

July 2015

# Olive-Mary Stitt Elementary School

*Traffic and Parking Study*



*Prepared for:*

Arlington Heights  
School District 25

Eriksson Engineering Associates, Ltd.

145 Commerce Drive, Suite A

Grayslake, IL 60030

(847) 223-4804

601 W. Randolph St., Suite 500

Chicago, IL 60661

(312) 463-0551

## INTRODUCTION

Eriksson Engineering Associates, Ltd. (EEA) was retained by Arlington Heights School District 25 (AHSD 25) to conduct a traffic and parking study for the proposed expansion of Olive-Mary Stitt Elementary School in Arlington Heights, Illinois. Olive-Mary Stitt School is located on the south side of Olive Street east of Arlington Heights Road. The current enrollment of the school is 599 students in Kindergarten through 5<sup>th</sup> grade with 68 staff members.

The school expansion will serve the projected growth in student population with a new gym and classrooms. Student population is expected to grow 7% to 642 students over a period of several years. The number of staff is expected to remain at 68.

The purpose of the study was to observe the existing traffic patterns around the school, determine the traffic characteristics of the existing and expanded school, review the parking needs, and develop roadway and parking recommendations.

## EXISTING CONDITIONS

### Site Location and Area Land-Uses

The existing school is located at the southeast corner of Arlington Heights Road and Olive Street in Arlington Heights, Illinois within in a single-family neighborhood. Two churches are west and northeast of the school. Thomas Middle School is located a quarter mile to the north. **Figure 1** illustrates the site location and the surrounding land-uses and roads. (Note: all figures are located at the end of the report).

### Bicycle and Pedestrian Routes

Douglas and Belmont Avenues are designated on-street bike routes. Olive Street, east of Belmont Avenue, is a proposed bikeway route. Public sidewalks are located on both sides of the streets around the school. The All-Way Stop Controlled (AWSC) intersections on Olive Street at Belmont and Douglas Avenues have crosswalks.

### Roadway Characteristics

A description of the area roadways providing access to the site is provided below:

**Arlington Heights Road** is a north-south major arterial roadway extending from Elk Grove Village thru Arlington Heights to Long Grove. It has two travel lanes in each direction without a center median. At Olive Street, Arlington Heights Road is signalized and has shared thru/right and shared thru/left-turn lanes with painted crosswalks in both directions. The posted speed limit is 30 miles per hour and is under the jurisdiction of the Illinois Department of Transportation (IDOT).

**Olive Street** is a local road that extends between Windsor Drive and Ridge Road. It has one travel lane in each direction at its signalized intersection with Arlington Heights Road and its AWSC intersections at Belmont and Douglas Avenues. The posted speed limit is 25 miles per hour with a 20 mph school speed zone by the school. It is under the jurisdiction of the Village of Arlington Heights.

**Douglas Avenue** is a local road that extends east of the school with one travel lane in each direction. The posted speed limit is 25 miles per hour and is under the jurisdiction of the Village of Arlington Heights.

**Belmont Avenue** is a local road extending north of Olive Street and is a cul-de-sac south of the school. The posted speed limit is 25 miles per hour and is under the jurisdiction of the Village of Arlington Heights.

**Harwood Avenue** is a local residential road that ends in a cul-de-sac north of Olive Street. It has a speed limit of 25 miles per hour and is under the jurisdiction of the Village of Arlington Heights.

**Pine Avenue** is a local residential road that ends in a cul-de-sac north of Olive Street and is a cul-de-sac south of the school. It has a speed limit of 25 miles per hour and is under the jurisdiction of the Village of Arlington Heights.

**Figure 2** illustrates the existing loading and parking regulations around the school.

### **Existing Traffic Volumes**

Olive-Mary Stitt School starts the school day at 9:05 AM and ends at 3:35 PM. Weekday morning (8:00 to 9:30 AM) and afternoon (3:00 to 4:30 PM) manual traffic counts of vehicles and pedestrians were conducted in May, 2015 at the following intersections:

- Arlington Heights Road and Olive Street
- Belmont Avenue/School Parking Lot Exit and Olive Street
- Harwood Avenue/School Parking Lot Entrance and Olive Street
- The Orchard Evangelical Free Church Parking Lot Drive on Olive Street
- Douglas Avenue and Olive Street
- Belmont Avenue and Pine Avenue

These counts showed the peak-hours of traffic occurring from 8:15 to 9:15 AM and 3:15 to 4:15 PM on a weekday. The existing traffic volumes are shown in **Figure 3** and included in the **Appendix**.

### **School Observations**

School bus loading occurs in a pull off lane on the south side of Olive Street by the west end of the school. This area is 165 feet long and is used by one school bus.

The main student loading area is provided in the school parking lot. Parents enter the east entrance (inbound only) and travel clockwise through the lot and unload/load their students on the driver's side of the car. Staff members assist in loading students out of or into the vehicle. A sidewalk is provided on the perimeter of the lot. The doors for the school are near the southwest corner of the lot.

During the morning arrival, parent enter the lot and drop-off their students in the parking lot with minimal congestion. In the afternoon dismissal, parents fill up the parking lot perimeter and back up onto Olive Street. School traffic from the east wait to pull into the parking lot, stands along the north Olive Street curb until the parking lot has room to accommodate them.

Some staff and parents use the church parking lot on the north side of Olive Street to park or to walk their students to and from school. The only entrance to the lot is on Olive Street. The northern part of the church lot is coned off from the main parking lot.

On-street loading is permitted on the south side of Olive Street east of the parking lot exit.

As with most other schools, congestion occurs in the area and lasts 10 to 15 minutes during the peak arrival and dismissal periods. Traffic exiting the parking lot is prohibited from making left-turns during the morning and afternoon periods to prevent conflicts with the pedestrian

crossing on the west leg of Olive Street which ranges from 133 to 158 crossings per hour. Vehicles were observed violating this left-turn (9 to 16 vehicles per hour).

Parents were observed crossing Olive Street by the church parking lot and Haddow Avenue where there are no crosswalks.

**SITE TRAFFIC CHARACTERISTICS**

**Site Plan**

The proposed building plan includes additional commons space, a new gym, and new classrooms. The parking lot circulation was modified by closing the existing exit by Belmont Avenue and relocating it next to the parking lot entrance. Student loading will be reversed from the current loading on the driver’s side of the vehicle to loading on the passenger side of the vehicle. It double the amount of internal queuing space within the parking lot (400 feet to 800 feet) for the afternoon dismissal and decreases the frequency of back-up onto Olive Street. During the peak periods, only right-turns out will be permitted from the parking lot.

**Trip Generation**

Olive-Mary Stitt School currently serves 599 students and uses one school bus for transportation. As indicated by the school boundary map, only two small areas of the school are eligible for busing. With the expansion, the school can accommodate up to 642 students or a net increase of 43 additional students over the next several years. Additional school buses will not be needed.

Traffic estimates were made for the additional students using the traffic counts at the current school. The trip generation rates for the existing school are higher than the data provided by the Institute of Transportation Engineer’s Trip Generation 9<sup>th</sup> Ed. manual for elementary schools due to the low percentage of bus usage. The rate of vehicle trip generation was applied to the proposed increase in students with the results shown in **Table 1**.

**Table 1  
School Expansion Traffic Volumes**

School Expansion	Morning Arrival			Afternoon Dismissal		
	In	Out	Total	In	Out	Total
43 Additional Students	16	15	31	12	13	25

**Trip Distribution**

The trip distribution for school is based on the existing traffic volumes at the school, the existing road network, and the proposed circulation system. The trip distribution for the site is shown in **Table 2** and **Figure 4**.

**Trip Assignment**

The future vehicular trips that are generated by the development were distributed to the area roadways based on the directional distribution analysis and the proposed expansion plan. **Figure 5** displays the trip assignment for the projected site traffic volumes. **Figure 6** shows the Total Traffic volumes, which are the sum of the existing traffic volumes and the site traffic volumes.

**Table 2**  
**Directional Distribution**

Direction	Inbound Percentage	Outbound Percentage
North on Arlington Heights Road	5%	5%
South on Arlington Heights Road	10%	5%
West on Olive Street	20%	5%
East on Olive Street	20%	20%
North on Belmont Avenue	5%	0%
North on Douglas Road	5%	20%
South on Douglas Road	5%	15%
South on Belmont/Pine Avenues	30%	30%
<b>Total</b>	<b>100%</b>	<b>100%</b>

**Intersection Capacity Analyses**

An intersection’s ability to accommodate traffic flow is based on the average control delay experienced by vehicles passing through the intersection. The intersection and individual traffic movements are assigned a level of service (LOS), ranging from A to F based on the control delay created by a traffic signal or stop sign. Control delay consists of the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS A has the best traffic flow and least delay. LOS E represents saturated or at capacity conditions. LOS F experiences oversaturated conditions and extensive delays. The Highway Capacity Manual definitions for levels of service and the corresponding control delay for both signalized and unsignalized intersections are shown in **Table 3**.

**Table 3**  
**Level of Service Criteria for Intersections**

Level of Service	Description	Control Delay (seconds/vehicle)	
		Signals	Stop Signs
A	Minimal delay and few stops	<10	<10
B	Low delay with more stops	>10-20	>10-15
C	Light congestion	>20-35	>15-25
D	Congestion is more noticeable with longer delays	>35-55	>25-35
E	High delays and number of stops	>55-80	>35-50
F	Unacceptable delays and over capacity	>80	>50

Source: Highway Capacity Manual 2010

Capacity analyses were conducted for each intersection using the computer program Highway Capacity Software (HCS) to determine the existing operating conditions of the access system. These analyses were performed for the school’s peak arrival and dismissal periods.

**Table 4** shows the existing and future level of service results for each intersection. Copies of the capacity analysis summaries are included in the **Appendix**.

