

4.06 Traffic Study

Key Findings from Traffic Impact Study

120 E. Scranton Avenue Condominiums

Lake Bluff, IL

- Project Traffic Generation Estimate from 16 Units
 - Morning Peak Hour – 2 In, 10 Out
 - Evening Peak Hour – 9 In, 4 Out
 - Daily (24-Hour) – 65 In, 65 Out
 - Represents a conservative traffic estimate based on buyer profile and assumption that all residents drive and do not utilize Metra
- Traffic Generation Estimate for Existing Use per Zoning (Bank & Single-Family Home)
 - Morning Peak Hour – 17 In, 12 Out
 - Evening Peak Hour – 21 In, 22 Out
 - Daily (24-Hour) – 214 In, 214 Out
- Proposed project would generate 50% less peak hour traffic than existing use
- Proposed project would generate 70% less daily (24-hour) traffic than existing use
- Traffic counts completed Thursday, May 5, 2016
- Intersection at four corners of project block all currently operate at highest Level of Service (A) during peak hours
- With project, all intersection at four corners of project block will continue to operate at highest Level of Service (A) during peak hours under current traffic controls
- Resulting traffic impact from project is minimal
- Project will provide 2 off-street parking spaces per unit per Village Code (32 total spaces)
- Guest parking will be on the street where ample parking is available
- Site access will be provided from a driveway on Oak Ave. and a driveway on Evanston Ave., both at the north corners of the property
- Existing bank drive-up exit drive on Oak Ave will be closed
- Two existing site access driveways on E. Scranton Ave. will be closed and replaced with 2 new parking spaces on the street, thereby eliminating mid-block conflicts
- Potential two-way reorientation of Oak Ave will improve local circulation and site access with negligible impacts on traffic operations

Traffic Impact Study

for the proposed

120 E. Scranton Avenue Condominiums

Lake Bluff, Illinois



Prepared For:



Prepared By:



May 13, 2016

Contents

List of Figures and Tables, iii

1.	Introduction.....	1
2.	Existing Conditions.....	4
	Site Location	4
	Street System Characteristics.....	4
	Existing Traffic, Pedestrian and Bicycle Volumes	5
	Public Transportation and Bicycle Paths	9
3.	Traffic Characteristics of 120 E. Scranton Avenue Condominiums.....	10
	Site Access	10
	Directional Distribution of Site Traffic.....	10
	Site Traffic Generation.....	11
	Trip Generation Comparison.....	13
	Site Traffic Assignment	13
4.	Total Projected Traffic Conditions	17
5.	Traffic Analysis	20
6.	Parking Analysis	23
7.	Conclusions and Recommendations	24
	Appendix	

List of Figures and Tables

Figures

1.	Site Location	2
2.	Aerial View of Site Area.....	3
3.	Existing Street Characteristics	6
4.	Existing Traffic Volumes.....	7
5.	Existing Pedestrian and Bicycle Traffic Volumes	8
6.	Estimated Directional Distribution	12
7.	Site-Generated Traffic Volumes with Existing Street System	15
8.	Site-Generated Traffic Volumes with Oak Avenue Two-Way Conversion	16
9.	Total Projected Traffic Volumes with Existing Street System.....	18
10.	Total Projected Traffic Volumes with Oak Avenue Two-Way Conversion.....	19

Tables

1.	Public Transportation Usage in Vicinity of Site	11
2.	Site Generated Traffic Volumes	13
3.	Trip Generation Comparison	14
4.	Level of Service Criteria – Unsignalized Intersections	21
5.	Summary of Intersection Capacity Analysis.....	22
6.	Zoning Ordinance Parking Requirements.....	23

1.

Introduction

This report presents the methodologies, findings, and recommendations of a Traffic Impact Study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed residential development at 120 E. Scranton Avenue in Lake Bluff, Illinois. The 0.76-acre site currently consists of five lots. The westerly three lots are within the Central Business District (CBD) zoning district and presently contain a vacant bank building with three drive-in lanes and adjoining 23-space parking lot. The easterly two lots are in the B Residence District (R-4) zoning district and presently contain a 15-space parking lot that supported the former bank.

The five-lot site is proposed to be redeveloped with 16 condominium units located within two three-story buildings, each supported by eight two-space ground-level parking garages (16 total parking spaces). Vehicular access to the parking garages will be provided from an east-west driveway that will extend across the north side of the site from Oak Avenue to Evanston Avenue. The site plan for the development is contained in the Appendix of this report.

Figure 1 shows the site location with respect to the area street system. **Figure 2** shows an aerial view of the site area.

The purpose of this study was to (1) examine existing traffic conditions in the vicinity of the site, (2) assess the impact that the proposed development would have on traffic and parking conditions in the area, (3) review site circulation, (4) evaluate site parking supply and demand, and (5) determine any street or access improvements necessary to accommodate the project.

