	582	-	655	652	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	13.1	4.2	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1489	-	-	512	967	486	1201	-	-
HCM Lane V/C Ratio	0.06	-	-	0.01	0.074	0.09	0.004	-	-
HCM Control Delay (s)	7.6	-	-	12.1	9	13.1	8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0	0.2	0.3	0	-	-

HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	31	34	2	12	33	12	18	18	18	4
Future Vol, veh/h	4	2	31	34	2	12	33	12	18	18	18	4
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	4	2	34	46	3	16	36	13	29	33	20	4




Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	197	202	22	206	190	28	24	0	0	42	0	0
Stage 1	88	88	-	100	100	-	-	-	-	-	-	-
Stage 2	109	114	-	106	90	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	762	698	1055	756	708	1053	1591	-	-	1580	-	-
Stage 1	920	826	-	911	816	-	-	-	-	-	-	-
Stage 2	896	805	-	905	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	723	668	1055	706	678	1053	1591	-	-	1580	-	-
Mov Cap-2 Maneuver	723	668	-	706	678	-	-	-	-	-	-	-
Stage 1	899	809	-	890	798	-	-	-	-	-	-	-
Stage 2	859	787	-	855	807	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	10.1	3.4	4.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1591	-	-	976	768	1580	-
HCM Lane V/C Ratio	0.023	-	-	0.041	0.084	0.021	-
HCM Control Delay (s)	7.3	-	-	8.8	10.1	7.3	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-




HCM 2010 TWSC
37: Londonderry (North) & Tottenham Ct

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	75	95	16	16	0
Future Vol, veh/h	0	75	95	16	16	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	82	103	17	17	0
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	121	0	-	0	194	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	82	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1467	-	-	-	795	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	941	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1467	-	-	-	795	941
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	941	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1467	-	-	-	785	
HCM Lane V/C Ratio	-	-	-	-	0.022	
HCM Control Delay (s)	0	-	-	-	9.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Background Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	1	30	60	1	46
Future Vol, veh/h	38	1	30	60	1	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	40	40	59	59	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	3	51	102	1	46
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	98	0	299	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	203	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1495	-	692	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1495	-	667	960
Mov Cap-2 Maneuver	-	-	-	-	667	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	801	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.5		9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	951	-	-	1495	-	
HCM Lane V/C Ratio	0.049	-	-	0.034	-	
HCM Control Delay (s)	9	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

Short-Term Background Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	61	13	3	3	116	75	8	3	56	5
Future Vol, veh/h	1	3	61	13	3	3	116	75	8	3	56	5
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	36	36	36	90	90	90	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	67	36	8	8	129	83	9	5	102	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	471	467	106	465	468	88	111	0	0	92	0	0
Stage 1	117	117	-	346	346	-	-	-	-	-	-	-
Stage 2	354	350	-	119	122	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	503	493	948	508	493	970	1479	-	-	1503	-	-
Stage 1	888	799	-	670	635	-	-	-	-	-	-	-
Stage 2	663	633	-	885	795	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	458	449	948	437	449	970	1479	-	-	1503	-	-
Mov Cap-2 Maneuver	458	449	-	437	449	-	-	-	-	-	-	-
Stage 1	811	796	-	612	580	-	-	-	-	-	-	-
Stage 2	591	578	-	816	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	13.4	4.5	0.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1479	-	-	451	948	481	1503	-	-
HCM Lane V/C Ratio	0.087	-	-	0.01	0.071	0.11	0.004	-	-
HCM Control Delay (s)	7.7	-	-	13.1	9.1	13.4	7.4	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.2	0.4	0	-	-







HCM 2010 TWSC
7: Towner Ave & Stapleton Dr

Short-Term Background Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	4	0	195	0	5	2	117	14	0
Future Vol, veh/h	0	0	0	4	0	195	0	5	2	117	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	96	96	96	58	58	58	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	203	0	9	3	186	22	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	1	0	0	122	212	1	117	111	102
Stage 1	-	-	-	-	-	-	1	1	-	110	110	-
Stage 2	-	-	-	-	-	-	121	211	-	7	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1369	-	-	1622	-	-	853	685	1084	859	779	953
Stage 1	-	-	-	-	-	-	1022	895	-	895	804	-
Stage 2	-	-	-	-	-	-	883	728	-	1015	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1369	-	-	1622	-	-	832	683	1084	846	777	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	832	683	-	846	777	-
Stage 1	-	-	-	-	-	-	1022	895	-	895	802	-
Stage 2	-	-	-	-	-	-	856	726	-	1002	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			9.8			10.7		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	764	1369	-	-	1622	-	-	838				
HCM Lane V/C Ratio	0.016	-	-	-	0.003	-	-	0.248				
HCM Control Delay (s)	9.8	0	-	-	7.2	0	-	10.7				
HCM Lane LOS	A	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	1				




HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

Short-Term Background Traffic
PM Peak Hour

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	4	0	31	24	0	32	53	11	15	16	9	7
Future Vol, veh/h	4	0	31	24	0	32	53	11	15	16	9	7
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	4	0	34	32	0	43	58	12	24	29	10	8
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	233	224	14	229	216	24	18	0	0	36	0	0
Stage 1	72	72	-	140	140	-	-	-	-	-	-	-
Stage 2	161	152	-	89	76	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	722	678	1066	730	685	1058	1599	-	-	1588	-	-
Stage 1	938	839	-	868	785	-	-	-	-	-	-	-
Stage 2	841	775	-	923	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	664	641	1066	678	648	1058	1599	-	-	1588	-	-
Mov Cap-2 Maneuver	664	641	-	678	648	-	-	-	-	-	-	-
Stage 1	904	824	-	837	757	-	-	-	-	-	-	-
Stage 2	777	747	-	878	821	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.8			9.6			4.5			4.6		
HCM LOS	A			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1599	-	-	997	853	1588	-	-				
HCM Lane V/C Ratio	0.036	-	-	0.038	0.089	0.018	-	-				
HCM Control Delay (s)	7.3	-	-	8.8	9.6	7.3	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-				






HCM 2010 TWSC
37: Londonderry (North) & Tottenham Ct

Short-Term Background Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	83	90	27	16	0
Future Vol, veh/h	0	83	90	27	16	0
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	90	98	29	17	0
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	127	0	-	0	203	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	90	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1459	-	-	-	786	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1459	-	-	-	786	940
Mov Cap-2 Maneuver	-	-	-	-	780	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	934	-
Approach	EB		WB		SB	
HCM Control Delay, s	0		0		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1459	-	-	-	780	
HCM Lane V/C Ratio	-	-	-	-	0.022	
HCM Control Delay (s)	0	-	-	-	9.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	3.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	9	41	57	0	52
Future Vol, veh/h	115	9	41	57	0	52
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	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	70	70	92	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	125	13	59	62	0	60
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	138	0	310	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1446	-	682	919
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1446	-	654	919
Mov Cap-2 Maneuver	-	-	-	-	654	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	817	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.7		9.2	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	919	-	-	1446	-
HCM Lane V/C Ratio	-	0.066	-	-	0.041	-
HCM Control Delay (s)	0	9.2	-	-	7.6	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-	-	0.1	-