**Table 4  
Intersection Level of Service and Delay**

Intersection	Movement	AM Arrival		PM Dismissal	
		Existing	Total	Existing	Total
<b>Olive Street at:</b>					
<b>Arlington Heights Road</b> (Traffic Signal)	<b>Intersection</b>	A-7.4	A-7.3	A-7.0	A-6.8
<b>Belmont Avenue</b> <b>And School Lot Exit<sup>(1)</sup></b> (All-Way Stop)	<b>SB Lt/Rt</b>	A-8.3	A-8.0	A-7.9	A-7.8
	<b>WB Lt/Th</b>	A-8.3	A-7.8	A-8.2	A-8.0
	<b>NB Lt/Th/Rt</b>	A-8.3	Closed	A-7.9	Closed
	<b>EB Th/Rt</b>	A-8.7	A-8.1	A-8.5	A-8.2
<b>Church Parking Access</b> (Two-Way Stop)	<b>SB Lt /Rt</b>	B-13.5	B-10.1	A-9.8	A9.6
	<b>EB Left</b>	A-7.5	A-7.5	A-7.5	A-7.5
<b>Harwood Avenue</b> <b>And School Lot</b> <b>Entrance (Exit)<sup>(2)</sup></b> (Two-Way Stop)	<b>SB Lt/Th/Rt</b>	C-16.3	C-15.8	B-12.0	B-13.9
	<b>WB Lt/Th/Rt</b>	A-8.5	A-8.1	A-7.9	A-7.8
	<b>EB Lt/Th/Rt</b>	A-7.4	A-7.4	A-7.5	A-7.5
	<b>NB Rt</b>		B-10.8		A-9.9
<b>Douglas Avenue</b> (All-Way Stop)	<b>SB Lt/Th/Rt</b>	A-8.5	A-8.9	A-8.1	A-8.3
	<b>WB Lt/Th/Rt</b>	A-9.1	A-9.4	A-8.5	A-8.7
	<b>NB Lt/Th/Rt</b>	A-9.0	A-9.4	A-8.3	A-8.5
	<b>EB Lt/Th/Rt</b>	A-9.9	B-11.5	A-8.6	A-9.1
<b>South Belmont Avenue at</b> <b>Pine Avenue</b> (No Control)	<b>SB Th/Rt</b>	A-0.0	A-0.0	A-0.0	A-0.0
	<b>NB Lt/Th</b>	A-3.4	A-3.5	A-4.3	A-4.2
	<b>EB Lt /Rt</b>	A-9.3	A-9.4	A-8.8	A-8.8

- (1) The northbound exit from the school parking lot will be closed and relocated by Haddow Avenue. The intersection will remain AWSC.
- (2) The exit to the school parking lot will be relocated to Haddow and exiting traffic will be limited to right-out only during the school arrival and dismissal periods.

### **Arlington Height Road at Olive Street**

Overall, the traffic signal at Arlington Height Road and Olive Street works well and will continue to do so after the school expansion. Since Arlington Heights Road is an arterial route, it gets the majority of the green time at the signal (70-76%) and the side street gets less. Olive Street traffic has higher delays but still falls within acceptable ranges. No improvements are needed to accommodate the school expansion.

### **Belmont Avenue at Olive Street**

With the proposed changes to the school parking lot, the school exit onto Olive Street will be removed and replaced with sidewalk and parkway. The intersection will operate as a three legged AWSC intersection and will still provide the stop signs on Olive Street to stop traffic at the pedestrian crosswalk (with crossing guard) to remain. The intersection will operate better with less traffic movements and pedestrian/vehicular conflicts. It also eliminates the northbound left-turn violations during school peak-hours.

### **Church Lot Access at Olive Lot**

The 32 spaces used by the school in the church lot will not be changed and the access does not require additional improvements. Parents should be reminded to use the crosswalk when walking to and from the school.

### **Haddow Avenue/School Parking Access**

The school parking lot is being redesigned to have a two-way access drive opposite of Haddow Avenue. School traffic will turn off of Olive Street and then turn right in a counter-clockwise direction thru the existing angled parking and then around to the existing loading area. This doubles the amount of off-street queuing area from 400 to 800 feet. This additional storage will not eliminate all back-ups onto Olive Street but it will significantly decrease the length and frequency of the back-ups.

Parent traffic will then exit onto Olive Street. During the peak arrival and dismissal periods, traffic will only be able to turn right towards Douglas Avenue and not conflict with the inbound right- and left-turns. This is similar to the existing lot exit where 60-65% of the traffic turns right out today. Haddow Avenue is a cul-de-sac so the straight movement that was at Belmont Avenue is not available.

### **Douglas Avenue at Belmont Avenue**

This AWSC intersection works well and will continue to do so after the school expansion.

### **South Belmont and Pine Avenues**

South of the school, students are dropped-off and picked-up in the cul-de-sacs on Belmont and Pine Avenue. The intersection of these two streets does not have any traffic control (yield or stop signs) but operates well due to the low speed limits and the traffic volumes. No changes are proposed to this intersection.

## **PARKING**

The existing school on-site parking supply provides a total of 50 parking spaces including two accessible spaces. Additional off-site parking is provided through an agreement with the Orchard Evangelical Free Church parking lot (32 spaces) at the northeast corner of Olive Street and Belmont Avenue. A total of 82 off-street parking spaces are currently available to the school. With the proposed changes to the parking lot, there will be a net loss of 1 space for a total of 49 spaces including two accessible spaces.

The Village of Arlington Heights Zoning Ordinance requires elementary schools to provide two parking spaces per each employee (68 staff) and one per classroom (31 rooms) for a total of 167 spaces. A parking variation of 118 spaces (167-49) would be required.

National parking data is available from the Institute of Transportation Engineers (ITE) in their publication *Parking Generation*, 4<sup>th</sup> Edition for elementary schools (Land Use Code 520). The peak demand in the ITE data was 0.17 spaces per student (642 students) or 109 spaces.

Parking counts were conducted on Wednesday May 27, 2015 after the morning arrival period which found 63 vehicles parked on-site including staff and visitors. No on-street parking near the school was observed. The school currently has 68 staff members but they are not all present on-site at the same time. Sufficient parking is available at the school to accommodate current and projected staff and visitor parking needs during a typical school day on the two parking lots.

Parking for special events at the school can be accommodated by a combination of the off-street parking and on-street parking by the school on the south side of Olive Street, Belmont Avenue, and Douglas Avenue.

The existing parking supply of 81 spaces meets the existing and projected parking needs of the school during the day for staff and visitors without impacting on-street parking. Special event parking is available on-street near the school.