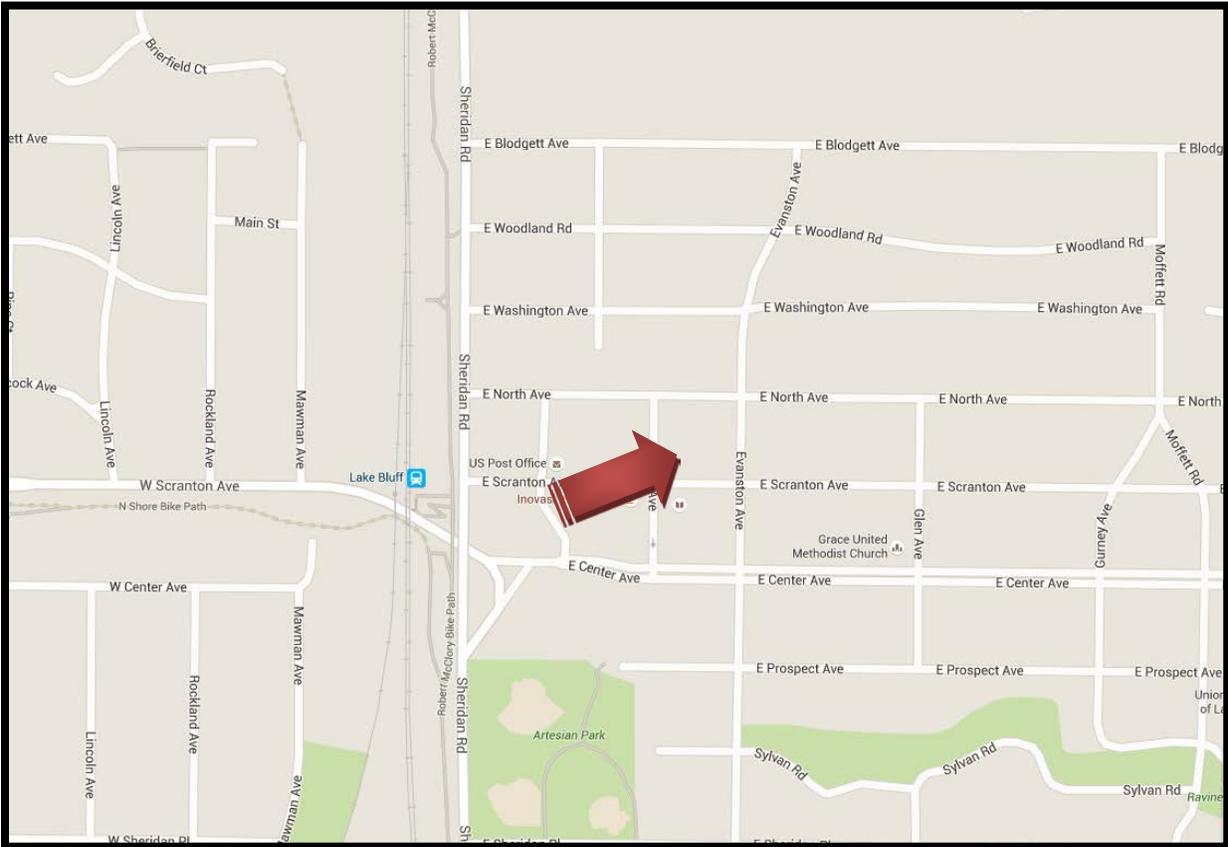


Figure 1
Site Location



Figure 2
Aerial View of Site Area

2.

Existing Conditions

Transportation conditions in the vicinity of the site were inventoried to obtain a database for projecting future conditions. Four general components of existing conditions were considered: (1) the geographical location of the site, (2) the characteristics of the area street system, (3) existing traffic, pedestrian and bicycle volumes, and (4) public transportation.

Site Location

The proposed development is located on a 0.76-acre site at 120 E. Scranton Avenue, which is on the north side of E. Scranton Avenue between Oak Avenue and Evanston Avenue. The site presently contains a vacant, one-story, approximately 3,900-square foot building most recently occupied by PNC Bank. Land uses surrounding the site include single- and multi-family residential buildings, commercial businesses, and the Lake Bluff Public Library.

Street System Characteristics

The principal streets serving the site are E. Scranton Avenue, Oak Avenue, Evanston Avenue, and E. North Avenue, all of which are under the jurisdiction of the Village of Lake Bluff. A description of these streets follows.

E. Scranton Avenue is an east-west street that extends from Sheridan Road east to Sunrise Avenue. It is classified by the Village as a local street to the east of E. Center Avenue. Adjacent to the site, E. Scranton Avenue is 35 feet wide with a two-lane cross-section and an 80-foot right-of-way. There is a parallel parking lane on both sides of the street with two-hour parking regulations in effect from 7:00 A.M. to 7:00 P.M. The posted speed limit on E. Scranton Avenue is 20 miles per hour (mph) and there are sidewalks along both sides of the street.

Oak Avenue is a local, north-south street that extends from E. North Avenue south to E. Center Avenue and is oriented in a one-way southbound direction. Oak Avenue is 23 feet wide with a 65-foot right-of-way. There is a sidewalk along the east side of the street. Parallel parking is permitted on the west side of the street but prohibited on the east side. The intersection of Oak Avenue and E. Scranton Avenue is under stop sign control on Oak Avenue and there are parallel-

line crosswalks on all approaches of the intersection. Oak Avenue has a posted speed limit of 25 mph.

Evanston Avenue is a north-south street that extends from E. Blodgett Avenue south to E. Sheridan Place and is classified by the Village as a collector street. Adjacent to the site, Evanston Avenue is 23 feet wide with a two-lane cross-section and a 65-foot right-of-way. Parking is prohibited at all times on both sides of the street. The intersection of Evanston Avenue and E. Scranton Avenue is under all-way stop sign control and there are parallel-line crosswalks on all approaches of the intersection. Evanston Avenue has a posted speed limit of 25 mph.

E. North Avenue is an east-west, two-lane local street that extends from Sheridan Road east to Maple Avenue. E. North Avenue is 23 feet wide within an 80-foot right-of-way, and there are sidewalks along both sides of the street. Two-hour parallel parking is permitted along the south side of E. North Avenue. Parking is prohibited on the north side of the street. The intersection of E. North Avenue with Evanston Avenue is under all-way stop sign control and there is a parallel-line crosswalk on the south approach of Evanston Avenue. The intersection of E. North Avenue with Oak Avenue is uncontrolled and there are no crosswalks at the intersection. The posted speed limit on E. North Avenue is 25 mph.