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

Short-Term Total Traffic
AM Peak Hour

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	8	0	64	4	0	6	37	130	8	3	57	7
Future Vol, veh/h	8	0	64	4	0	6	37	130	8	3	57	7
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	10	0	78	8	0	12	43	151	9	4	80	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	342	341	85	336	341	156	90	0	0	160	0	0
Stage 1	94	94	-	242	242	-	-	-	-	-	-	-
Stage 2	248	247	-	94	99	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	612	511	974	468	451	686	1493	-	-	1105	-	-
Stage 1	913	733	-	586	557	-	-	-	-	-	-	-
Stage 2	756	622	-	720	657	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	586	494	974	420	436	686	1493	-	-	1105	-	-
Mov Cap-2 Maneuver	586	494	-	420	436	-	-	-	-	-	-	-
Stage 1	887	730	-	569	541	-	-	-	-	-	-	-
Stage 2	721	604	-	660	655	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	11.8	1.6	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	586	974	547	1105	-	-
HCM Lane V/C Ratio	0.029	-	-	0.017	0.08	0.037	0.004	-	-
HCM Control Delay (s)	7.5	-	-	11.2	9	11.8	8.3	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	0	-	-





HCM 2010 TWSC
7: Towner Ave & Stapleton Dr

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	2	0	160	0	16	2	104	20	0
Future Vol, veh/h	0	1	0	2	0	160	0	16	2	104	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	86	86	86	71	71	71
Heavy Vehicles, %	2	2	2	2	2	4	2	3	2	4	10	2
Mvmt Flow	0	1	0	4	0	320	0	19	2	146	28	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	320	0	0	1	0	0	183	329	1	180	169	160
Stage 1	-	-	-	-	-	-	1	1	-	168	168	-
Stage 2	-	-	-	-	-	-	182	328	-	12	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.53	6.22	7.14	6.6	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.53	-	6.14	5.6	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.027	3.318	3.536	4.09	3.318
Pot Cap-1 Maneuver	1240	-	-	1622	-	-	778	588	1084	777	710	885
Stage 1	-	-	-	-	-	-	1022	893	-	829	745	-
Stage 2	-	-	-	-	-	-	820	645	-	1003	879	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1240	-	-	1622	-	-	753	586	1084	755	708	885
Mov Cap-2 Maneuver	-	-	-	-	-	-	753	586	-	755	708	-
Stage 1	-	-	-	-	-	-	1022	893	-	829	743	-
Stage 2	-	-	-	-	-	-	787	643	-	980	879	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			11			11.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	618	1240	-	-	1622	-	-	747				
HCM Lane V/C Ratio	0.034	-	-	-	0.002	-	-	0.234				
HCM Control Delay (s)	11	0	-	-	7.2	0	-	11.3				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.9				







HCM 2010 TWSC
19: Towner Ave & School Access

Short-Term Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	1	51	68	11	39
Future Vol, veh/h	3	1	51	68	11	39
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	75	75	86	75	75	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1	59	91	15	56
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	190	105	0	0	150	0
Stage 1	105	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	799	949	-	-	1431	-
Stage 1	919	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	791	949	-	-	1431	-
Mov Cap-2 Maneuver	782	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		1.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 818	1431	-		
HCM Lane V/C Ratio	-	- 0.007	0.01	-		
HCM Control Delay (s)	-	- 9.4	7.5	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		








HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	25	12	0	10	26	106	12	10	29	3
Future Vol, veh/h	3	0	25	12	0	10	26	106	12	10	29	3
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	27	16	0	14	28	118	19	18	32	3
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	261	264	34	268	256	127	35	0	0	137	0	0
Stage 1	70	70	-	184	184	-	-	-	-	-	-	-
Stage 2	191	194	-	84	72	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	692	645	1039	689	651	929	1576	-	-	1459	-	-
Stage 1	940	841	-	822	751	-	-	-	-	-	-	-
Stage 2	811	744	-	929	839	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	666	626	1039	656	632	929	1576	-	-	1459	-	-
Mov Cap-2 Maneuver	666	626	-	656	632	-	-	-	-	-	-	-
Stage 1	923	831	-	807	738	-	-	-	-	-	-	-
Stage 2	785	731	-	894	829	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	8.8			10			1.3			2.5		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1576	-	-	980	757	1459	-	-				
HCM Lane V/C Ratio	0.018	-	-	0.031	0.039	0.012	-	-				
HCM Control Delay (s)	7.3	-	-	8.8	10	7.5	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-				






HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

Short-Term Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	95	72	160	62	13	36	3	201	13	8	0
Future Vol, veh/h	0	95	72	160	62	13	36	3	201	13	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	103	78	213	67	14	48	4	268	14	11	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	182	0	0	648	650	142	645	683	74
Stage 1	-	-	-	-	-	-	142	142	-	501	501	-
Stage 2	-	-	-	-	-	-	506	508	-	144	182	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1515	-	-	1393	-	-	383	388	906	385	372	988
Stage 1	-	-	-	-	-	-	861	779	-	552	543	-
Stage 2	-	-	-	-	-	-	549	539	-	859	749	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1515	-	-	1393	-	-	330	329	906	237	315	988
Mov Cap-2 Maneuver	-	-	-	-	-	-	330	329	-	237	315	-
Stage 1	-	-	-	-	-	-	861	779	-	552	460	-
Stage 2	-	-	-	-	-	-	454	457	-	602	749	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.8			11.8			20		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	330	906	1515	-	-	1393	-	-	265			
HCM Lane V/C Ratio	0.158	0.296	-	-	-	0.153	-	-	0.094			
HCM Control Delay (s)	17.9	10.6	0	-	-	8.1	-	-	20			
HCM Lane LOS	C	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	0.6	1.2	0	-	-	0.5	-	-	0.3			








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	3.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	0	53	80	0	48
Future Vol, veh/h	70	0	53	80	0	48
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	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	79	79	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	0	67	101	0	48
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	82	0	317	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1515	-	676	978
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1515	-	646	978
Mov Cap-2 Maneuver	-	-	-	-	646	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	768	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	978	-	-	1515	-
HCM Lane V/C Ratio	-	0.049	-	-	0.044	-
HCM Control Delay (s)	0	8.9	-	-	7.5	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-	-	0.1	-

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	55	11	0	6	79	65	8	4	149	10
Future Vol, veh/h	5	2	55	11	0	6	79	65	8	4	149	10
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	39	39	39	88	88	88	85	85	85
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	6	3	71	28	0	15	90	74	9	5	175	12





Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	457	453	181	450	454	78	187	0	0	83	0	0
Stage 1	191	191	-	258	258	-	-	-	-	-	-	-
Stage 2	266	262	-	192	196	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	514	438	862	386	383	767	1375	-	-	1188	-	-
Stage 1	811	661	-	574	547	-	-	-	-	-	-	-
Stage 2	739	612	-	629	588	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	477	408	862	334	356	767	1375	-	-	1188	-	-
Mov Cap-2 Maneuver	477	408	-	334	356	-	-	-	-	-	-	-
Stage 1	758	658	-	536	511	-	-	-	-	-	-	-
Stage 2	677	572	-	572	586	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	14.6	4.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	455	862	417	1188	-	-
HCM Lane V/C Ratio	0.065	-	-	0.02	0.083	0.105	0.004	-	-
HCM Control Delay (s)	7.8	-	-	13.1	9.6	14.6	8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.3	0.3	0	-	-







HCM 2010 TWSC
19: Towner Ave & School Access

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	11	37	3	1	53
Future Vol, veh/h	68	11	37	3	1	53
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	75	75	86	75	75	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	15	43	4	1	76
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	123	45	0	0	47	0
Stage 1	45	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	872	1025	-	-	1560	-
Stage 1	977	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	871	1025	-	-	1560	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 856	1560	-		
HCM Lane V/C Ratio	-	- 0.123	0.001	-		
HCM Control Delay (s)	-	- 9.8	7.3	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0.4	0	-		








HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh		4.6										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	31	34	2	12	33	25	18	18	99	4
Future Vol, veh/h	4	2	31	34	2	12	33	25	18	18	99	4
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	4	2	34	46	3	16	36	28	29	33	110	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	301	307	112	310	294	42	114	0	0	57	0	0
Stage 1	178	178	-	114	114	-	-	-	-	-	-	-
Stage 2	123	129	-	196	180	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	651	610	941	646	620	1034	1475	-	-	1560	-	-
Stage 1	824	756	-	896	805	-	-	-	-	-	-	-
Stage 2	881	793	-	810	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	617	583	941	600	592	1034	1475	-	-	1560	-	-
Mov Cap-2 Maneuver	617	583	-	600	592	-	-	-	-	-	-	-
Stage 1	804	740	-	874	785	-	-	-	-	-	-	-
Stage 2	843	774	-	762	738	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.4			10.9			2.9			1.6		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1475	-	-	863	670	1560	-	-				
HCM Lane V/C Ratio	0.024	-	-	0.047	0.097	0.021	-	-				
HCM Control Delay (s)	7.5	-	-	9.4	10.9	7.4	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-				






HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

Short-Term Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	86	32	93	95	16	38	4	85	16	3	0
Future Vol, veh/h	0	86	32	93	95	16	38	4	85	16	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	93	35	124	103	17	51	5	113	17	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	121	0	0	128	0	0	473	480	111	474	488	112
Stage 1	-	-	-	-	-	-	111	111	-	360	360	-
Stage 2	-	-	-	-	-	-	362	369	-	114	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1467	-	-	1458	-	-	501	485	942	501	480	941
Stage 1	-	-	-	-	-	-	894	804	-	658	626	-
Stage 2	-	-	-	-	-	-	657	621	-	891	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1467	-	-	1458	-	-	465	444	942	408	439	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	465	444	-	408	439	-
Stage 1	-	-	-	-	-	-	894	804	-	658	573	-
Stage 2	-	-	-	-	-	-	597	568	-	779	790	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.9			10.8			14.2		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	463	942	1467	-	-	1458	-	-	413			
HCM Lane V/C Ratio	0.121	0.12	-	-	-	0.085	-	-	0.052			
HCM Control Delay (s)	13.8	9.3	0	-	-	7.7	-	-	14.2			
HCM Lane LOS	B	A	A	-	-	A	-	-	B			
HCM 95th %tile Q(veh)	0.4	0.4	0	-	-	0.3	-	-	0.2			








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

Short-Term Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	1	36	63	1	51
Future Vol, veh/h	39	1	36	63	1	51
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	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	40	40	59	59	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	3	61	107	1	51
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	100	0	328	99
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	229	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1493	-	666	957
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1493	-	639	957
Mov Cap-2 Maneuver	-	-	-	-	639	-
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	776	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.7		9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	639	957	-	-	1493	-
HCM Lane V/C Ratio	0.002	0.053	-	-	0.041	-
HCM Control Delay (s)	10.6	9	-	-	7.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	61	13	3	3	116	101	8	3	84	6
Future Vol, veh/h	1	3	61	13	3	3	116	101	8	3	84	6
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	36	36	36	90	90	90	55	55	55
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	67	36	8	8	129	112	9	5	153	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	552	548	158	545	549	117	164	0	0	121	0	0
Stage 1	169	169	-	374	374	-	-	-	-	-	-	-
Stage 2	383	379	-	171	175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	444	444	887	449	443	935	1414	-	-	1467	-	-
Stage 1	833	759	-	647	618	-	-	-	-	-	-	-
Stage 2	640	615	-	831	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	402	402	887	383	401	935	1414	-	-	1467	-	-
Mov Cap-2 Maneuver	402	402	-	383	401	-	-	-	-	-	-	-
Stage 1	757	756	-	588	562	-	-	-	-	-	-	-
Stage 2	568	559	-	762	751	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	14.6	4	0.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1414	-	-	402	887	426	1467	-	-
HCM Lane V/C Ratio	0.091	-	-	0.011	0.076	0.124	0.004	-	-
HCM Control Delay (s)	7.8	-	-	14.1	9.4	14.6	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0	0.2	0.4	0	-	-





HCM 2010 TWSC
7: Towner Ave & Stapleton Dr

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	4	0	219	0	6	2	143	15	0
Future Vol, veh/h	0	1	0	4	0	219	0	6	2	143	15	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	96	96	96	58	58	58	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	4	0	228	0	10	3	227	24	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	1	0	0	135	237	1	130	123	114
Stage 1	-	-	-	-	-	-	1	1	-	122	122	-
Stage 2	-	-	-	-	-	-	134	236	-	8	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1340	-	-	1622	-	-	836	664	1084	843	767	939
Stage 1	-	-	-	-	-	-	1022	895	-	882	795	-
Stage 2	-	-	-	-	-	-	869	710	-	1013	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1340	-	-	1622	-	-	814	662	1084	828	765	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	814	662	-	828	765	-
Stage 1	-	-	-	-	-	-	1022	895	-	882	793	-
Stage 2	-	-	-	-	-	-	840	708	-	998	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			10			11.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	733	1340	-	-	1622	-	-	822				
HCM Lane V/C Ratio	0.019	-	-	-	0.003	-	-	0.305				
HCM Control Delay (s)	10	0	-	-	7.2	0	-	11.3				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	1.3				







HCM 2010 TWSC
19: Towner Ave & School Access

Short-Term Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	4	48	25	4	33
Future Vol, veh/h	27	4	48	25	4	33
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	75	75	86	75	75	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	5	56	33	5	47
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	130	72	0	0	89	0
Stage 1	72	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	843	990	-	-	1506	-
Stage 1	938	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	841	990	-	-	1506	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	9.5		0		0.8	
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	834	1506	-	
HCM Lane V/C Ratio	-	-	0.05	0.004	-	
HCM Control Delay (s)	-	-	9.5	7.4	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	








HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	31	24	0	32	53	37	15	16	37	7
Future Vol, veh/h	4	0	31	24	0	32	53	37	15	16	37	7
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	4	0	34	32	0	43	58	41	24	29	41	8
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	293	284	45	288	275	53	49	0	0	65	0	0
Stage 1	103	103	-	168	168	-	-	-	-	-	-	-
Stage 2	190	181	-	120	107	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	659	628	1025	668	636	1020	1558	-	-	1550	-	-
Stage 1	903	814	-	839	763	-	-	-	-	-	-	-
Stage 2	812	754	-	889	811	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	604	593	1025	619	601	1020	1558	-	-	1550	-	-
Mov Cap-2 Maneuver	604	593	-	619	601	-	-	-	-	-	-	-
Stage 1	869	799	-	808	735	-	-	-	-	-	-	-
Stage 2	749	726	-	844	796	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9			10			3.5			2.8		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1558	-	-	949	798	1550	-	-				
HCM Lane V/C Ratio	0.037	-	-	0.04	0.095	0.019	-	-				
HCM Control Delay (s)	7.4	-	-	9	10	7.4	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-				






HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

Short-Term Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	88	2	13	94	27	5	1	10	16	0	0
Future Vol, veh/h	0	88	2	13	94	27	5	1	10	16	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	96	2	17	102	29	7	1	13	17	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	132	0	0	98	0	0	249	263	97	249	250	117
Stage 1	-	-	-	-	-	-	97	97	-	152	152	-
Stage 2	-	-	-	-	-	-	152	166	-	97	98	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1453	-	-	1495	-	-	705	642	959	705	653	935
Stage 1	-	-	-	-	-	-	910	815	-	850	772	-
Stage 2	-	-	-	-	-	-	850	761	-	910	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1453	-	-	1495	-	-	699	635	959	688	646	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	699	635	-	688	646	-
Stage 1	-	-	-	-	-	-	910	815	-	850	763	-
Stage 2	-	-	-	-	-	-	840	752	-	896	814	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			9.4			10.4		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	687	959	1453	-	-	1495	-	-	688			
HCM Lane V/C Ratio	0.012	0.014	-	-	-	0.012	-	-	0.025			
HCM Control Delay (s)	10.3	8.8	0	-	-	7.4	-	-	10.4			
HCM Lane LOS	B	A	A	-	-	A	-	-	B			
HCM 95th %tile Q(veh)	0	0	0	-	-	0	-	-	0.1			








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Background Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	17	79	35	18	81
Future Vol, veh/h	33	17	79	35	18	81
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	92	75	75	92	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	23	105	38	24	108
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	296	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	249	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1545	-	695	1022
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1545	-	648	1022
Mov Cap-2 Maneuver	-	-	-	-	656	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	738	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.5		9.2	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	656	1022	-	-	1545	-
HCM Lane V/C Ratio	0.037	0.106	-	-	0.068	-
HCM Control Delay (s)	10.7	8.9	-	-	7.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.2	-























HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

2040 Background Traffic
AM Peak Hour

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	3	0	64	14	0	7	68	120	21	3	112	3
Future Vol, veh/h	3	0	64	14	0	7	68	120	21	3	112	3
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	75	92	75	86	86	86	71	71	71
Heavy Vehicles, %	2	50	2	35	100	63	2	2	50	36	2	2
Mvmt Flow	4	0	78	19	0	9	79	140	24	4	158	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	483	490	160	478	480	152	162	0	0	164	0	0
Stage 1	168	168	-	310	310	-	-	-	-	-	-	-
Stage 2	315	322	-	168	170	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	7.45	7.5	6.83	4.12	-	-	4.46	-	-
Critical Hdwy Stg 1	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	3.815	4.9	3.867	2.218	-	-	2.524	-	-
Pot Cap-1 Maneuver	494	416	885	447	368	756	1417	-	-	1232	-	-
Stage 1	834	677	-	635	515	-	-	-	-	-	-	-
Stage 2	696	573	-	762	605	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	466	392	885	389	346	756	1417	-	-	1232	-	-
Mov Cap-2 Maneuver	466	392	-	389	346	-	-	-	-	-	-	-
Stage 1	788	675	-	600	486	-	-	-	-	-	-	-
Stage 2	649	541	-	693	603	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.6			13.3			2.5			0.2		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1417	-	-	466	885	464	1232	-	-			
HCM Lane V/C Ratio	0.056	-	-	0.008	0.088	0.06	0.003	-	-			
HCM Control Delay (s)	7.7	-	-	12.8	9.5	13.3	7.9	-	-			
HCM Lane LOS	A	-	-	B	A	B	A	-	-			
HCM 95th %tile Q(veh)	0.2	-	-	0	0.3	0.2	0	-	-			

Timings 7: Towner Ave & Stapleton Dr

2040 Background Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	143	840	15	5	1140	66	50	1	65	1	125
Future Volume (vph)	143	840	15	5	1140	66	50	1	65	1	125
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	10.0	8.0	10.0	
Total Split (s)	15.0	60.0	60.0	10.0	55.0	55.0	10.0	10.0	20.0	20.0	
Total Split (%)	15.0%	60.0%	60.0%	10.0%	55.0%	55.0%	10.0%	10.0%	20.0%	20.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	
Act Effect Green (s)	63.8	63.4	63.4	55.9	50.8	50.8	8.7	5.1	11.3	7.2	81.7
Actuated g/C Ratio	0.78	0.78	0.78	0.68	0.62	0.62	0.11	0.06	0.14	0.09	1.00
v/c Ratio	0.40	0.32	0.01	0.01	0.55	0.07	0.29	0.12	0.38	0.01	0.11
Control Delay	6.9	5.5	0.0	4.6	12.0	0.1	35.9	25.2	36.9	37.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	5.5	0.0	4.6	12.0	0.1	35.9	25.2	36.9	37.0	0.1
LOS	A	A	A	A	B	A	D	C	D	D	A
Approach Delay		5.6			11.3			33.9		12.8	
Approach LOS		A			B			C		B	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 81.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 9.8

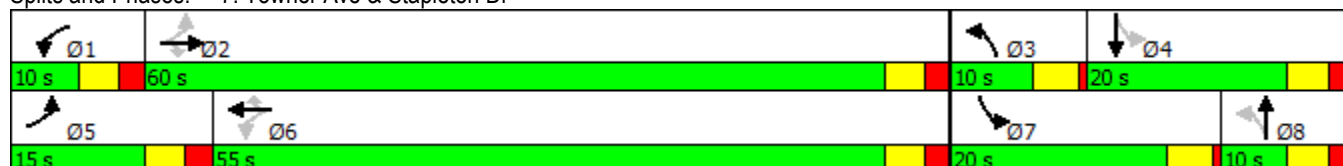
Intersection LOS: A







Intersection Capacity Utilization 62.2%





ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Towner Ave & Stapleton Dr








Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	27	12	0	10	28	90	12	10	79	3
Future Vol, veh/h	3	0	27	12	0	10	28	90	12	10	79	3
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	86	86	86	70	70	70
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	29	13	0	11	33	105	14	14	113	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	326	328	115	335	323	112	117	0	0	119	0	0
Stage 1	144	144	-	177	177	-	-	-	-	-	-	-
Stage 2	182	184	-	158	146	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	627	594	937	622	598	947	1471	-	-	1482	-	-
Stage 1	859	782	-	829	756	-	-	-	-	-	-	-
Stage 2	820	751	-	849	780	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	605	575	937	588	579	947	1471	-	-	1482	-	-
Mov Cap-2 Maneuver	605	575	-	588	579	-	-	-	-	-	-	-
Stage 1	840	775	-	810	739	-	-	-	-	-	-	-
Stage 2	792	734	-	815	773	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.2			10.2			1.6			0.8		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1471	-	-	888	710	1482	-	-				
HCM Lane V/C Ratio	0.022	-	-	0.037	0.034	0.01	-	-				
HCM Control Delay (s)	7.5	-	-	9.2	10.2	7.5	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-				

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	108	108	7	7	5
Future Vol, veh/h	6	108	108	7	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	117	117	8	8	5
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	125	0	-	0	251	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1462	-	-	-	738	930
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1462	-	-	-	734	930
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	892	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.4		0		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1462	-	-	-	812	
HCM Lane V/C Ratio	0.004	-	-	-	0.016	
HCM Control Delay (s)	7.5	-	-	-	9.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Background Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	5.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	21	78	44	22	78
Future Vol, veh/h	40	21	78	44	22	78
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	68	75	75	92	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	59	28	104	48	29	104
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	329	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	256	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1509	-	665	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	787	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1509	-	619	989
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	733	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.2		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	619	989	-	-	1509	-
HCM Lane V/C Ratio	0.047	0.105	-	-	0.069	-
HCM Control Delay (s)	11.1	9.1	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.2	-







HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

2040 Background Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	80	24	0	7	86	128	25	4	136	3
Future Vol, veh/h	3	2	80	24	0	7	86	128	25	4	136	3
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	75	75	75	88	88	88	85	85	85
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	4	3	104	32	0	9	98	145	28	5	160	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	531	540	162	527	528	160	164	0	0	174	0	0
Stage 1	171	171	-	355	355	-	-	-	-	-	-	-
Stage 2	360	369	-	172	173	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	459	388	883	339	343	682	1402	-	-	1091	-	-
Stage 1	831	675	-	501	488	-	-	-	-	-	-	-
Stage 2	658	545	-	646	603	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	427	359	883	281	318	682	1402	-	-	1091	-	-
Mov Cap-2 Maneuver	427	359	-	281	318	-	-	-	-	-	-	-
Stage 1	773	672	-	466	454	-	-	-	-	-	-	-
Stage 2	604	507	-	565	600	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.9			17.7			2.8			0.2		
HCM LOS	A			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1402	-	-	397	883	324	1091	-	-			
HCM Lane V/C Ratio	0.07	-	-	0.016	0.118	0.128	0.004	-	-			
HCM Control Delay (s)	7.8	-	-	14.2	9.6	17.7	8.3	-	-			
HCM Lane LOS	A	-	-	B	A	C	A	-	-			
HCM 95th %tile Q(veh)	0.2	-	-	0.1	0.4	0.4	0	-	-			

HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.