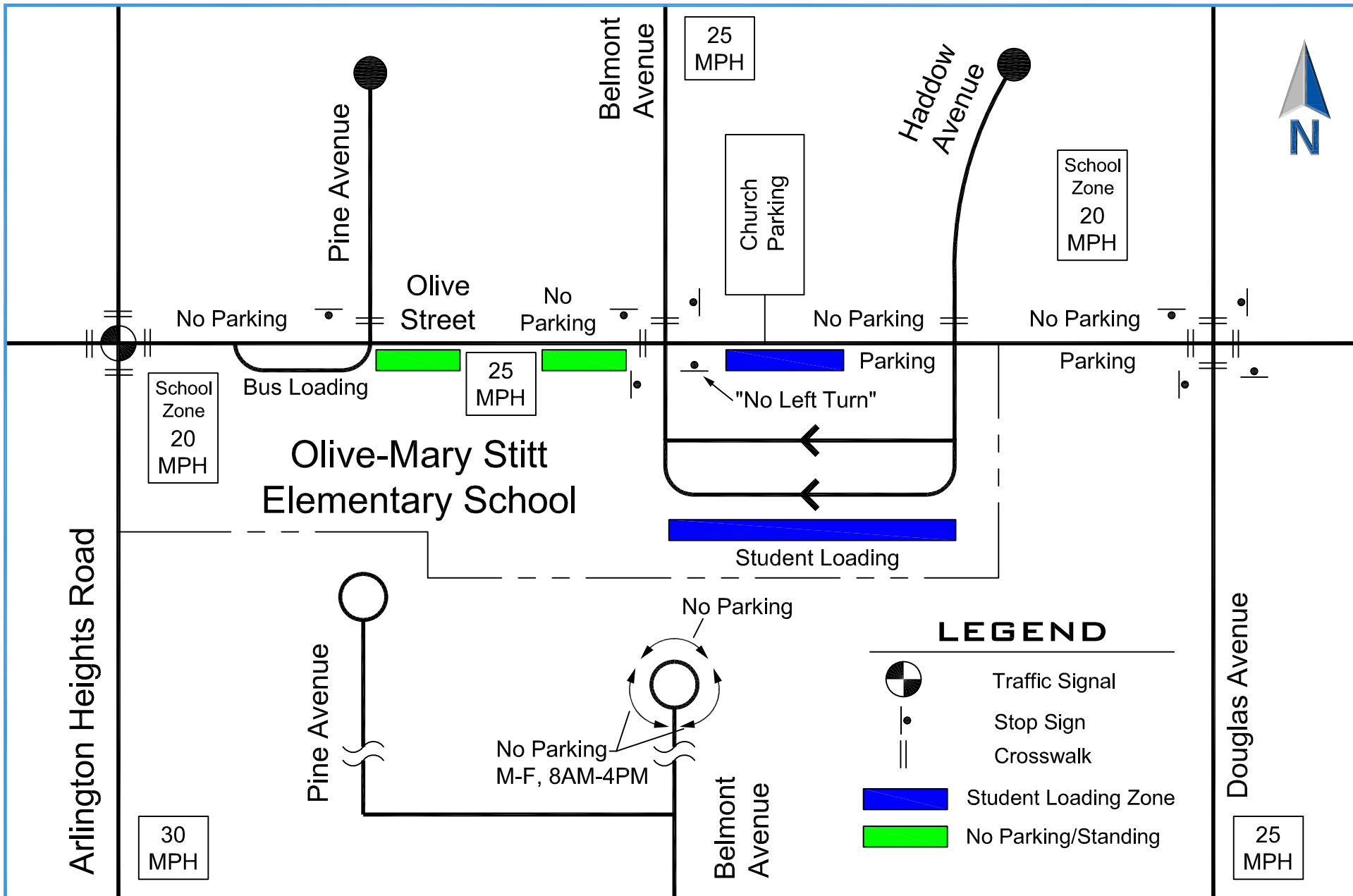


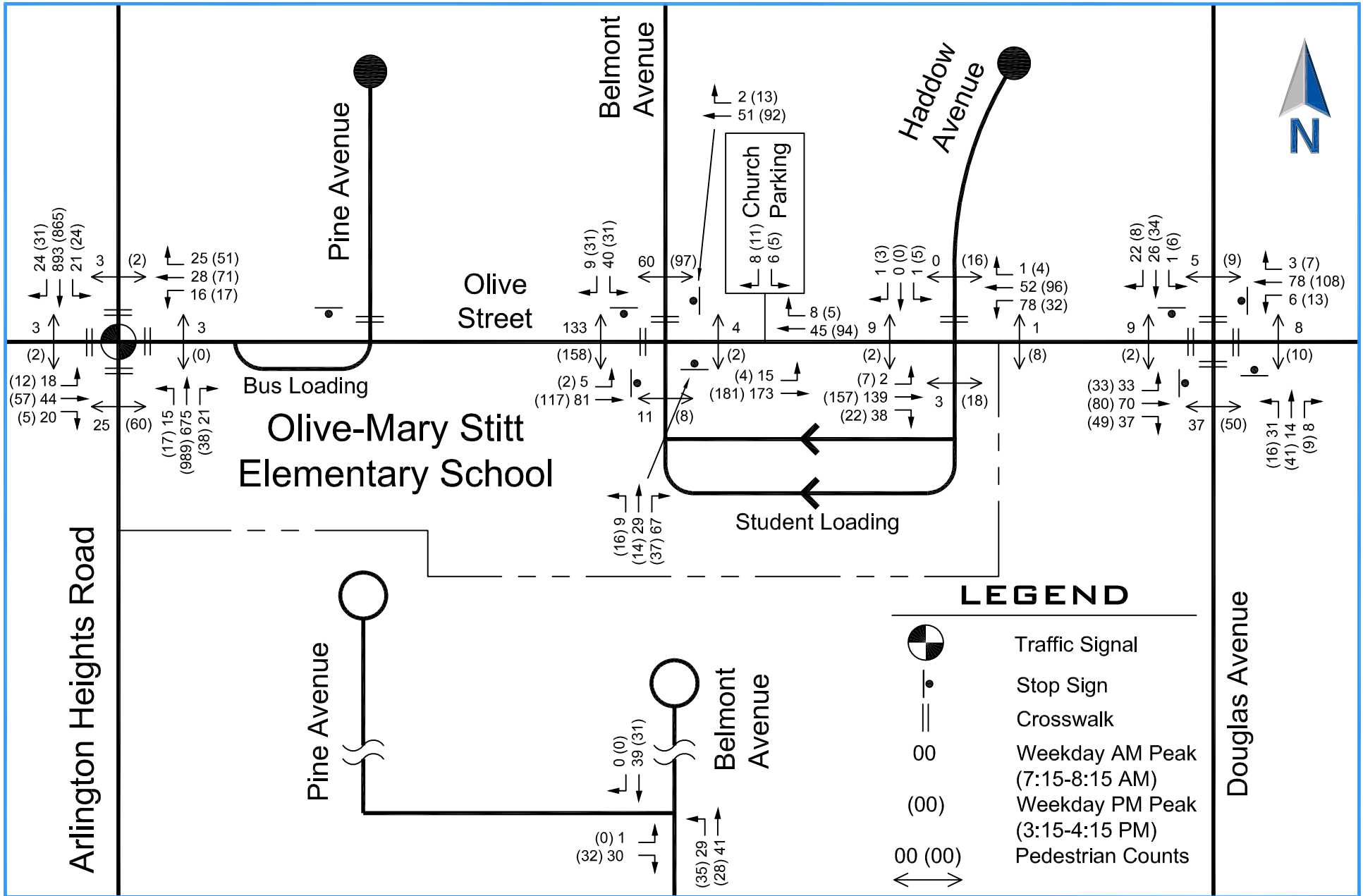
## SUMMARY

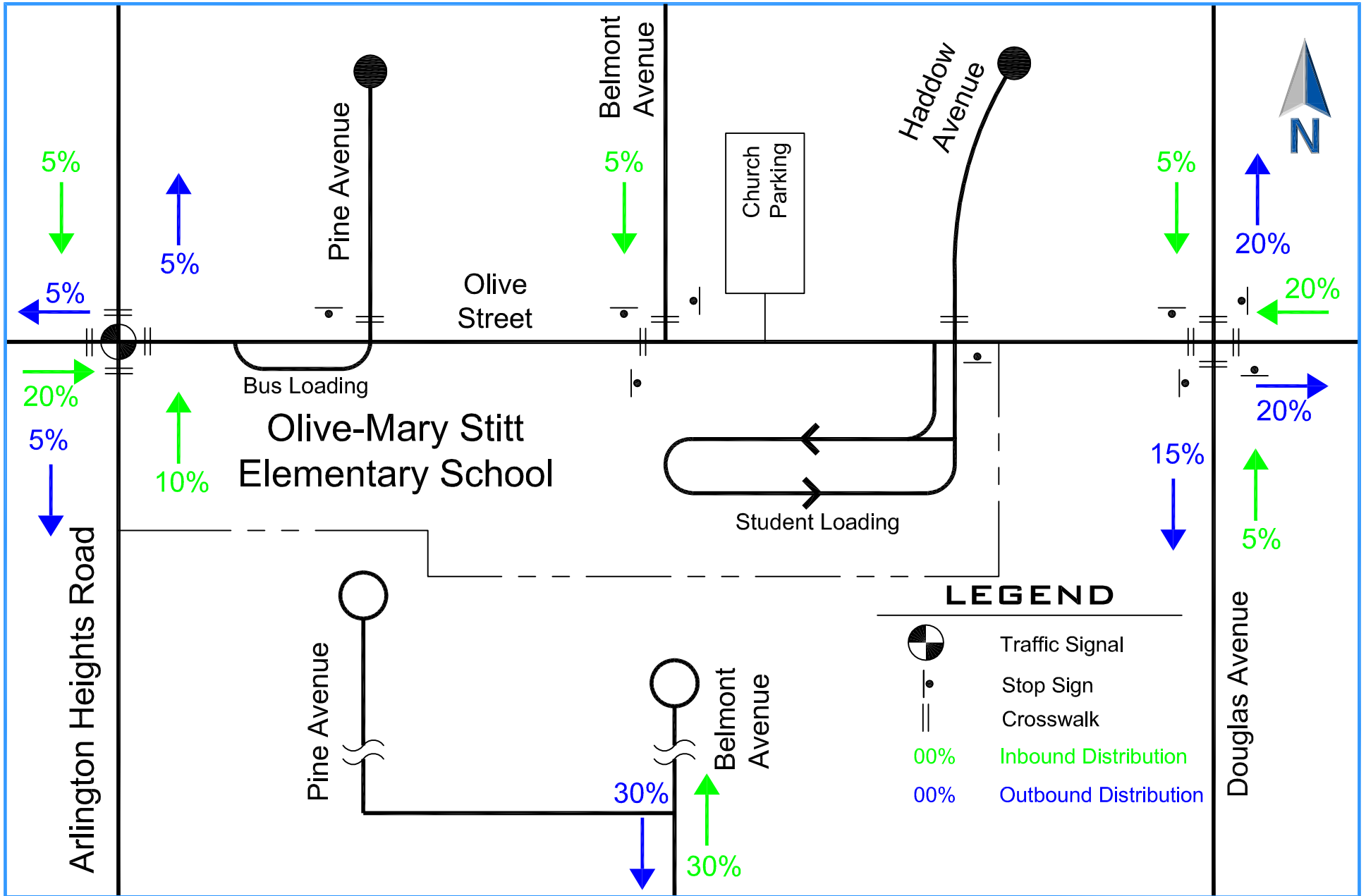
This report summarizes the results of traffic and parking study for the expansion of Olive-Mary Stitt Elementary School in Arlington Heights, Illinois. The findings of the study area:

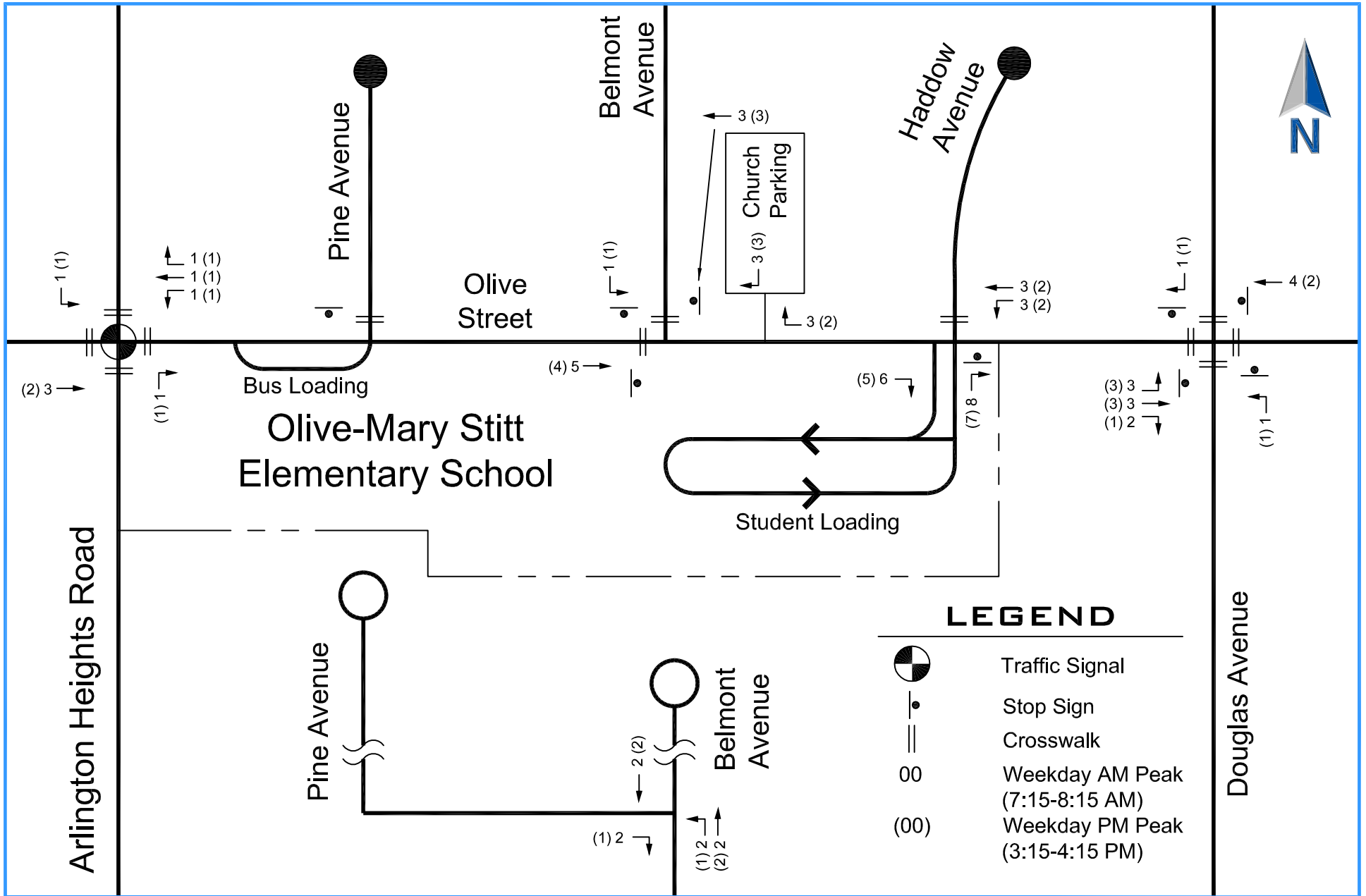
- The volume of additional school traffic generated by the school expansion is low due to small increase in students. The net change in area traffic volumes is nominal.
- The proposed changes to the school parking lot will increase the off-street queuing area, allow parents to drop students off on the passenger side of their vehicle, and reduce pedestrian conflicts at the Belmont Avenue cross-walks.
- While there is a slight increase in traffic from the expansion of the school the proposed changes to the parking lot will offset the increased traffic volumes and improve the existing traffic congestion caused by afternoon back-ups out of the school lot.
- Parking for the school provides 49 on-site and 32 off-site parking spaces will meet its projected needs but will require a variation of 118 spaces from the zoning code requirements.