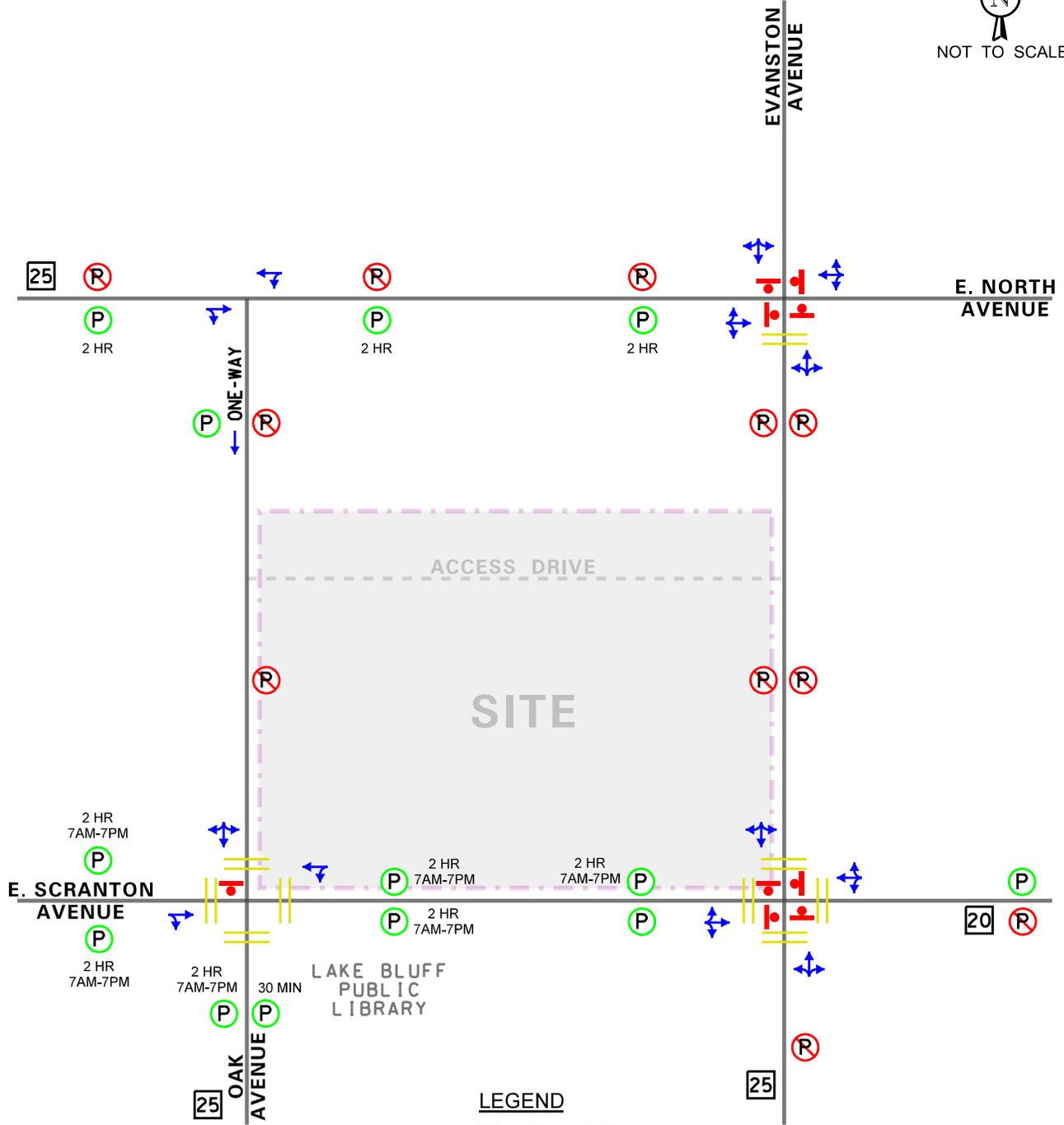
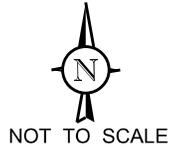
The existing street system characteristics are shown in **Figure 3**, including lane configurations, traffic controls and parking regulations.

Existing Traffic, Pedestrian and Bicycle Volumes

Traffic, pedestrian and bicycle counts were conducted by KLOA, Inc. at the intersections listed below on Thursday, May 5, 2016 during the morning (7:00 to 9:00 A.M.) and afternoon (4:00 to 6:00 P.M.) periods that coincide with the typical commuter rush hours.

- E. Scranton Avenue / Oak Avenue
- E. Scranton Avenue / Evanston Avenue
- E. North Avenue / Oak Avenue
- E. North Avenue / Evanston Avenue

The traffic count data indicates that the weekday morning peak hour occurs from 7:30 to 8:30 A.M. and the weekday afternoon peak hour occurs from 4:15 to 5:15 P.M. The existing weekday morning and afternoon peak-hour traffic volumes are shown in **Figure 4**. The morning and afternoon peak hour pedestrian and bicycle volumes are shown in **Figure 5**. Summaries of the traffic, pedestrian and bicycle count data are contained in the Appendix of this report.



LEGEND

-  - TRAVEL LANE
-  - STOP SIGN
-  - ON-STREET PARKING
-  - NO PARKING
-  - SPEED LIMIT
-  - CROSSWALK

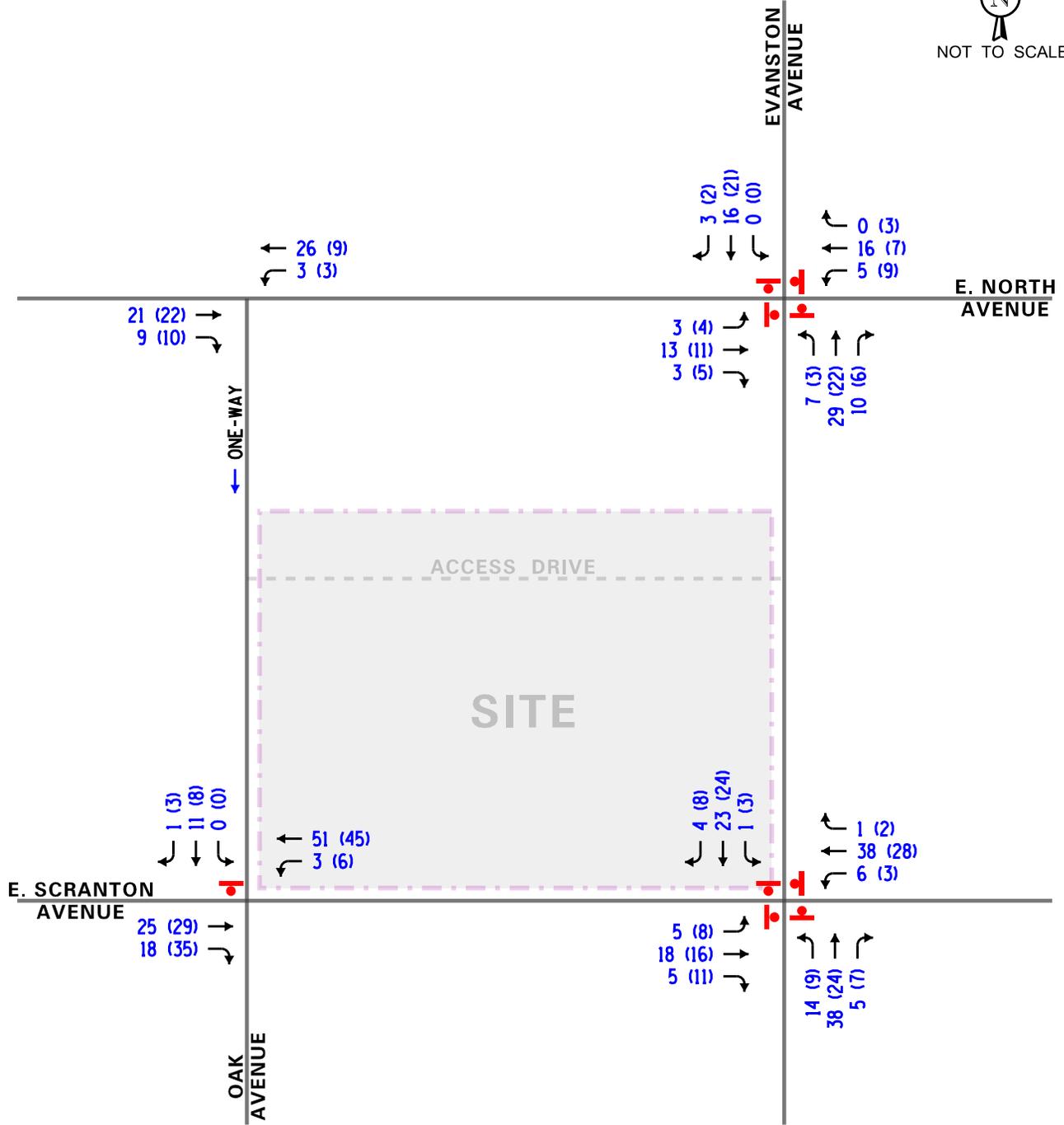
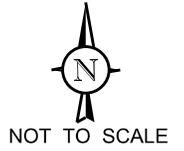
PROJECT:
120 E. Scranton Avenue
Lake Bluff, Illinois