2040 Background Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	33	34	0	12	35	85	18	18	77	4
Future Vol, veh/h	3	0	33	34	0	12	35	85	18	18	77	4
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	-	-	-	-	-	-	150	-	-	150	-	-
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	50	92	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	36	37	0	13	38	92	20	36	84	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	343	346	86	354	338	102	88	0	0	112	0	0
Stage 1	158	158	-	178	178	-	-	-	-	-	-	-
Stage 2	185	188	-	176	160	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	611	580	973	605	586	959	1508	-	-	1490	-	-
Stage 1	844	771	-	828	756	-	-	-	-	-	-	-
Stage 2	817	748	-	831	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	580	552	973	561	557	959	1508	-	-	1490	-	-
Mov Cap-2 Maneuver	580	552	-	561	557	-	-	-	-	-	-	-
Stage 1	823	752	-	807	737	-	-	-	-	-	-	-
Stage 2	786	729	-	781	750	-	-	-	-	-	-	-






Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	11.2	1.9	2.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	921 629	1490	-	-
HCM Lane V/C Ratio	0.025	-	-	0.042 0.079	0.024	-	-
HCM Control Delay (s)	7.4	-	-	9.1 11.2	7.5	-	-
HCM Lane LOS	A	-	-	A B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1 0.3	0.1	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	111	115	9	8	7
Future Vol, veh/h	7	111	115	9	8	7
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	121	125	10	9	8
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	135	0	-	0	266	130
Stage 1	-	-	-	-	130	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1449	-	-	-	723	920
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1449	-	-	-	719	920
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	885	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.4		0		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1449	-	-	-	810	
HCM Lane V/C Ratio	0.005	-	-	-	0.02	
HCM Control Delay (s)	7.5	-	-	-	9.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Background Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	21	99	70	36	147
Future Vol, veh/h	41	21	99	70	36	147
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	23	108	76	39	160
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	347	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1535	-	650	1011
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1535	-	604	1011
Mov Cap-2 Maneuver	-	-	-	-	604	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	706	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.4		9.6	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	604	1011	-	-	1535	-
HCM Lane V/C Ratio	0.065	0.158	-	-	0.07	-
HCM Control Delay (s)	11.4	9.2	-	-	7.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.6	-	-	0.2	-

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr (South)

2040 Background Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	81	25	3	4	138	210	35	4	149	6
Future Vol, veh/h	3	3	81	25	3	4	138	210	35	4	149	6
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	-	-	0	-	-	-	175	-	-	290	-	-
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, %	2	50	2	35	100	63	2	2	50	36	2	2
Mvmt Flow	3	3	88	27	3	4	150	228	38	4	162	7























Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	725	740	165	723	724	247	168	0	0	266	0	0
Stage 1	174	174	-	547	547	-	-	-	-	-	-	-
Stage 2	551	566	-	176	177	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	7.45	7.5	6.83	4.12	-	-	4.46	-	-
Critical Hdwy Stg 1	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	3.815	4.9	3.867	2.218	-	-	2.524	-	-
Pot Cap-1 Maneuver	340	293	879	303	256	663	1410	-	-	1125	-	-
Stage 1	828	673	-	467	388	-	-	-	-	-	-	-
Stage 2	519	438	-	755	601	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	306	261	879	247	228	663	1410	-	-	1125	-	-
Mov Cap-2 Maneuver	306	261	-	247	228	-	-	-	-	-	-	-
Stage 1	740	671	-	417	347	-	-	-	-	-	-	-
Stage 2	456	391	-	674	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	20.6	2.8	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1410	-	-	282	879	266	1125	-	-
HCM Lane V/C Ratio	0.106	-	-	0.023	0.1	0.131	0.004	-	-
HCM Control Delay (s)	7.9	-	-	18.1	9.6	20.6	8.2	-	-
HCM Lane LOS	A	-	-	C	A	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	0.3	0.4	0	-	-

Timings
7: Towner Ave & Stapleton Dr

2040 Background Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	269	1312	50	29	592	113	25	1	89	1	165
Future Volume (vph)	269	1312	50	29	592	113	25	1	89	1	165
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	10.0	8.0	10.0	
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	10.0	10.0	15.0	15.0	
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	10.0%	10.0%	15.0%	15.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	
Act Effect Green (s)	68.0	66.4	66.4	65.8	60.7	60.7	9.7	5.1	11.1	7.6	90.4
Actuated g/C Ratio	0.75	0.73	0.73	0.73	0.67	0.67	0.11	0.06	0.12	0.08	1.00
v/c Ratio	0.49	0.53	0.04	0.11	0.26	0.11	0.14	0.22	0.46	0.01	0.11
Control Delay	8.1	9.6	0.1	4.9	7.6	0.8	35.7	23.8	44.6	42.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	9.6	0.1	4.9	7.6	0.8	35.7	23.8	44.6	42.0	0.1
LOS	A	A	A	A	A	A	D	C	D	D	A
Approach Delay		9.0			6.4			30.1		15.9	
Approach LOS		A			A			C		B	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 90.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 9.4

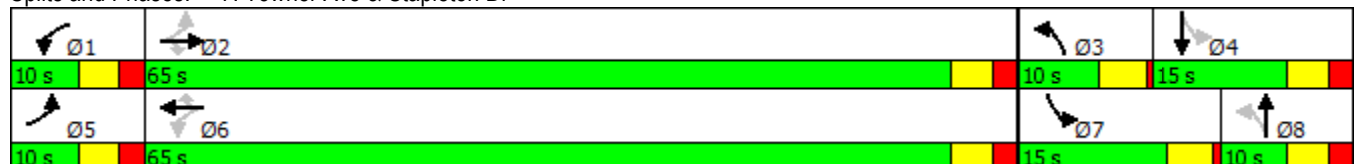
Intersection LOS: A







Intersection Capacity Utilization 63.7%





ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Towner Ave & Stapleton Dr








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	3	0	33	24	0	32	57	145	15	16	101	6
Future Vol, veh/h	3	0	33	24	0	32	57	145	15	16	101	6
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	36	32	0	43	62	161	24	29	112	7
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	493	483	115	489	474	173	119	0	0	185	0	0
Stage 1	174	174	-	297	297	-	-	-	-	-	-	-
Stage 2	319	309	-	192	177	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	486	486	937	493	492	876	1469	-	-	1402	-	-
Stage 1	828	759	-	716	671	-	-	-	-	-	-	-
Stage 2	693	663	-	814	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	440	456	937	452	461	876	1469	-	-	1402	-	-
Mov Cap-2 Maneuver	440	456	-	452	461	-	-	-	-	-	-	-
Stage 1	793	743	-	686	643	-	-	-	-	-	-	-
Stage 2	631	635	-	767	740	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.4			11.6			1.9			1.5		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1469	-	-	856	625	1402	-	-				
HCM Lane V/C Ratio	0.042	-	-	0.046	0.121	0.021	-	-				
HCM Control Delay (s)	7.6	-	-	9.4	11.6	7.6	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.4	0.1	-	-				