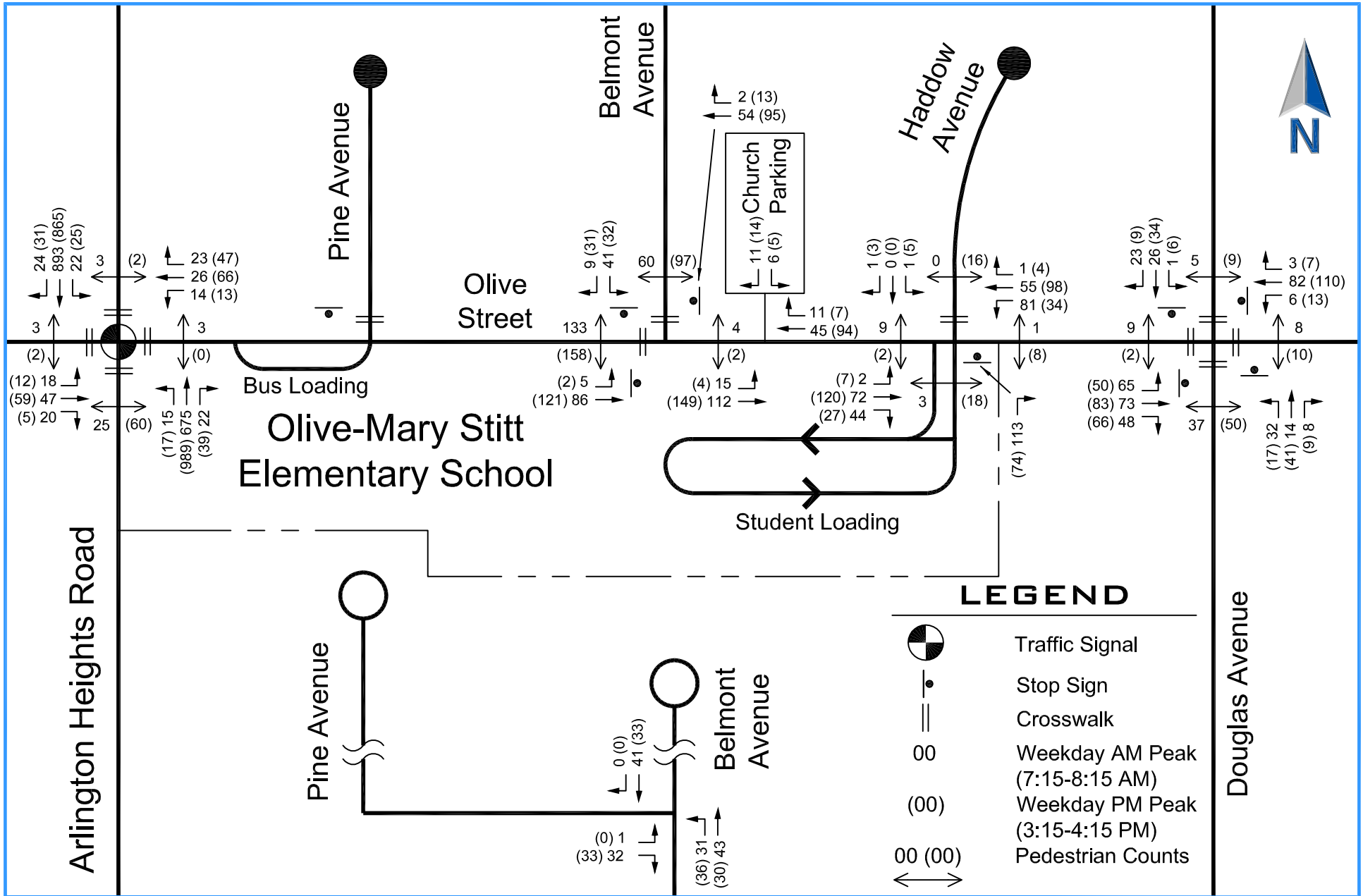








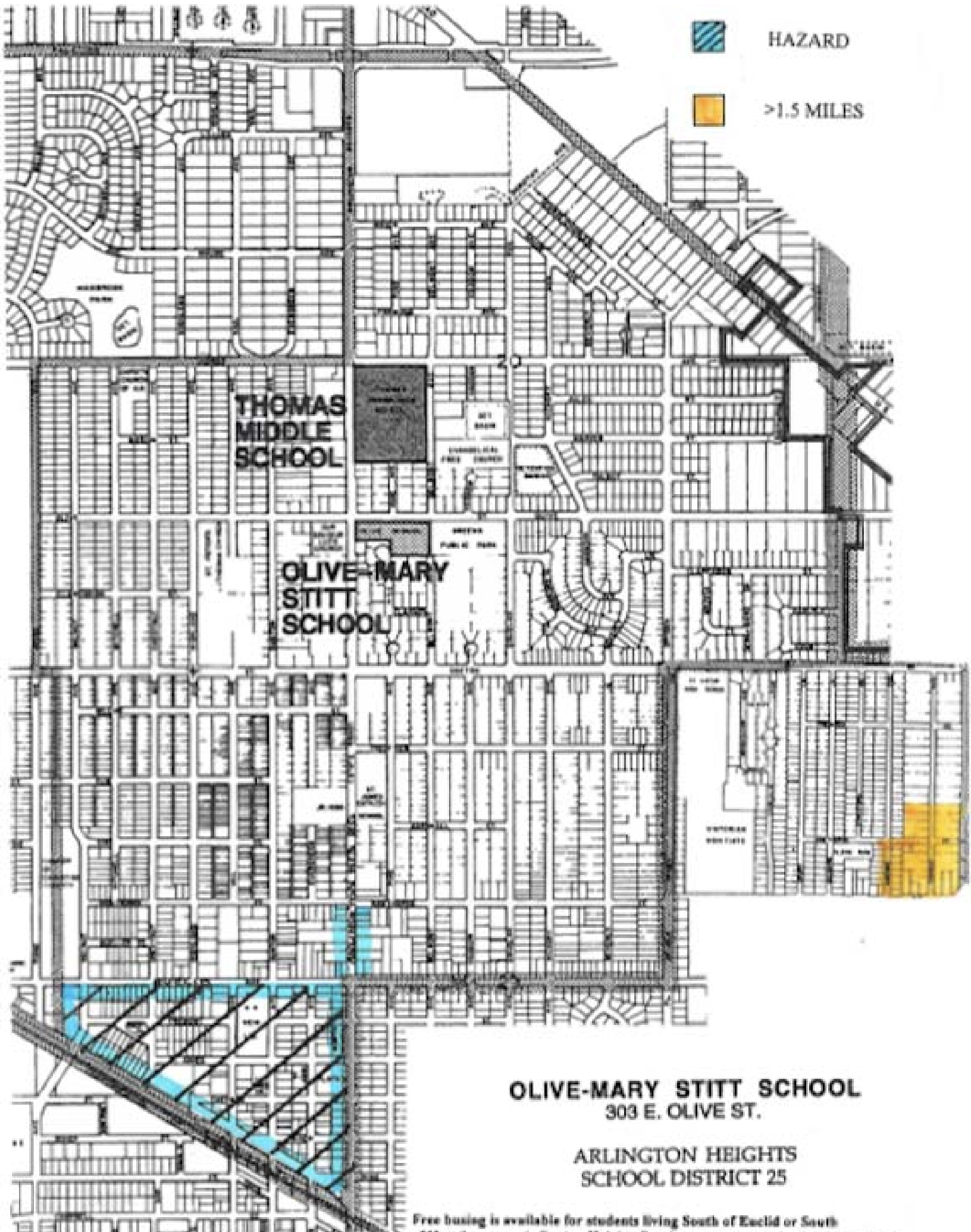




# Traffic and Parking Study Appendix

- **School Boundaries and Bussing Areas**
- **2015 Existing Traffic Counts**
- **2015 Existing Capacity Analyses**
- **Total Capacity Analyses**





HAZARD



>1.5 MILES

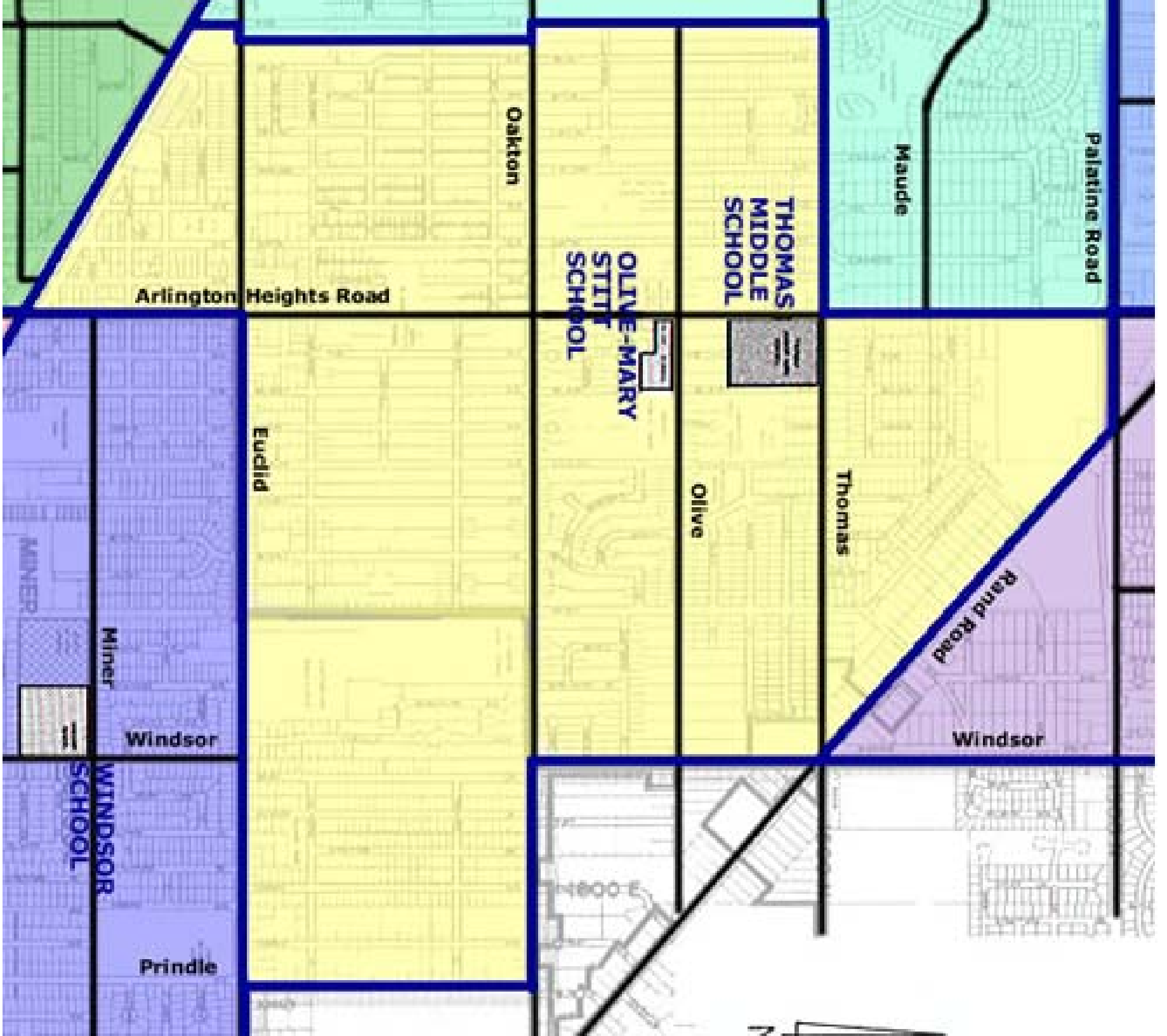
**THOMAS  
MIDDLE  
SCHOOL**

**OLIVE-MARY  
STITT  
SCHOOL**

**OLIVE-MARY STITT SCHOOL**  
303 E. OLIVE ST.

**ARLINGTON HEIGHTS  
SCHOOL DISTRICT 25**

Free housing is available for students living South of Euclid or South of Hawthorne on Arlington Heights Road or more than 1.5 miles from school