TITLE:
Existing Street Characteristics



Job No: 16-125

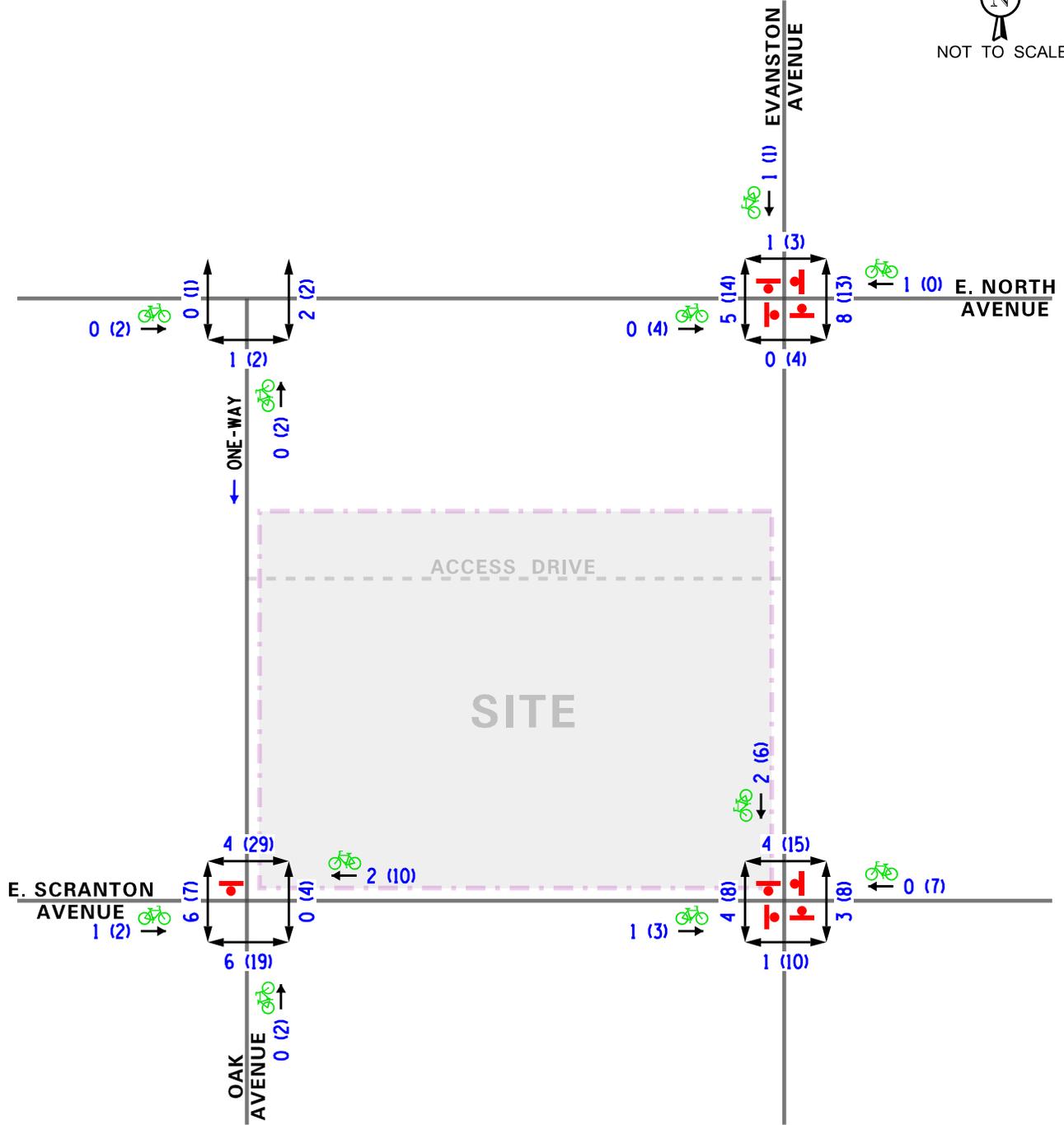
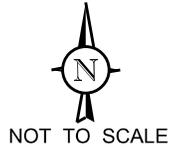
Figure: 3



LEGEND

- 00 - AM PEAK HOUR (7:30-8:30 AM)
- (00) - PM PEAK HOUR (4:15-5:15 PM)

PROJECT: 120 E. Scranton Avenue Lake Bluff, Illinois	TITLE: Existing Traffic Volumes	 Job No: 16-125 Figure: 4
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LEGEND

- 00 - AM PEAK HOUR (7:30-8:30 AM)
- (00) - PM PEAK HOUR (4:15-5:15 PM)
- 00 (00) - PEDESTRIAN VOLUME
- 00 (00) - BICYCLE VOLUME

PROJECT:
120 E. Scranton Avenue
Lake Bluff, Illinois

TITLE:
Existing Pedestrian and Bicycle
Traffic Volumes



Figure: 5

Public Transportation and Bicycle Paths

Accessibility to and from the site is greatly enhanced by its proximity to the Lake Bluff Metra commuter rail station and the Robert McClory Bike Path.