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	177	161	14	9	7
Future Vol, veh/h	12	177	161	14	9	7
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	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	192	175	15	10	8
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	190	0	-	0	401	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1384	-	-	-	605	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1384	-	-	-	599	859
Mov Cap-2 Maneuver	-	-	-	-	651	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	810	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.5		0		10.1	
HCM LOS					B	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1384	-	-	-	728	
HCM Lane V/C Ratio	0.009	-	-	-	0.024	
HCM Control Delay (s)	7.6	-	-	-	10.1	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	105	17	259	63	18	172
Future Vol, veh/h	105	17	259	63	18	172
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	92	75	75	92	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	23	345	68	24	229
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	137	0	884	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	759	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1447	-	316	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1447	-	241	926
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	352	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.9		10.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	307	926	-	-	1447	-
HCM Lane V/C Ratio	0.078	0.248	-	-	0.239	-
HCM Control Delay (s)	17.7	10.2	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	1	-	-	0.9	-























HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	64	14	0	7	68	294	21	3	276	10
Future Vol, veh/h	21	0	64	14	0	7	68	294	21	3	276	10
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	75	92	75	86	86	86	71	71	71
Heavy Vehicles, %	2	50	2	35	100	63	2	2	50	36	2	2
Mvmt Flow	26	0	78	19	0	9	79	342	24	4	389	14
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	921	928	396	916	923	354	403	0	0	366	0	0
Stage 1	404	404	-	512	512	-	-	-	-	-	-	-
Stage 2	517	524	-	404	411	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	7.45	7.5	6.83	4.12	-	-	4.46	-	-
Critical Hdwy Stg 1	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	3.815	4.9	3.867	2.218	-	-	2.524	-	-
Pot Cap-1 Maneuver	251	224	653	222	189	572	1156	-	-	1028	-	-
Stage 1	623	524	-	489	405	-	-	-	-	-	-	-
Stage 2	541	459	-	562	457	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	233	208	653	185	175	572	1156	-	-	1028	-	-
Mov Cap-2 Maneuver	233	208	-	185	175	-	-	-	-	-	-	-
Stage 1	580	522	-	456	377	-	-	-	-	-	-	-
Stage 2	496	428	-	493	455	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	14			22.1			1.5			0.1		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1156	-	-	233	653	239	1028	-	-			
HCM Lane V/C Ratio	0.068	-	-	0.11	0.12	0.117	0.004	-	-			
HCM Control Delay (s)	8.3	-	-	22.4	11.3	22.1	8.5	-	-			
HCM Lane LOS	A	-	-	C	B	C	A	-	-			
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.4	0.4	0	-	-			

Timings
7: Towner Ave & Stapleton Dr

2040 Total Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	252	840	15	5	1140	112	50	19	67	19	268
Future Volume (vph)	252	840	15	5	1140	112	50	19	67	19	268
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	10.0	8.0	10.0	
Total Split (s)	15.0	60.0	60.0	10.0	55.0	55.0	10.0	10.0	20.0	20.0	
Total Split (%)	15.0%	60.0%	60.0%	10.0%	55.0%	55.0%	10.0%	10.0%	20.0%	20.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	
Act Effect Green (s)	65.9	65.4	65.4	56.0	50.9	50.9	10.8	5.1	13.5	8.5	87.8
Actuated g/C Ratio	0.75	0.74	0.74	0.64	0.58	0.58	0.12	0.06	0.15	0.10	1.00
v/c Ratio	0.70	0.34	0.01	0.01	0.59	0.12	0.24	0.29	0.38	0.16	0.24
Control Delay	20.6	7.0	0.0	5.8	15.3	1.1	33.6	38.9	37.5	40.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	7.0	0.0	5.8	15.3	1.1	33.6	38.9	37.5	40.9	0.4
LOS	C	A	A	A	B	A	C	D	D	D	A
Approach Delay		10.0			14.0			35.6		9.6	
Approach LOS		A			B			D		A	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 87.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 12.4

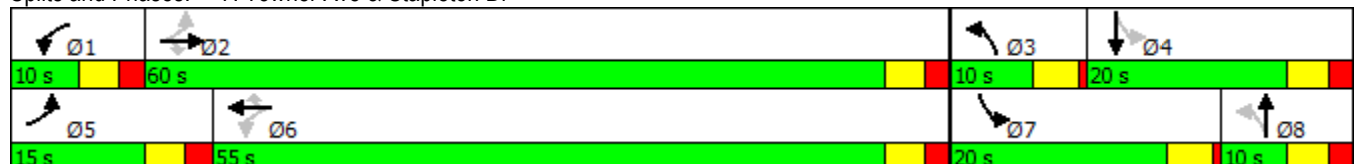
Intersection LOS: B

Intersection Capacity Utilization 68.4%

ICU Level of Service C





Analysis Period (min) 15

Splits and Phases: 7: Towner Ave & Stapleton Dr









HCM 2010 TWSC
19: Towner Ave & School Access

2040 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	1	192	102	14	258
Future Vol, veh/h	5	1	192	102	14	258
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	75	75	92	75	75	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	209	136	19	280
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	595	277	0	0	345	0
Stage 1	277	-	-	-	-	-
Stage 2	318	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	467	762	-	-	1214	-
Stage 1	770	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	460	762	-	-	1214	-
Mov Cap-2 Maneuver	551	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	11.3		0		0.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 578	1214	-		
HCM Lane V/C Ratio	-	- 0.014	0.015	-		
HCM Control Delay (s)	-	- 11.3	8	-		
HCM Lane LOS	-	- B	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

HCM 2010 TWSC
20: Towner Ave & East Site Access/Falcon M.S.

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	27	12	0	10	28	282	12	10	250	3
Future Vol, veh/h	3	0	27	12	0	10	28	282	12	10	250	3
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	86	86	86	70	70	70
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	29	13	0	11	33	328	14	14	357	4








Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	793	795	359	803	790	335	361	0	0	342	0	0
Stage 1	388	388	-	400	400	-	-	-	-	-	-	-
Stage 2	405	407	-	403	390	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	306	323	685	304	325	712	1198	-	-	1228	-	-
Stage 1	636	612	-	630	605	-	-	-	-	-	-	-
Stage 2	622	601	-	628	611	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	292	311	685	282	312	712	1198	-	-	1228	-	-
Mov Cap-2 Maneuver	292	311	-	282	312	-	-	-	-	-	-	-
Stage 1	618	605	-	613	588	-	-	-	-	-	-	-
Stage 2	596	584	-	594	604	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	14.9	0.7	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1198	-	-	604	389	1228	-
HCM Lane V/C Ratio	0.027	-	-	0.054	0.061	0.012	-
HCM Control Delay (s)	8.1	-	-	11.3	14.9	8	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-






HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	43.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	109	162	185	122	7	194	5	161	7	13	5
Future Vol, veh/h	6	109	162	185	122	7	194	5	161	7	13	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	118	176	247	133	8	259	7	215	8	17	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	140	0	0	295	0	0	861	854	207	853	938	136
Stage 1	-	-	-	-	-	-	220	220	-	630	630	-
Stage 2	-	-	-	-	-	-	641	634	-	223	308	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1443	-	-	1266	-	-	276	296	833	279	264	913
Stage 1	-	-	-	-	-	-	782	721	-	470	475	-
Stage 2	-	-	-	-	-	-	463	473	-	780	660	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1443	-	-	1266	-	-	~ 218	237	833	172	211	913
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 218	237	-	172	211	-
Stage 1	-	-	-	-	-	-	778	718	-	468	382	-
Stage 2	-	-	-	-	-	-	354	381	-	571	657	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			5.4			102.8			23		
HCM LOS							F			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	218	833	1443	-	-	1266	-	-	230			
HCM Lane V/C Ratio	1.217	0.258	0.005	-	-	0.195	-	-	0.132			
HCM Control Delay (s)	177.3	10.8	7.5	-	-	8.5	-	-	23			
HCM Lane LOS	F	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	13.4	1	0	-	-	0.7	-	-	0.4			
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	21	127	82	22	159
Future Vol, veh/h	71	21	127	82	22	159
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	68	75	75	92	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	28	169	89	29	212
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	132	0	546	118
Stage 1	-	-	-	-	118	-
Stage 2	-	-	-	-	428	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1453	-	499	934
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	657	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1453	-	441	934
Mov Cap-2 Maneuver	-	-	-	-	441	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	581	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		5.1		10.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	934	-	-	1453	-
HCM Lane V/C Ratio	0.067	0.227	-	-	0.117	-
HCM Control Delay (s)	13.7	10	-	-	7.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.9	-	-	0.4	-





HCM 2010 TWSC
6: Towner Ave & Londonderry Dr/Falcon MS Access

2040 Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	2	80	24	0	7	86	193	25	4	276	13
Future Vol, veh/h	11	2	80	24	0	7	86	193	25	4	276	13
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	-	-	0	-	-	-	175	-	-	290	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	75	75	75	88	88	88	85	85	85
Heavy Vehicles, %	2	50	2	100	100	100	4	2	85	67	2	2
Mvmt Flow	14	3	104	32	0	9	98	219	28	5	325	15
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	785	332	772	778	234	340	0	0	248	0	0
Stage 1	342	342	-	429	429	-	-	-	-	-	-	-
Stage 2	434	443	-	343	349	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	8.1	7.5	7.2	4.14	-	-	4.77	-	-
Critical Hdwy Stg 1	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	7.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	4.4	4.9	4.2	2.236	-	-	2.803	-	-
Pot Cap-1 Maneuver	315	275	710	223	236	613	1208	-	-	1017	-	-
Stage 1	673	561	-	451	447	-	-	-	-	-	-	-
Stage 2	600	502	-	509	491	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	251	710	177	216	613	1208	-	-	1017	-	-
Mov Cap-2 Maneuver	290	251	-	177	216	-	-	-	-	-	-	-
Stage 1	618	558	-	414	411	-	-	-	-	-	-	-
Stage 2	543	461	-	430	489	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12			26.2			2.3			0.1		
HCM LOS	B			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1208	-	-	283	710	211	1017	-	-			
HCM Lane V/C Ratio	0.081	-	-	0.06	0.146	0.196	0.005	-	-			
HCM Control Delay (s)	8.2	-	-	18.5	10.9	26.2	8.6	-	-			
HCM Lane LOS	A	-	-	C	B	D	A	-	-			
HCM 95th %tile Q(veh)	0.3	-	-	0.2	0.5	0.7	0	-	-			







HCM 2010 TWSC
19: Towner Ave & School Access

2040 Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	102	14	167	5	1	147
Future Vol, veh/h	102	14	167	5	1	147
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	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	19	223	7	1	196
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	425	226	0	0	229	0
Stage 1	226	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	586	813	-	-	1339	-
Stage 1	812	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	586	813	-	-	1339	-
Mov Cap-2 Maneuver	643	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	12.1		0		0.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 660	1339	-		
HCM Lane V/C Ratio	-	- 0.234	0.001	-		
HCM Control Delay (s)	-	- 12.1	7.7	-		
HCM Lane LOS	-	- B	A	-		
HCM 95th %tile Q(veh)	-	- 0.9	0	-		








HCM 2010 TWSC
20: Towner Ave & Fil 13 C Access/Falcon M.S.

2040 Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	33	34	0	12	35	158	18	18	227	4
Future Vol, veh/h	3	0	33	34	0	12	35	158	18	18	227	4
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	-	-	-	-	-	-	150	-	-	150	-	-
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	50	92	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	36	37	0	13	38	172	20	36	247	4
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	585	588	249	597	581	182	251	0	0	191	0	0
Stage 1	321	321	-	258	258	-	-	-	-	-	-	-
Stage 2	264	267	-	339	323	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	422	424	790	418	428	866	1314	-	-	1395	-	-
Stage 1	691	655	-	751	698	-	-	-	-	-	-	-
Stage 2	741	692	-	680	654	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	399	401	790	383	405	866	1314	-	-	1395	-	-
Mov Cap-2 Maneuver	399	401	-	383	405	-	-	-	-	-	-	-
Stage 1	671	638	-	729	678	-	-	-	-	-	-	-
Stage 2	709	672	-	632	637	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.2			14			1.3			1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1314	-	-	730	448	1395	-	-				
HCM Lane V/C Ratio	0.029	-	-	0.054	0.112	0.026	-	-				
HCM Control Delay (s)	7.8	-	-	10.2	14	7.6	-	-				
HCM Lane LOS	A	-	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0.1	-	-				






HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

2040 Total Traffic
School Peak Hour (3:15 to 4:15 PM)

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	125	98	90	116	9	86	7	99	8	4	7
Future Vol, veh/h	7	125	98	90	116	9	86	7	99	8	4	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	136	107	120	126	10	115	9	132	9	5	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	242	0	0	581	580	189	580	629	131
Stage 1	-	-	-	-	-	-	204	204	-	371	371	-
Stage 2	-	-	-	-	-	-	377	376	-	209	258	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1448	-	-	1324	-	-	425	426	853	426	399	919
Stage 1	-	-	-	-	-	-	798	733	-	649	620	-
Stage 2	-	-	-	-	-	-	644	616	-	793	694	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1324	-	-	386	385	853	328	361	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	385	-	328	361	-
Stage 1	-	-	-	-	-	-	794	729	-	645	564	-
Stage 2	-	-	-	-	-	-	575	560	-	658	690	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			3.7			14.2			13.7		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	386	853	1448	-	-	1324	-	-	437			
HCM Lane V/C Ratio	0.321	0.155	0.005	-	-	0.091	-	-	0.05			
HCM Control Delay (s)	18.7	10	7.5	-	-	8	-	-	13.7			
HCM Lane LOS	C	B	A	-	-	A	-	-	B			
HCM 95th %tile Q(veh)	1.4	0.5	0	-	-	0.3	-	-	0.2			








HCM 2010 TWSC
5: Towner Ave & Londonderry (North)

2040 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	6.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	21	110	74	36	163
Future Vol, veh/h	43	21	110	74	36	163
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	23	120	80	39	177
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	70	0	378	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	320	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1531	-	624	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	736	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1531	-	575	1008
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	678	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.5		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	1008	-	-	1531	-
HCM Lane V/C Ratio	0.068	0.176	-	-	0.078	-
HCM Control Delay (s)	11.7	9.3	-	-	7.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.6	-	-	0.3	-

HCM 2010 TWSC
6: Towner Ave & Londonderry Dr (South)