Palatine Road

Maude

THOMAS  
MIDDLE  
SCHOOL

OLIVE-MARY  
STITT  
SCHOOL

Arlington Heights Road

Oakton

Euclid

Olive

Thomas

Rand Road

Windsor

Miner

Windsor

WINDSOR  
SCHOOL

Prindle

1800 E



**Intersection Counts**  
**Arlington Heights Road at Olive Street**



Arlington Heights School District 25													Arlington Heights, Illinois												
Begin Time	Arlington Hts Road Southbound			Olive Street Westbound			Arlington Hts Road Northbound			Olive Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Counts									
	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn				North Leg	East Leg	South Leg	West Leg						
<b>Wednesday May 27, 2015</b>																									
8:00 AM	11	241	2	5	19	5	7	130	3	5	15	4	447	1845	0.92	0	0	0	0						
8:15 AM	8	265	2	3	12	4	4	170	6	6	10	10	500	<b>1797</b>	<b>0.90</b>	0	1	0	0						
8:30 AM	7	233	8	7	3	2	9	163	2	4	9	3	450	1630	0.91	1	1	1	1						
8:45 AM	8	205	6	3	10	5	5	171	4	6	23	2	448			2	0	18	2						
9:00 AM	1	190	2	12	3	5	3	171	3	4	2	3	399			0	1	6	0						
9:15 AM	4	155	1	5	5	6	3	144	2	4	1	3	333			0	0	0	0						
Total	39	1289	21	35	52	27	31	949	20	29	60	25				3	3	25	3						
<b>8:15-9:15 AM</b>	<b>24</b>	<b>893</b>	<b>18</b>	<b>25</b>	<b>28</b>	<b>16</b>	<b>21</b>	<b>675</b>	<b>15</b>	<b>20</b>	<b>44</b>	<b>18</b>	<b>1797</b>			<b>3</b>	<b>3</b>	<b>25</b>	<b>3</b>						
<b>Wednesday May 27, 2015</b>																									
3:00 PM	10	223	2	6	20	7	9	195	2	2	5	2	483	2109	0.94	2	0	3	0						
3:15 PM	8	204	5	15	7	5	4	259	1	1	12	1	522	<b>2133</b>	<b>0.95</b>	0	0	0	0						
3:30 PM	6	224	5	17	17	3	5	241	4	1	13	5	541	2141	0.95	0	0	43	2						
3:45 PM	6	219	4	13	31	5	4	261	6	2	10	2	563			0	0	17	0						
4:00 PM	11	218	6	6	16	4	3	228	6	1	4	4	507			2	0	0	0						
4:15 PM	10	231	4	11	11	6	4	239	1	1	5	7	530			0	0	1	1						
Total	51	1319	26	68	102	30	29	1423	20	8	49	21				4	0	64	3						
<b>3:15-4:15 PM</b>	<b>31</b>	<b>865</b>	<b>20</b>	<b>51</b>	<b>71</b>	<b>17</b>	<b>16</b>	<b>989</b>	<b>17</b>	<b>5</b>	<b>39</b>	<b>12</b>	<b>2133</b>			<b>2</b>	<b>0</b>	<b>60</b>	<b>2</b>						

# Intersection Counts

## Belmont Avenue/School Parking Lot Exit at Olive Street



Arlington Heights School District 25											Arlington Heights, Illinois					
Begin Time	Belmont Avenue Southbound		Olive Street Westbound		School Exit Drive Northbound			Olive Street Eastbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Counts			
	Right Turn	Left Turn	Right Turn	Through	Right Turn	Through	Left Turn	Through	Left Turn				North Leg	East Leg	South Leg	West Leg
														Ped.	Ped.	Ped.
<b>Tuesday May 26, 2015</b>																
8:00 AM	1	4	1	9	1	0	3	29	2	50	239	0.51	0	1	0	1
8:15 AM	3	12	0	7	1	1	5	12	2	43	<b>275</b>	<b>0.59</b>	1	2	0	1
8:30 AM	0	4	0	7	3	2	1	11	1	29	254	0.54	5	2	0	5
8:45 AM	0	13	1	7	37	19	2	38	0	117			50	0	7	94
9:00 AM	6	11	1	12	26	7	1	20	2	86			4	0	4	33
9:15 AM	0	6	1	5	3	0	4	3	0	22			0	7	2	6
Total	10	50	4	47	71	29	16	113	7				60	12	13	140
<b>8:15-9:15 AM</b>	<b>9</b>	<b>40</b>	<b>2</b>	<b>33</b>	<b>67</b>	<b>29</b>	<b>9</b>	<b>81</b>	<b>5</b>	<b>275</b>			<b>60</b>	<b>4</b>	<b>11</b>	<b>133</b>
<b>Wednesday May 27, 2015</b>																
3:00 PM	3	3	0	11	1	0	1	6	0	25	263	0.68	0	0	0	6
3:15 PM	6	3	3	21	2	2	0	19	0	56	<b>300</b>	<b>0.78</b>	5	2	0	10
3:30 PM	9	13	4	15	16	1	0	27	1	86	266	0.69	52	0	5	101
3:45 PM	10	11	3	25	16	9	4	18	0	96			36	0	2	40
4:00 PM	6	4	3	18	3	2	12	13	1	62			4	0	1	7
4:15 PM	2	1	0	10	0	1	0	7	1	22			2	2	1	2
Total	36	35	13	100	38	15	17	90	3				99	4	9	166
<b>3:15-4:15 PM</b>	<b>31</b>	<b>31</b>	<b>13</b>	<b>79</b>	<b>37</b>	<b>14</b>	<b>16</b>	<b>77</b>	<b>2</b>	<b>300</b>			<b>97</b>	<b>2</b>	<b>8</b>	<b>158</b>

## Intersection Counts

### Haddow Avenue/ School Parking Lot Entrance at Olive Street



Arlington Heights School District 25											Arlington Heights, Illinois					
Begin Time	Haddow Ave Southbound			Olive Street Westbound			Olive Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Counts			
	Right Turn	Left Through	Left Turn	Right Turn	Left Through	Left Turn	Right Turn	Left Through	Left Turn				North Leg Ped.	East Leg Ped.	South Leg Ped.	West Leg Ped.
	<b>Tuesday May 26, 2015</b>															
8:00 AM	1	0	0	0	8	12	12	16	0	49	278	0.45	0	0	1	0
8:15 AM	0	0	0	0	6	7	6	13	1	33	<b>293</b>	<b>0.48</b>	0	0	0	0
8:30 AM	0	0	1	1	7	10	1	23	0	43	281	0.46	0	0	2	0
8:45 AM	0	0	0	0	14	49	22	68	0	153			0	0	1	6
9:00 AM	1	0	0	0	6	12	9	35	1	64			0	1	0	3
9:15 AM	0	0	0	0	5	1	1	14	0	21			0	0	0	0
Total	2	0	1	1	46	91	51	169	2				0	1	4	9
<b>8:15-9:15 AM</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>33</b>	<b>78</b>	<b>38</b>	<b>139</b>	<b>2</b>	<b>293</b>			<b>0</b>	<b>1</b>	<b>3</b>	<b>9</b>
<b>Thursday May 27, 2015</b>																
3:00 PM	0	0	0	2	26	3	6	18	0	55	302	0.66	5	0	1	0
3:15 PM	0	0	0	0	24	11	7	15	0	57	<b>297</b>	<b>0.65</b>	0	0	1	1
3:30 PM	2	0	2	4	24	14	4	58	7	115	286	0.62	8	1	6	1
3:45 PM	1	0	3	0	7	4	8	52	0	75			6	7	6	0
4:00 PM	0	0	0	0	18	3	3	26	0	50			2	0	0	0
4:15 PM	0	0	0	0	18	7	2	19	0	46			2	0	1	0
Total	3	0	5	6	117	42	30	188	7				23	8	15	2
<b>3:15-4:15 PM</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>4</b>	<b>73</b>	<b>32</b>	<b>22</b>	<b>151</b>	<b>7</b>	<b>297</b>			<b>16</b>	<b>8</b>	<b>13</b>	<b>2</b>



## Intersection Counts Church Parking Lot at Olive Street

Arlington Heights School District 25					Arlington Heights, Illinois		
Begin Time	Olive Street		Parking Lot		15 Minute Totals	60 Minute Totals	Peak Hour Factor
	EB	WB	Southbound				
	Left Turn	Right Turn	Right Turn	Left Turn			
<b>Tuesday May 26, 2015</b>							
8:00 AM	2	1	0	0	3	32	0.35
8:15 AM	2	0	0	0	2	<b>37</b>	<b>0.40</b>
8:30 AM	2	2	0	0	4	38	0.41
8:45 AM	10	6	5	2	23		
9:00 AM	1	0	3	4	8		
9:15 AM	0	0	1	2	3		
Total	17	9	9	8			
<b>8:15-9:15 AM</b>	<b>15</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>37</b>		
<b>Wednesday May 27, 2015</b>							
3:00 PM	1	2	0	0	3	26	0.72
3:15 PM	3	4	1	0	8	<b>25</b>	<b>0.69</b>
3:30 PM	1	1	3	1	6	19	0.53
3:45 PM	0	0	5	4	9		
4:00 PM	0	0	2	0	2		
4:15 PM	1	0	1	0	2		
Total	6	7	12	5			
<b>3:15-4:15 PM</b>	<b>4</b>	<b>5</b>	<b>11</b>	<b>5</b>	<b>25</b>		