Metra commuter rail service is provided at the Lake Bluff Metra Station two blocks west of the site. The station is served by the Union Pacific North Line, which offers daily service between Kenosha and Chicago. Metra service at the Lake Bluff station generally operates between 4:28 A.M. and 1:36 A.M. on weekdays, between 5:10 A.M. and 1:36 A.M. on Saturdays, and between 7:21 A.M. and 1:36 A.M. on Sundays.

The Robert McClory Bike Path is located between Sheridan Road and the Union Pacific Railroad approximately two blocks west of the site. The bike path extends south to Highland Park where it continues to Wilmette as the Green Bay Bike Trail, and extends north into Wisconsin where it continues another 18.6 miles as the Kenosha County Bike Trail. Just south of W. Scranton Avenue, the bike trail connects with the North Shore Bike Path, which parallels IL 176 and connects with the Skokie Valley Trail and the 56-mile Des Plaines River Trail.

3.

Traffic Characteristics of 120 E. Scranton Ave Condos

To determine the traffic impact of the proposed residential development on the area street system, it was necessary to understand the site access system, determine the directions from which traffic would approach and depart the site, and estimate the number of peak-hour vehicle trips that would be generated by the development.

Site Access

The site is currently accessed from four driveways, two on E. Scranton Avenue and two on Oak Avenue. The proposed development plan for the 120 E. Scranton Avenue Condominium project includes the closing of the two driveways on E. Scranton Avenue and the southern driveway on Oak Avenue that formerly served as the exit for the bank drive-in lanes. The development plan envisions vehicular access to the condominium's ground-level parking garages being provided from a 22-foot wide two-way private driveway that will extend across the north side of the site from Oak Avenue to Evanston Avenue, allowing site traffic to enter and exit the development from either street. The location of the driveway on Oak Avenue will be in the approximately location of the existing northern driveway that served the bank.

With the street system in its current configuration, site traffic would be able to turn left or right to enter and exit the site on Evanston Avenue, but could only turn left to enter and exit the site on Oak Avenue due to the one-way southbound orientation of the street. To eliminate these site access limitations and improve traffic circulation in the area, The Roanoke Group would like the Village to consider converting the one-way segment of Oak Avenue between E. North Avenue and E. Scranton Avenue to two-way travel. The subsequent traffic analysis in this report evaluates traffic conditions with and without the two-way conversion of Oak Avenue.

Directional Distribution of Site Traffic

The directions from which traffic will approach and depart the site are a function of several variables, including the location of the regional highways and arterial streets (i.e., I-94, US 41, IL 176, Sheridan Road), the orientation of the local street system (i.e., one-way streets), and the ease with which motorists can travel over various sections of the street system without

encountering congestion. Based on the above as well as current traffic patterns in the area, the directional distribution of site-generated traffic was estimated and is shown in **Figure 6**. Once motorists arrive into the downtown area of Lake Bluff from these regional roadways, they have multiple options for reaching the site, including W. Scranton Avenue, Sheridan Road, E. Scranton Avenue, E. Center Avenue, Evanston Avenue, E. North Avenue, and Oak Avenue.

Site Traffic Generation

The volume of traffic generated by a development is based on the type of land use and the size of the development, with consideration given to the availability of public transportation. The United States Census Bureau conducts surveys of numerous demographic, social, economic and housing characteristics including commuting modes. **Table 1** shows travel mode data for workers aged 16 and older that reside within the Census Tract Block Group bounded by E. Blodgett Avenue on the north, Moffett Road on the east, E. Center Avenue on the south, and Sheridan Road on the west, which falls within a ½-mile transit shed of the Lake Bluff Metra Station. As shown, 24 percent of working Lake Bluff residents residing within this transit shed travel to work by means other than by private vehicle, and another four percent work at home.

Table 1
PUBLIC TRANSPORTATION USAGE IN VICINITY OF SITE¹

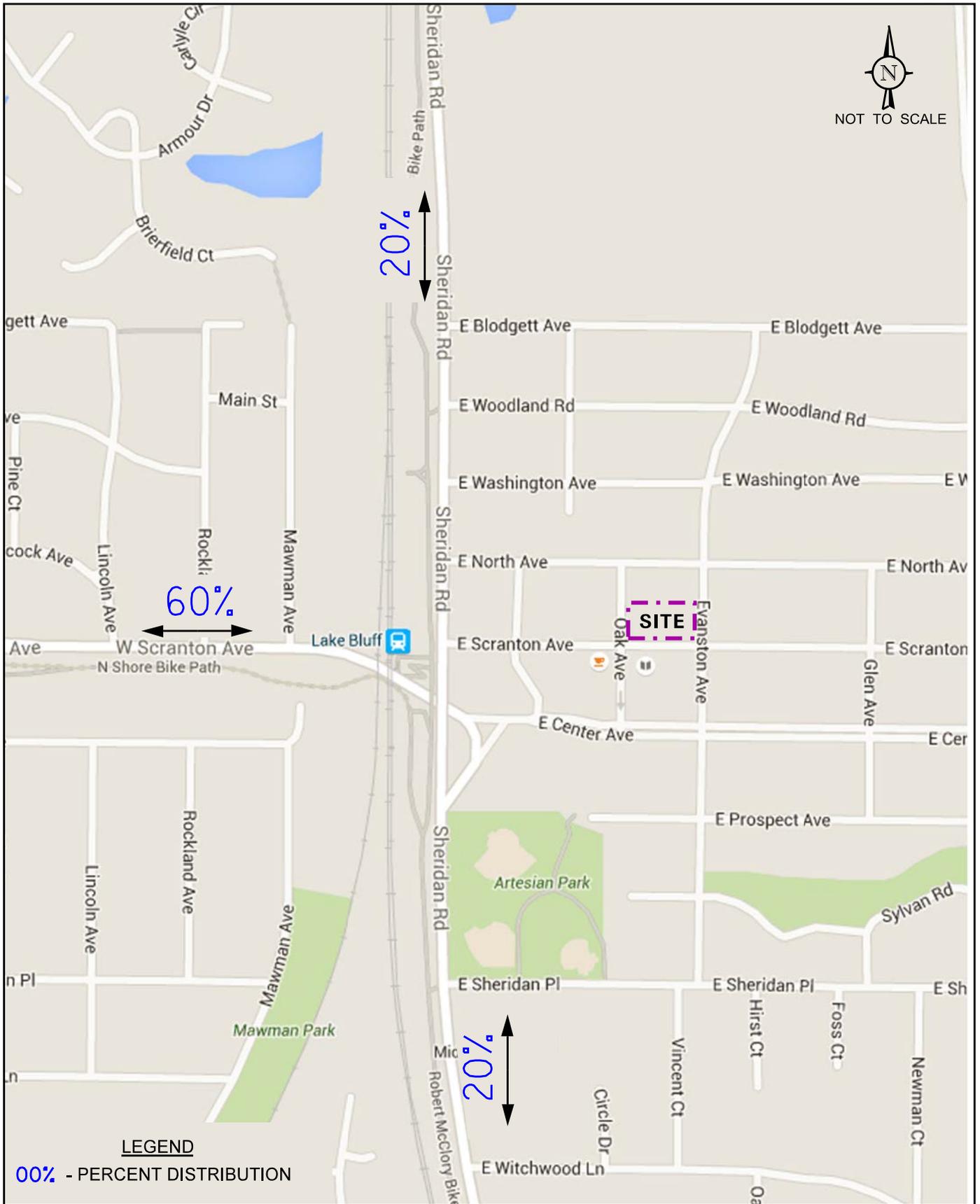
Area	Workers Aged 16 & Older	Travel by Car, Truck, Van, Motorcycle ²	Travel by Public Transportation ³	Travel by Walking or Biking	Work at Home
Census Tract 8633, Block Group 1	432	311 (72%)	94 (22%)	11 (2%)	16 (4%)