2040 Total Traffic
PM Peak Hour

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	4	3	81	25	3	4	138	259	35	4	195	7
Future Vol, veh/h	4	3	81	25	3	4	138	259	35	4	195	7
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	-	-	0	-	-	-	175	-	-	290	-	-
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, %	2	50	2	35	100	63	2	2	50	36	2	2
Mvmt Flow	4	3	88	27	3	4	150	282	38	4	212	8























Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	828	844	216	827	829	301	220	0	0	320	0	0
Stage 1	224	224	-	601	601	-	-	-	-	-	-	-
Stage 2	604	620	-	226	228	-	-	-	-	-	-	-
Critical Hdwy	7.12	7	6.22	7.45	7.5	6.83	4.12	-	-	4.46	-	-
Critical Hdwy Stg 1	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	6	-	6.45	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.45	3.318	3.815	4.9	3.867	2.218	-	-	2.524	-	-
Pot Cap-1 Maneuver	290	252	824	256	218	616	1349	-	-	1071	-	-
Stage 1	779	638	-	435	363	-	-	-	-	-	-	-
Stage 2	485	412	-	708	566	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	259	223	824	206	193	616	1349	-	-	1071	-	-
Mov Cap-2 Maneuver	259	223	-	206	193	-	-	-	-	-	-	-
Stage 1	692	636	-	387	323	-	-	-	-	-	-	-
Stage 2	424	366	-	627	564	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	24.1	2.6	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1349	-	-	242	824	223	1071	-	-
HCM Lane V/C Ratio	0.111	-	-	0.031	0.107	0.156	0.004	-	-
HCM Control Delay (s)	8	-	-	20.4	9.9	24.1	8.4	-	-
HCM Lane LOS	A	-	-	C	A	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	0.4	0.5	0	-	-

Timings
7: Towner Ave & Stapleton Dr

2040 Total Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	299	1312	50	29	592	131	25	2	108	2	191
Future Volume (vph)	299	1312	50	29	592	131	25	2	108	2	191
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6		6	8		4		Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	10.0	8.0	10.0	
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	10.0	10.0	15.0	15.0	
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	10.0%	10.0%	15.0%	15.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.0	3.5	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.5	2.0	0.5	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	
Act Effect Green (s)	67.4	64.5	64.5	65.3	60.2	60.2	9.8	5.0	11.7	8.1	92.9
Actuated g/C Ratio	0.73	0.69	0.69	0.70	0.65	0.65	0.11	0.05	0.13	0.09	1.00
v/c Ratio	0.57	0.56	0.05	0.12	0.27	0.13	0.14	0.23	0.55	0.01	0.13
Control Delay	10.1	10.1	0.1	5.1	8.0	1.3	35.8	25.0	48.0	41.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	10.1	0.1	5.1	8.0	1.3	35.8	25.0	48.0	41.5	0.2
LOS	B	B	A	A	A	A	D	C	D	D	A
Approach Delay		9.8			6.7			30.6		17.5	
Approach LOS		A			A			C		B	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 92.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 10.2

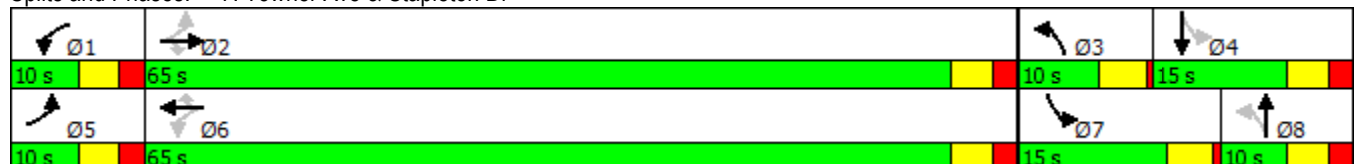
Intersection LOS: B

Intersection Capacity Utilization 64.8%

ICU Level of Service C





Analysis Period (min) 15

Splits and Phases: 7: Towner Ave & Stapleton Dr









HCM 2010 TWSC
19: Towner Ave & School Access

2040 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	6	191	39	5	128
Future Vol, veh/h	40	6	191	39	5	128
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	7	208	42	5	139
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	379	229	0	0	250	0
Stage 1	229	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	623	810	-	-	1316	-
Stage 1	809	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	621	810	-	-	1316	-
Mov Cap-2 Maneuver	665	-	-	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	10.7		0		0.3	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 681	1316	-		
HCM Lane V/C Ratio	-	- 0.073	0.004	-		
HCM Control Delay (s)	-	- 10.7	7.7	-		
HCM Lane LOS	-	- B	A	-		
HCM 95th %tile Q(veh)	-	- 0.2	0	-		








HCM 2010 TWSC
20: Towner Ave & Fil 13C Access/Falcon M.S.

2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	33	24	0	32	57	194	15	16	147	6
Future Vol, veh/h	3	0	33	24	0	32	57	194	15	16	147	6
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	-	-	-	-	-	-	150	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	74	74	74	92	90	62	55	90	92
Heavy Vehicles, %	2	0	2	0	0	0	2	2	0	0	2	2
Mvmt Flow	3	0	36	32	0	43	62	216	24	29	163	7
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	598	589	167	595	580	228	170	0	0	240	0	0
Stage 1	225	225	-	352	352	-	-	-	-	-	-	-
Stage 2	373	364	-	243	228	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.22	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.318	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	414	423	877	419	428	816	1407	-	-	1339	-	-
Stage 1	778	721	-	669	635	-	-	-	-	-	-	-
Stage 2	648	627	-	765	719	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	373	396	877	382	400	816	1407	-	-	1339	-	-
Mov Cap-2 Maneuver	373	396	-	382	400	-	-	-	-	-	-	-
Stage 1	744	705	-	640	607	-	-	-	-	-	-	-
Stage 2	587	599	-	718	703	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.8			12.6			1.6			1.1		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1407	-	-	788	549	1339	-	-				
HCM Lane V/C Ratio	0.044	-	-	0.05	0.138	0.022	-	-				
HCM Control Delay (s)	7.7	-	-	9.8	12.6	7.7	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.5	0.1	-	-				

HCM 2010 TWSC
37: School Access/Tottenham Ct & Londonderry (North)

2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	183	12	9	167	14	10	1	12	9	0	7
Future Vol, veh/h	12	183	12	9	167	14	10	1	12	9	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	75	92	92	75	75	75	92	75	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	199	13	12	182	15	13	1	16	10	0	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	197	0	0	212	0	0	449	453	205	445	451	189
Stage 1	-	-	-	-	-	-	232	232	-	213	213	-
Stage 2	-	-	-	-	-	-	217	221	-	232	238	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1376	-	-	1358	-	-	520	503	836	523	504	853
Stage 1	-	-	-	-	-	-	771	713	-	789	726	-
Stage 2	-	-	-	-	-	-	785	720	-	771	708	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1376	-	-	1358	-	-	508	494	836	505	495	853
Mov Cap-2 Maneuver	-	-	-	-	-	-	508	494	-	505	495	-
Stage 1	-	-	-	-	-	-	764	706	-	782	720	-
Stage 2	-	-	-	-	-	-	771	714	-	748	701	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			10.8			11		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	507	836	1376	-	-	1358	-	-	615			
HCM Lane V/C Ratio	0.029	0.019	0.009	-	-	0.009	-	-	0.028			
HCM Control Delay (s)	12.3	9.4	7.6	-	-	7.7	-	-	11			
HCM Lane LOS	B	A	A	-	-	A	-	-	B			
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	0.1			