**Intersection Counts**  
**Douglas Avenue at Olive Street**



Arlington Heights School District 25													Arlington Heights, Illinois						
Begin Time	Douglas Avenue Southbound			Olive Street Westbound			Douglas Avenue Northbound			Olive Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Counts			
	Right Turn	Left Through	Left Turn	Right Turn	Left Through	Left Turn	Right Turn	Left Through	Left Turn	Right Turn	Left Through	Left Turn				North Leg Ped.	East Leg Ped.	South Leg Ped.	West Leg Ped.
	<b>Wednesday May 27, 2015</b>																		
8:00 AM	2	11	0	2	15	2	4	12	11	1	14	3	77	319	0.57	0	2	0	1
8:15 AM	0	9	0	1	12	2	0	3	5	4	15	2	53	<b>285</b>	<b>0.51</b>	0	0	2	1
8:30 AM	2	5	0	0	10	2	4	2	5	3	11	5	49	264	0.47	0	0	8	4
8:45 AM	10	8	0	2	29	1	2	9	11	22	25	21	140			5	6	27	4
9:00 AM	0	4	1	0	10	1	2	0	0	8	12	5	43			0	2	0	0
9:15 AM	0	6	0	1	9	1	0	5	1	1	6	2	32			0	3	0	0
Total	14	43	1	6	85	9	12	31	33	39	83	38				5	13	37	10
<b>8:15-9:15 AM</b>	<b>12</b>	<b>26</b>	<b>1</b>	<b>3</b>	<b>61</b>	<b>6</b>	<b>8</b>	<b>14</b>	<b>21</b>	<b>37</b>	<b>63</b>	<b>33</b>	<b>285</b>			<b>5</b>	<b>8</b>	<b>37</b>	<b>9</b>
<b>Wednesday May 27, 2015</b>																			
3:00 PM	8	7	1	2	20	1	2	7	4	7	15	3	77	382	0.80	1	1	0	0
3:15 PM	2	6	1	4	33	5	3	7	6	6	15	2	90	<b>386</b>	<b>0.80</b>	0	0	3	0
3:30 PM	5	11	0	1	26	4	2	12	6	16	24	13	120	354	0.74	4	4	40	0
3:45 PM	0	8	2	2	9	0	1	10	2	17	30	14	95			4	0	5	0
4:00 PM	1	9	3	0	22	4	3	12	2	10	11	4	81			1	6	2	2
4:15 PM	0	9	2	2	15	2	1	11	2	4	9	1	58			1	1	0	3
Total	16	50	9	11	125	16	12	59	22	60	104	37				11	12	50	5
<b>3:15-4:15 PM</b>	<b>8</b>	<b>34</b>	<b>6</b>	<b>7</b>	<b>90</b>	<b>13</b>	<b>9</b>	<b>41</b>	<b>16</b>	<b>49</b>	<b>80</b>	<b>33</b>	<b>386</b>			<b>9</b>	<b>10</b>	<b>50</b>	<b>2</b>

## Intersection Counts Pine Avenue at Belmont Avenue

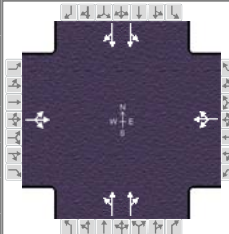


Arlington Heights School District 25								Arlington Heights, Illinois				
Begin Time	Belmont Avenue				Pine Street Eastbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor	Pedestrian Counts		
	Southbound		Northbound		Right Turn	Left Turn				North Leg	South Leg	West Leg
	Right Turn	Through	Through	Turn	Ped.	Ped.				Ped.		
<b>Thursday May 28, 2015</b>												
8:00 AM	0	0	0	1	1	0	2	122	0.30	0	0	0
8:15 AM	0	1	0	2	6	0	9	<b>140</b>	<b>0.35</b>	0	0	1
8:30 AM	0	1	5	3	1	0	10	137	0.34	4	0	5
8:45 AM	0	29	35	21	16	0	101			4	0	47
9:00 AM	0	8	1	3	7	1	20			0	0	6
9:15 AM	0	1	1	2	2	0	6			3	0	3
Total	0	40	42	32	33	1				11	0	62
<b>8:15-9:15 AM</b>	<b>0</b>	<b>39</b>	<b>41</b>	<b>29</b>	<b>30</b>	<b>1</b>	<b>140</b>			<b>8</b>	<b>0</b>	<b>59</b>
<b>Wednesday May 27, 2015</b>												
3:00 PM	0	1	4	6	1	0	12	128	0.55	0	0	4
3:15 PM	0	2	16	19	1	0	38	<b>126</b>	<b>0.54</b>	0	2	5
3:30 PM	0	18	9	11	20	0	58	98	0.42	8	0	51
3:45 PM	0	9	0	1	10	0	20			0	0	7
4:00 PM	0	2	3	4	1	0	10			0	0	4
4:15 PM	0	2	0	2	6	0	10			0	0	1
Total	0	34	32	43	39	0				8	2	72
<b>3:15-4:15 PM</b>	<b>0</b>	<b>31</b>	<b>28</b>	<b>35</b>	<b>32</b>	<b>0</b>	<b>126</b>			<b>8</b>	<b>2</b>	<b>67</b>



# HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Eriksson Engineering			Duration, h	0.25		
Analyst	SBC	Analysis Date	7/23/2015	Area Type	Other		
Jurisdiction	IDOT/V of A. Hts.	Time Period	AM Arrival	PHF	0.90		
Intersection	Olive Street	Analysis Year	2015	Analysis Period	1 > 7:00		
File Name	A Hts AM exst.xus						
Project Description	2015 Existing Volumes						



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	44	20	16	28	25	21	675	15	21	893	24

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	78.0	30.0	0.0	0.0	0.0	0.0				
		Yellow	4.5	4.5	0.0	0.0	0.0	0.0				
		Red	1.5	1.5	0.0	0.0	0.0	0.0				

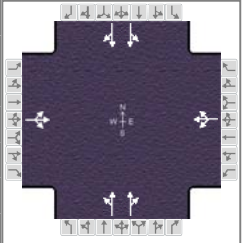
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		36.0		36.0		84.0		84.0
Change Period, (Y+R <sub>c</sub> ), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g <sub>s</sub> ), s		6.7		6.0				
Green Extension Time (g <sub>e</sub> ), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	91			77			401			539		
Adjusted Saturation Flow Rate (s), veh/h/ln	1729			1678			1688			1759		
Queue Service Time (g <sub>s</sub> ), s	0.0			0.0			0.0			8.9		
Cycle Queue Clearance Time (g <sub>c</sub> ), s	4.7			4.0			5.4			8.3		
Green Ratio (g/C)	0.25			0.25			0.65			0.65		
Capacity (c), veh/h	469			456			1129			1070		
Volume-to-Capacity Ratio (X)	0.194			0.168			0.355			0.459		
Available Capacity (c <sub>a</sub> ), veh/h	469			456			1129			1070		
Back of Queue (Q), veh/ln (95th percentile)	4.1			3.4			3.4			4.7		
Queue Storage Ratio (RQ) (95th percentile)	0.00			0.00			0.00			0.00		
Uniform Delay (d <sub>1</sub> ), s/veh	35.5			35.3			3.5			3.6		
Incremental Delay (d <sub>2</sub> ), s/veh	0.9			0.8			0.9			1.3		
Initial Queue Delay (d <sub>3</sub> ), s/veh	0.0			0.0			0.0			0.0		
Control Delay (d), s/veh	36.4			36.1			4.3			4.9		
Level of Service (LOS)	D			D			A			A		
Approach Delay, s/veh / LOS	36.4	D		36.1	D		4.4	A		5.0	A	
Intersection Delay, s/veh / LOS	7.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	0.6	A	1.1	A	1.3	A

# HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.25
Analyst	SBC	Analysis Date	7/23/2015	Area Type	Other
Jurisdiction	IDOT/V of A. Hts.	Time Period	AM Arrival	PHF	0.90
Intersection	Olive Street	Analysis Year	Total	Analysis Period	1 > 7:00
File Name	A Hts AM Total.xus				
Project Description	Total Traffic Volumes				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	18	47	20	14	26	23	22	675	15	22	893	24

Signal Information														
Cycle, s	120.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	78.0	30.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	4.5	0.0	0.0	0.0	0.0				
				Red	1.5	1.5	0.0	0.0	0.0	0.0				

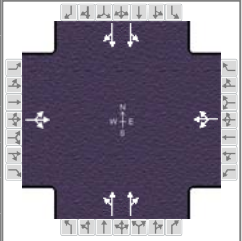
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		36.0		36.0		84.0		84.0
Change Period, (Y+R <sub>c</sub> ), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g <sub>s</sub> ), s		6.9		5.7				
Green Extension Time (g <sub>e</sub> ), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		94			70			400	391		539	504
Adjusted Saturation Flow Rate (s), veh/h/ln		1738			1682			1678	1646		1755	1643
Queue Service Time (g <sub>s</sub> ), s		0.0			0.0			0.0	5.9	0.0		8.9
Cycle Queue Clearance Time (g <sub>c</sub> ), s		4.9			3.7			5.4	5.9	8.3		8.9
Green Ratio (g/C)		0.25			0.25			0.65	0.65	0.65		0.65
Capacity (c), veh/h		471			457			1123	1070	1172		1068
Volume-to-Capacity Ratio (X)		0.201			0.153			0.356	0.365	0.460		0.472
Available Capacity (c <sub>a</sub> ), veh/h		471			457			1123	1070	1172		1068
Back of Queue (Q), veh/ln (95th percentile)		4.2			3.1			3.4	3.3	4.7		4.6
Queue Storage Ratio (RQ) (95th percentile)		0.00			0.00			0.00	0.00	0.00		0.00
Uniform Delay (d <sub>1</sub> ), s/veh		35.6			35.1			3.5	3.4	3.6		3.7
Incremental Delay (d <sub>2</sub> ), s/veh		1.0			0.7			0.9	1.0	1.3		1.5
Initial Queue Delay (d <sub>3</sub> ), s/veh		0.0			0.0			0.0	0.0	0.0		0.0
Control Delay (d), s/veh		36.5			35.8			4.4	4.4	4.9		5.2
Level of Service (LOS)		D			D			A	A	A		A
Approach Delay, s/veh / LOS	36.5	D		35.8	D		4.4	A		5.0	A	
Intersection Delay, s/veh / LOS	7.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	0.6	A	1.1	A	1.3	A

# HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Eriksson Engineering			Duration, h	0.25		
Analyst	SBC	Analysis Date	7/23/2015	Area Type	Other		
Jurisdiction	IDOT/V of A. Hts.	Time Period	PM Dismissal	PHF	0.90		
Intersection	Olive Street	Analysis Year	2015	Analysis Period	1 > 7:00		
File Name	A Hts PM Exst.xus						
Project Description	2015 Existing Volumes						



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	12	57	5	17	71	51	38	989	17	24	865	31

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	92.8	25.2	0.0	0.0	0.0	0.0				
		Yellow	4.5	4.5	0.0	0.0	0.0	0.0				
		Red	1.5	1.5	0.0	0.0	0.0	0.0				