¹ Source: U.S. Census Bureau 2010-2014 American Community Survey 5-Year Estimates - Census Tract 8633 Block Group 1

² Includes travel by other non-defined modes

³ All modes of public transportation including Metra, CTA rapid transit, CTA bus and Pace bus.

The number of vehicle trips estimated to be generated by the proposed 120 E. Scranton Avenue development is shown in **Table 2** and was based on trip generation rates published in the Institute of Transportation Engineers' *Trip Generation Manual*, 9th Edition, 2012. Approximately 12 to 13 new vehicle trips are estimated to be added to the street system during the weekday morning and afternoon peak hours, respectively. Over a 24-hour period, approximately 130 vehicle trips are estimated to be added to the street system on a typical weekday. In order to provide the most conservative analysis, it was assumed that all residents of the proposed development will drive. As such, the trip generation estimate for the development was not reduced to reflect travel by public transit or non-motorized means.



LEGEND
 00% - PERCENT DISTRIBUTION

PROJECT:
 120 E. Scranton Avenue
 Lake Bluff, Illinois

TITLE:
 Estimated Directional Distribution

KLOA
 Job No: 16-125
 Figure: 6

Table 2
SITE GENERATED TRAFFIC VOLUMES

Land Use	Density	Number of Vehicle Trips ¹								
		A.M. Peak Hour			P.M. Peak Hour			Daily Two-Way		
		In	Out	Total	In	Out	Total	In	Out	Total
Condominiums	16 units	2	10	12	9	4	13	65	65	130

¹ Based on *Trip Generation Manual*, 9th Edition, Institute of Transportation Engineers, 2012 for Land Use Code 230 – Condominiums/Townhouses

Trip Generation Comparison

Under current zoning, the five lot site could be redeveloped with a commercial use on the westerly three lots that contain the vacant bank building and a single family home on the easterly two lots. The commercial use could be a bank that makes use of the existing vacant bank building or potentially could be a different commercial use(s) in a new building that would replace the existing bank building.

Table 3 shows a comparison of the projected weekday peak hour and daily (24-hour) trip generation between the proposed 16-unit condominium development and the potential redevelopment of the site under current zoning, which was assumed to include the re-use of the existing 3,901-square foot bank building (with three drive-in lanes) as a bank and a single family home on the eastern end of the site. Since the existing bank building is currently vacant, the comparison is based on ITE trip generation rates and on local area bank traffic surveys performed in the past by KLOA, Inc.

As shown in Table 3, during the weekday peak hours, the proposed condominium development is projected to generate less than one-half of the volume of traffic that would be generated by re-use of the current bank building as a bank together with a single-family home. Over a 24-hour period, on a typical weekday, the proposed condominium development is projected to generate approximately one-third of the combined traffic volume of the bank and single-family home.