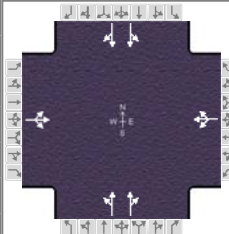
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		31.2		31.2		98.8		98.8
Change Period, (Y+R <sub>c</sub> ), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g <sub>s</sub> ), s		6.7		11.9				
Green Extension Time (g <sub>e</sub> ), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	82			154			579			581		
Adjusted Saturation Flow Rate (s), veh/h/ln	1818			1742			1633			1650		
Queue Service Time (g <sub>s</sub> ), s	0.0			0.0			0.0			4.8		
Cycle Queue Clearance Time (g <sub>c</sub> ), s	4.7			9.9			4.6			4.8		
Green Ratio (g/C)	0.19			0.19			0.71			0.71		
Capacity (c), veh/h	385			369			1196			1178		
Volume-to-Capacity Ratio (X)	0.214			0.419			0.484			0.494		
Available Capacity (c <sub>a</sub> ), veh/h	385			369			1196			1178		
Back of Queue (Q), veh/ln (95th percentile)	4.3			8.4			2.7			2.5		
Queue Storage Ratio (RQ) (95th percentile)	0.00			0.00			0.00			0.00		
Uniform Delay (d <sub>1</sub> ), s/veh	44.1			46.2			1.4			1.2		
Incremental Delay (d <sub>2</sub> ), s/veh	1.3			3.5			1.4			1.5		
Initial Queue Delay (d <sub>3</sub> ), s/veh	0.0			0.0			0.0			0.0		
Control Delay (d), s/veh	45.4			49.7			2.8			2.7		
Level of Service (LOS)	D			D			A			A		
Approach Delay, s/veh / LOS	45.4	D		49.7	D		2.7	A		2.4	A	
Intersection Delay, s/veh / LOS	7.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	0.7	A	1.4	A	1.3	A

# HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Eriksson Engineering			Duration, h	0.25		
Analyst	SBC	Analysis Date	7/23/2015	Area Type	Other		
Jurisdiction	IDOT/V of A. Hts.	Time Period	PM Dismissal	PHF	0.90		
Intersection	Olive Street	Analysis Year	Total	Analysis Period	1 > 7:00		
File Name	A Hts PM Total.xus						
Project Description	Total Traffic Volumes						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	12	59	5	13	66	47	38	989	39	25	865	31

Signal Information				EB				WB				NB				SB			
Cycle, s	130.0	Reference Phase	2	Green	92.8	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Offset, s	0	Reference Point	End	Yellow	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Red	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On																

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		31.2		31.2		98.8		98.8
Change Period, (Y+R <sub>c</sub> ), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g <sub>s</sub> ), s		6.9		10.9				
Green Extension Time (g <sub>e</sub> ), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	84			140			595			590		
Adjusted Saturation Flow Rate (s), veh/h/ln	1824			1750			1640			1635		
Queue Service Time (g <sub>s</sub> ), s	0.0			0.0			0.0			5.8		
Cycle Queue Clearance Time (g <sub>c</sub> ), s	4.9			8.9			4.8			5.8		
Green Ratio (g/C)	0.19			0.19			0.71			0.71		
Capacity (c), veh/h	386			370			1200			1167		
Volume-to-Capacity Ratio (X)	0.219			0.379			0.496			0.505		
Available Capacity (c <sub>a</sub> ), veh/h	386			370			1200			1167		
Back of Queue (Q), veh/ln (95th percentile)	4.5			7.7			2.8			2.9		
Queue Storage Ratio (RQ) (95th percentile)	0.00			0.00			0.00			0.00		
Uniform Delay (d <sub>1</sub> ), s/veh	44.2			45.8			1.4			1.4		
Incremental Delay (d <sub>2</sub> ), s/veh	1.3			2.9			1.5			1.6		
Initial Queue Delay (d <sub>3</sub> ), s/veh	0.0			0.0			0.0			0.0		
Control Delay (d), s/veh	45.5			48.8			2.8			3.0		
Level of Service (LOS)	D			D			A			A		
Approach Delay, s/veh / LOS	45.5	D		48.8	D		2.9	A		2.4	A	
Intersection Delay, s/veh / LOS	6.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	0.7	A	1.5	A	1.3	A

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Belmont/School Exit at Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Heights			
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes			
Analysis Time Period	AM Arrival Period							
Project ID								
East/West Street: Olive Street				North/South Street: Belmont/School Lot Exit				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	5	81	0	0	51	2		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	9	29	67	40	0	9		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR		LTR		LR	
PHF	0.59		0.59		0.59		0.59	
Flow Rate (veh/h)	145		89		177		82	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.0		0.1		0.8	
Prop. Right-Turns	0.0		0.0		0.6		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		-0.0		-0.4		0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.13		0.08		0.16		0.07	
hd, final value (s)	4.62		4.66		4.21		4.73	
x, final value	0.19		0.12		0.21		0.11	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t <sub>s</sub> (s)	2.6		2.7		2.2		2.7	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	395		339		427		332	
Delay (s/veh)	8.67		8.26		8.30		8.29	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.67		8.26		8.30		8.29	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.40							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Belmont/School Exit at Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Heights			
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes			
Analysis Time Period	AM Arrival Period Period							
Project ID Includes closure of existing parking lot exit								
East/West Street: Olive Street				North/South Street: Belmont/School Lot Exit				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	5	86	0	0	54	2		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)				41	0	9		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.59		0.59				0.59	
Flow Rate (veh/h)	153		94				84	
% Heavy Vehicles	0		0				0	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.0				0.8	
Prop. Right-Turns	0.0		0.0				0.2	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.0		-0.0				0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.14		0.08				0.07	
hd, final value (s)	4.21		4.24				4.50	
x, final value	0.18		0.11				0.11	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t <sub>s</sub> (s)	2.2		2.2				2.5	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	403		344				334	
Delay (s/veh)	8.13		7.77				8.03	
LOS	A		A				A	
Approach: Delay (s/veh)	8.13		7.77				8.03	
LOS	A		A				A	
Intersection Delay (s/veh)	8.00							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Belmont/School Exit at Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Heights			
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes			
Analysis Time Period	PM Dismissal Period							
Project ID								
East/West Street: Olive Street				North/South Street: Belmont/School Lot Exit				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	2	117	0	0	92	13		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	16	14	37	31	0	31		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR		LTR		LR	
PHF	0.78		0.78		0.78		0.78	
Flow Rate (veh/h)	152		133		84		78	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.0		0.0		0.2		0.5	
Prop. Right-Turns	0.0		0.1		0.6		0.5	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		-0.1		-0.3		-0.2	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.14		0.12		0.07		0.07	
hd, final value (s)	4.43		4.38		4.36		4.46	
x, final value	0.19		0.16		0.10		0.10	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t <sub>s</sub> (s)	2.4		2.4		2.4		2.5	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	402		383		334		328	
Delay (s/veh)	8.45		8.22		7.86		7.93	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.45		8.22		7.86		7.93	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.18							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Belmont/School Exit at Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Heights			
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes			
Analysis Time Period	PM Dismissal Period Period							
Project ID Includes closure of existing parking lot exit								
East/West Street: Olive Street				North/South Street: Belmont/School Lot Exit				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	2	121	0	0	95	13		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)				32	0	31		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT		TR				LR	
PHF	0.78		0.78				0.78	
Flow Rate (veh/h)	157		137				80	
% Heavy Vehicles	0		0				0	
No. Lanes	1		1		0		1	
Geometry Group	1		1				1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.0		0.0				0.5	
Prop. Right-Turns	0.0		0.1				0.5	
Prop. Heavy Vehicle	0.0		0.0				0.0	
hLT-adj	0.2	0.2	0.2	0.2			0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6			-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7			1.7	1.7
hadj, computed	0.0		-0.1				-0.2	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20				3.20	
x, initial	0.14		0.12				0.07	
hd, final value (s)	4.23		4.18				4.35	
x, final value	0.18		0.16				0.10	
Move-up time, m (s)	2.0		2.0				2.0	
Service Time, t <sub>s</sub> (s)	2.2		2.2				2.4	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	407		387				330	
Delay (s/veh)	8.18		7.97				7.82	
LOS	A		A				A	
Approach: Delay (s/veh)	8.18		7.97				7.82	
LOS	A		A				A	
Intersection Delay (s/veh)	8.03							
Intersection LOS	A							



TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>			<b>Site Information</b>					
Analyst	SBC		Intersection	Church Lot on Olive Street				
Agency/Co.	Eriksson Engineering		Jurisdiction	Village of Arlington Hts.				
Date Performed	7/23/2015		Analysis Year	2015 Existing Volumes				
Analysis Time Period	AM Arrival Period							
Project Description								
East/West Street: Olive Street			North/South Street: Church Parking Lot					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	173			45	8		
Peak-Hour Factor, PHF	0.40	0.40	1.00	1.00	0.40	0.40		
Hourly Flow Rate, HFR (veh/h)	37	432	0	0	112	19		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
<b>Minor Street</b>	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				6				
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.40	1.00	0.40		
Hourly Flow Rate, HFR (veh/h)	0	0	0	14	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	37						14	
C (m) (veh/h)	1467						439	
v/c	0.03						0.03	
95% queue length	0.08						0.10	
Control Delay (s/veh)	7.5						13.5	
LOS	A						B	
Approach Delay (s/veh)	--	--					13.5	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>					<b>Site Information</b>			
Analyst	SBC				Intersection	Church Lot on Olive Street		
Agency/Co.	Eriksson Engineering				Jurisdiction	Village of Arlington Hts.		
Date Performed	7/23/2015				Analysis Year	Total Traffic Volumes		
Analysis Time Period	AM Arrival Period							
Project Description								
East/West Street: Olive Street					North/South Street: Church Parking Lot			
Intersection Orientation: East-West					Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	112			45	11		
Peak-Hour Factor, PHF	0.40	0.40	1.00	1.00	0.40	0.40		
Hourly Flow Rate, HFR (veh/h)	37	279	0	0	112	27		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0					0
Lanes	0	1	0	0	1	0		
Configuration	LT							TR
Upstream Signal		0			0			
<b>Minor Street</b>		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				6		11		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.40	1.00	0.40		
Hourly Flow Rate, HFR (veh/h)	0	0	0	14	0	27		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	37						41	
C (m) (veh/h)	1457						743	
v/c	0.03						0.06	
95% queue length	0.08						0.17	
Control Delay (s/veh)	7.5						10.1	
LOS	A						B	
Approach Delay (s/veh)	--	--					10.1	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	SBC			Intersection	Church Lot on Olive Street			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes			
Analysis Time Period	Afternoon Dismissal Period							
Project Description								
East/West Street: Olive Street				North/South Street: Church Parking Lot				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	181			94	5		
Peak-Hour Factor, PHF	0.65	0.65	1.00	1.00	0.65	0.65		
Hourly Flow Rate, HFR (veh/h)	6	278	0	0	144	7		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				5		11		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.65	1.00	0.65		
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	16		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration				LR				
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					LR		
v (veh/h)	6						23	
C (m) (veh/h)	1442						772	
v/c	0.00						0.03	
95% queue length	0.01						0.09	
Control Delay (s/veh)	7.5						9.8	
LOS	A						A	
Approach Delay (s/veh)	--	--				9.8		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	SBC			Intersection	Church Lot on Olive Street			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes			
Analysis Time Period	Afternoon Dismissal Period							
Project Description								
East/West Street: Olive Street				North/South Street: Church Parking Lot				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	4	149			94	7		
Peak-Hour Factor, PHF	0.65	0.65	1.00	1.00	0.65	0.65		
Hourly Flow Rate, HFR (veh/h)	6	229	0	0	144	10		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
<b>Minor Street</b>	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				5		14		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.65	1.00	0.65		
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	21		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	6						28	
C (m) (veh/h)	1439						808	
v/c	0.00						0.03	
95% queue length	0.01						0.11	
Control Delay (s/veh)	7.5						9.6	
LOS	A						A	
Approach Delay (s/veh)	--	--					9.6	
Approach LOS	--	--					A	

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	SBC			Intersection	Haddow/School Entry at Olive		
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.		
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes		
Analysis Time Period	AM Arrival Period						
Project Description							
East/West Street: Olive Street				North/South Street: Haddow/School Entry			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	2	139	38	78	52	1	
Peak-Hour Factor, PHF	0.48	0.48	0.48	0.48	0.48	0.48	
Hourly Flow Rate, HFR (veh/h)	4	289	79	162	108	2	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)				1	0		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.48	0.48	0.48	
Hourly Flow Rate, HFR (veh/h)	0	0	0	2	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR					LTR
v (veh/h)	4	162					2
C (m) (veh/h)	1493	1202					321
v/c	0.00	0.13					0.01
95% queue length	0.01	0.47					0.02
Control Delay (s/veh)	7.4	8.5					16.3
LOS	A	A					C
Approach Delay (s/veh)	--	--					16.3
Approach LOS	--	--					C

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	SBC			Intersection	Haddow/School Entry at Olive		
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.		
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes		
Analysis Time Period	AM Arrival Period						
Project Description							
East/West Street: Olive Street				North/South Street: Haddow/School Entry/Exit			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	2	72	44	81	55	1	
Peak-Hour Factor, PHF	0.48	0.48	0.48	0.48	0.48	0.48	
Hourly Flow Rate, HFR (veh/h)	4	150	91	168	114	2	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			113	1	0	1	
Peak-Hour Factor, PHF	1.00	1.00	0.48	0.48	0.48	0.48	
Hourly Flow Rate, HFR (veh/h)	0	0	235	2	0	2	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	1	0	
Configuration			R		LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR			R		LTR
v (veh/h)	4	168			235		4
C (m) (veh/h)	1485	1337			850		338
v/c	0.00	0.13			0.28		0.01
95% queue length	0.01	0.43			1.13		0.04
Control Delay (s/veh)	7.4	8.1			10.8		15.8
LOS	A	A			B		C
Approach Delay (s/veh)	--	--	10.8			15.8	
Approach LOS	--	--	B			C	

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	SBC			Intersection	Haddow/School Entry at Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes			
Analysis Time Period	PM Dismissal Period							
Project Description								
East/West Street: Olive Street				North/South Street: Haddow/School Entry				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	7	157	22	32	96	4		
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.65	0.65	0.65		
Hourly Flow Rate, HFR (veh/h)	10	241	33	49	147	6		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
<b>Minor Street</b>	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				5	0	1		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.65	0.65	0.65		
Hourly Flow Rate, HFR (veh/h)	0	0	0	7	0	1		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	1	0		
Configuration					LTR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR					LTR	
v (veh/h)	10	49					8	
C (m) (veh/h)	1440	1301					523	
v/c	0.01	0.04					0.02	
95% queue length	0.02	0.12					0.05	
Control Delay (s/veh)	7.5	7.9					12.0	
LOS	A	A					B	
Approach Delay (s/veh)	--	--					12.0	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	SBC			Intersection	Haddow/School Entry at Olive		
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.		
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes		
Analysis Time Period	PM Dismissal Period						
Project Description							
East/West Street: Olive Street				North/South Street: Haddow/School Entry/Exit			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	7	120	27	34	98	4	
Peak-Hour Factor, PHF	0.65	0.65	0.65	0.65	0.65	0.65	
Hourly Flow Rate, HFR (veh/h)	10	184	41	52	150	6	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)			74	5	0		
Peak-Hour Factor, PHF	1.00	1.00	0.65	0.65	0.65	0.65	
Hourly Flow Rate, HFR (veh/h)	0	0	113	7	0	1	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	1	0	1	0	
Configuration			R		LTR		
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR			R		LTR
v (veh/h)	10	52			113		8
C (m) (veh/h)	1436	1356			842		411
v/c	0.01	0.04			0.13		0.02
95% queue length	0.02	0.12			0.46		0.06
Control Delay (s/veh)	7.5	7.8			9.9		13.9
LOS	A	A			A		B
Approach Delay (s/veh)	--	--	9.9			13.9	
Approach LOS	--	--	A			B	



ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	SBC				Intersection	Douglas and Olive			
Agency/Co.	Eriksson Engineering				Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015				Analysis Year	2015 Existing Volumes			
Analysis Time Period	Existing AM Arrival								
Project ID									
East/West Street: Olive Street					North/South Street: Douglas Avenue				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R	L	T	R	L	R	
Volume (veh/h)	33	70	37	6	78	3			
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R	L	T	R	L	R	
Volume (veh/h)	31	14	8	1	26	22			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.51		0.51		0.51		0.51		
Flow Rate (veh/h)	273		168		102		94		
% Heavy Vehicles	0		0		0		0		
No. Lanes	1		1		1		1		
Geometry Group	1		1		1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.2		0.1		0.6		0.0		
Prop. Right-Turns	0.3		0.0		0.1		0.5		
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0		
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1		-0.0		0.0		-0.3		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.24		0.15		0.09		0.08		
hd, final value (s)	4.51		4.74		5.12		4.83		
x, final value	0.34		0.22		0.14		0.13		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t <sub>s</sub> (s)	2.5		2.7		3.1		2.8		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	523		418		352		344		
Delay (s/veh)	9.85		9.08		8.98		8.53		
LOS	A		A		A		A		
Approach: Delay (s/veh)	9.85		9.08		8.98		8.53		
LOS	A		A		A		A		
Intersection Delay (s/veh)	9.31								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Douglas and Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes			
Analysis Time Period	AM Arrival Period							
Project ID								
East/West Street: Olive Street				North/South Street: Douglas Avenue				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	65	73	48	6	82	3		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	32	14	8	1	26	23		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.51		0.51		0.51		0.51	
Flow Rate (veh/h)	364		176		104		96	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.1		0.6		0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.5	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		-0.0		0.0		-0.3	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.32		0.16		0.09		0.09	
hd, final value (s)	4.60		4.90		5.39		5.10	
x, final value	0.47		0.24		0.16		0.14	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t <sub>s</sub> (s)	2.6		2.9		3.4		3.1	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	614		426		354		346	
Delay (s/veh)	11.53		9.44		9.39		8.91	
LOS	B		A		A		A	
Approach: Delay (s/veh)	11.53		9.44		9.39		8.91	
LOS	B		A		A		A	
Intersection Delay (s/veh)	10.39							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Douglas and Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	2015 Existing Volumes			
Analysis Time Period	PM Dismissal Period							
Project ID								
East/West Street: Olive Street				North/South Street: Douglas Avenue				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	33	80	49	13	108	7		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	16	41	9	5	34	8		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.80		0.80		0.80		0.80	
Flow Rate (veh/h)	201		158		81		57	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.2		0.1		0.2		0.1	
Prop. Right-Turns	0.3		0.1		0.1		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		-0.0		-0.0		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.18		0.14		0.07		0.05	
hd, final value (s)	4.28		4.46		4.76		4.75	
x, final value	0.24		0.20		0.11		0.08	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t <sub>s</sub> (s)	2.3		2.5		2.8		2.8	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	451		408		331		307	
Delay (s/veh)	8.63		8.54		8.33		8.14	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.63		8.54		8.33		8.14	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.49							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information				Site Information				
Analyst	SBC			Intersection	Douglas and Olive			
Agency/Co.	Eriksson Engineering			Jurisdiction	Village of Arlington Hts.			
Date Performed	7/23/2015			Analysis Year	Total Traffic Volumes			
Analysis Time Period	PM Dismissal Period							
Project ID								
East/West Street: Olive Street				North/South Street: Douglas Avenue				
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	50	83	66	13	110	7		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R		
Volume (veh/h)	17	41	9	5	34	9		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.80		0.80		0.80		0.80	
Flow Rate (veh/h)	247		161		83		59	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.3		0.1		0.3		0.1	
Prop. Right-Turns	0.3		0.0		0.1		0.2	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		-0.0		-0.0		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.22		0.14		0.07		0.05	
hd, final value (s)	4.30		4.53		4.88		4.86	
x, final value	0.30		0.20		0.11		0.08	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t <sub>s</sub> (s)	2.3		2.5		2.9		2.9	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	497		411		333		309	
Delay (s/veh)	9.09		8.67		8.50		8.28	
LOS	A		A		A		A	
Approach: Delay (s/veh)	9.09		8.67		8.50		8.28	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.79							
Intersection LOS	A							

# HCM Unsignalized Intersection Capacity Analysis

## 2: Belmont Avenue & Pine Avenue

7/23/2015



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			T	T	
Volume (veh/h)	1	30	29	41	39	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.35	0.35	0.35	0.35	0.35	0.35
Hourly flow rate (vph)	3	86	83	117	111	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	394	111	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	394	111	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	94			
cM capacity (veh/h)	576	942	1478			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	89	200	111			
Volume Left	3	83	0			
Volume Right	86	0	0			
cSH	923	1478	1700			
Volume to Capacity	0.10	0.06	0.07			
Queue Length 95th (ft)	8	4	0			
Control Delay (s)	9.3	3.4	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	3.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			20.4%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: Belmont Avenue & Pine Avenue

7/23/2015



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	1	32	31	43	41	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.35	0.35	0.35	0.35	0.35	0.35
Hourly flow rate (vph)	3	91	89	123	117	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	417	117	117			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417	117	117			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	90	94			
cM capacity (veh/h)	557	935	1471			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	94	211	117			
Volume Left	3	89	0			
Volume Right	91	0	0			
cSH	916	1471	1700			
Volume to Capacity	0.10	0.06	0.07			
Queue Length 95th (ft)	9	5	0			
Control Delay (s)	9.4	3.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	3.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			20.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: Belmont Avenue & Pine Avenue

7/23/2015












Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	32	35	28	31	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	59	65	52	57	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	239	57	57			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	239	57	57			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	96			
cM capacity (veh/h)	718	1009	1547			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	59	117	57			
Volume Left	0	65	0			
Volume Right	59	0	0			
cSH	1009	1547	1700			
Volume to Capacity	0.06	0.04	0.03			
Queue Length 95th (ft)	5	3	0			
Control Delay (s)	8.8	4.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.8	4.3	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			4.4			
Intersection Capacity Utilization	20.1%		ICU Level of Service	A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 2: Belmont Avenue & Pine Avenue

7/23/2015

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	33	36	30	33	0
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	61	67	56	61	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	250	61	61			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	250	61	61			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	96			
cM capacity (veh/h)	707	1004	1542			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	61	122	61			
Volume Left	0	67	0			
Volume Right	61	0	0			
cSH	1004	1542	1700			
Volume to Capacity	0.06	0.04	0.04			
Queue Length 95th (ft)	5	3	0			
Control Delay (s)	8.8	4.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.8	4.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		20.2%		ICU Level of Service		A
Analysis Period (min)			15			