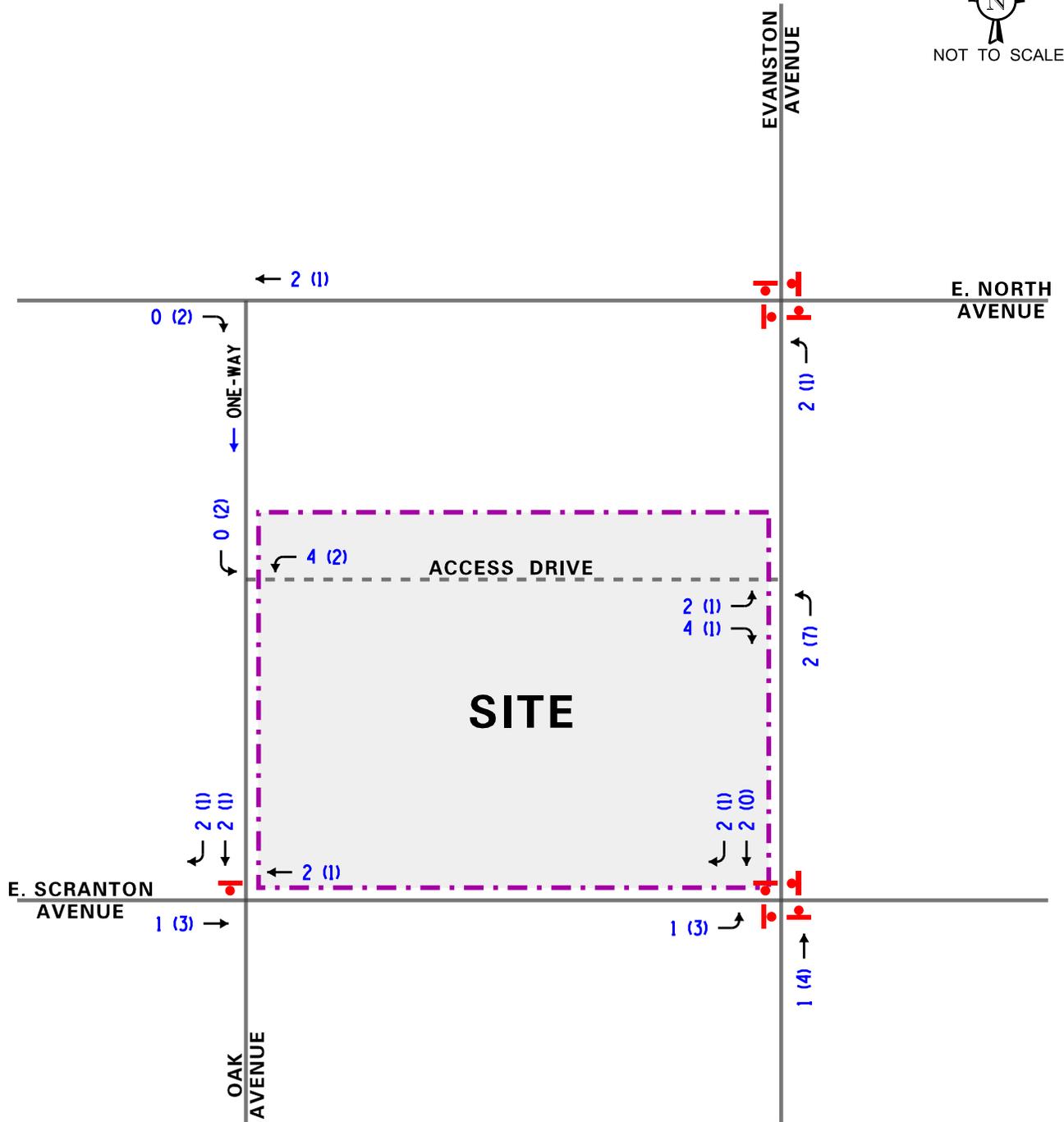
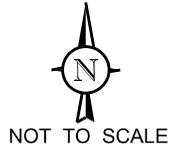
Site Traffic Assignment

The peak-hour traffic volumes projected to be generated by the proposed 120 E. Scranton Avenue condominium development were assigned to the area street system based on the directional distribution shown in Figure 6. Two site traffic assignments were performed. **Figure 7** shows the assignment of the site-generated peak hour traffic volumes with the street system in its current configuration. **Figure 8** shows the assignment of the site-generated peak hour traffic volumes with the conversion of Oak Avenue to two-way flow between E. North Avenue and E. Scranton Avenue.

Table 3
TRIP GENERATION COMPARISON

Land Use	Density	Number of Vehicle Trips								
		A.M. Peak Hour			P.M. Peak Hour			Daily Two-Way		
		In	Out	Total	In	Out	Total	In	Out	Total
<u>Proposed Use</u>										
Proposed Condominiums ¹	16 units	2	10	12	9	4	13	65	65	130
<u>Potential Uses under Current Zoning</u>										
Existing Bank ^{2,3}	3,901 sf / 3 drive-in lanes	17	11	28	20	22	42	209	209	418
Single-Family Home ⁴	1 unit	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>5</u>	<u>10</u>
	Total	17	12	29	21	22	43	214	214	428
	Difference	(15)	(2)	(17)	(12)	(18)	(30)	(149)	(149)	(298)

¹ Based on *Trip Generation Manual*, 9th Edition, ITE, 2012 for Land Use Code 230 – Condominiums/Townhouses
² A.M. Peak Hour and Daily trip generation based on *Trip Generation Manual*, 9th Edition, ITE, 2012 for Land Use Code 912 – Drive-In Bank
³ P.M. Peak Hour trip generation based on KLOA, Inc. surveys local area banks
⁴ Based on *Trip Generation Manual*, 9th Edition, ITE, 2012 for Land Use Code 210 – Single-Family Detached Housing



LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:15-5:15 PM)
- - - - PROPOSED ACCESS DRIVE

PROJECT:

120 E. Scranton Avenue
Lake Bluff, Illinois

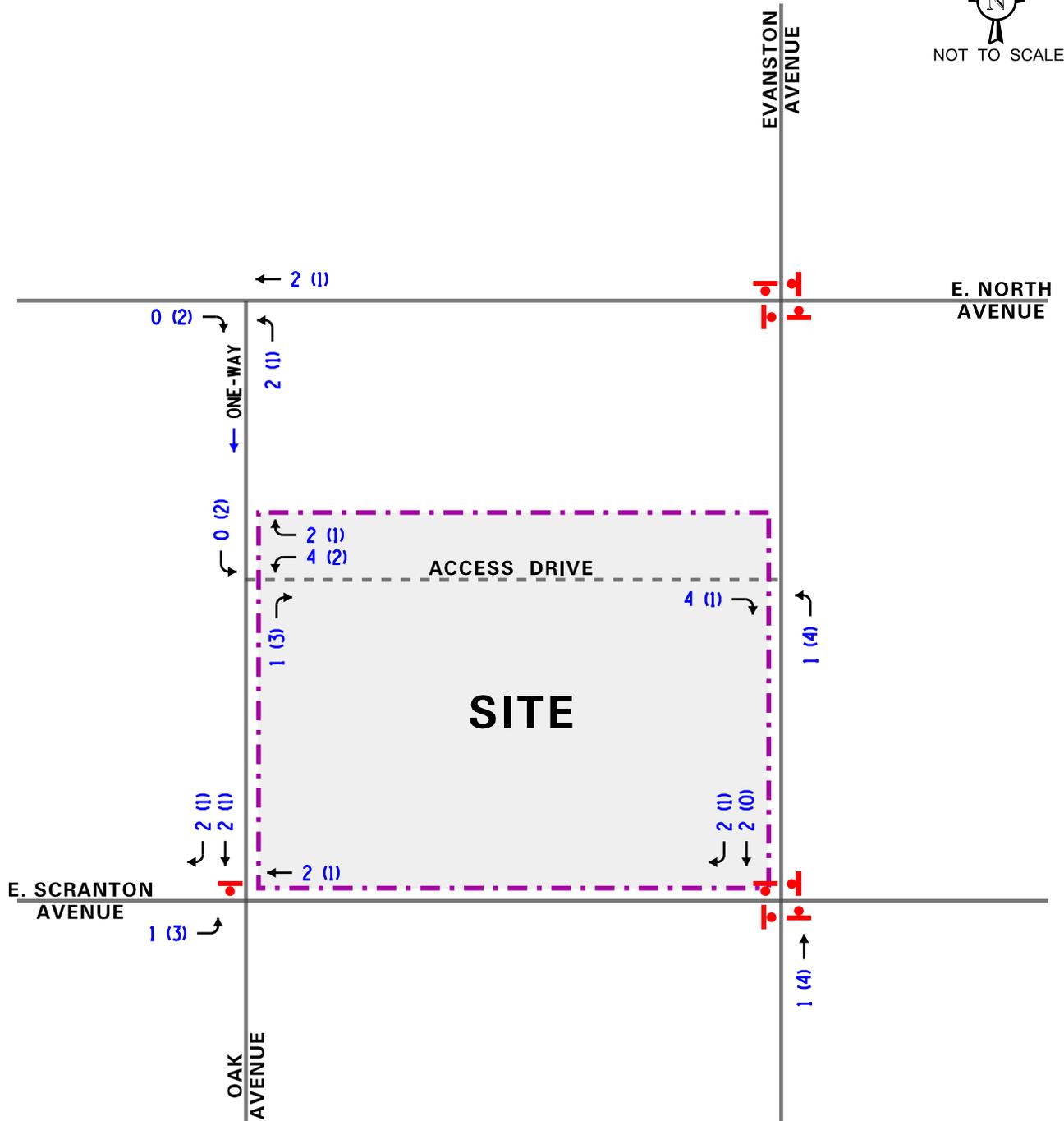
TITLE:

Site-Generated Traffic Volumes
with Existing Street System



Job No: 16-125

Figure: 7



LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:15-5:15 PM)
- - - - PROPOSED ACCESS DRIVE

PROJECT:

120 E. Scranton Avenue
Lake Bluff, Illinois

TITLE:

Site-Generated Traffic Volumes
with Oak Avenue Two-Way Conversion



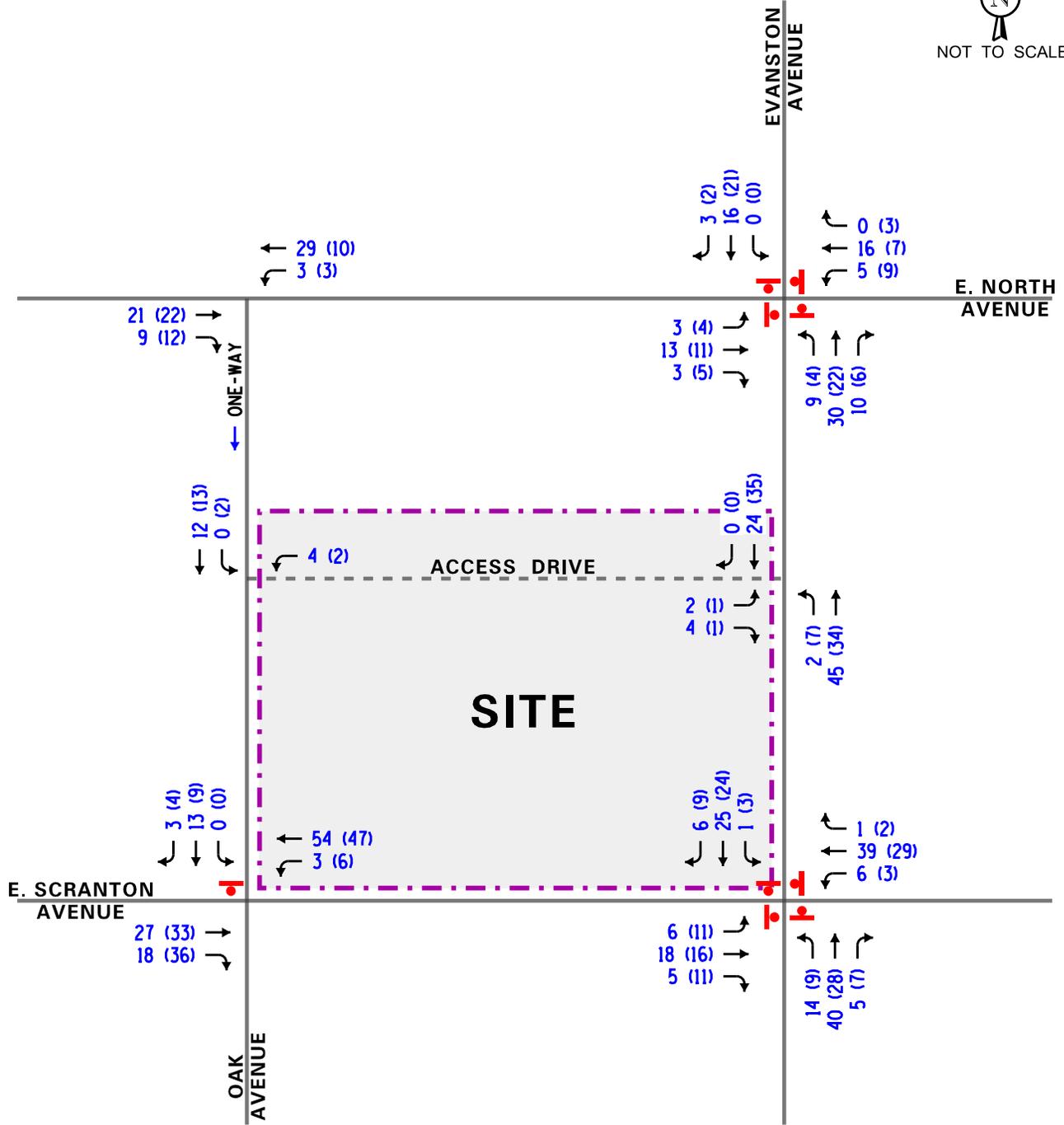
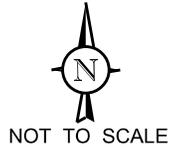
Figure: 8

4.

Total Projected Traffic Conditions

The peak hour traffic volumes generated by the proposed 120 E. Scranton Avenue Condominiums (Figures 7 and 8) were combined with the existing traffic volumes (Figure 4) to determine the total projected peak-hour traffic volumes upon completion of the development. **Figure 9** shows the total projected traffic volumes with the street system in its current configuration. **Figure 10** shows the total projected traffic volumes with the conversion of Oak Avenue to two-way flow between E. North Avenue and E. Scranton Avenue.

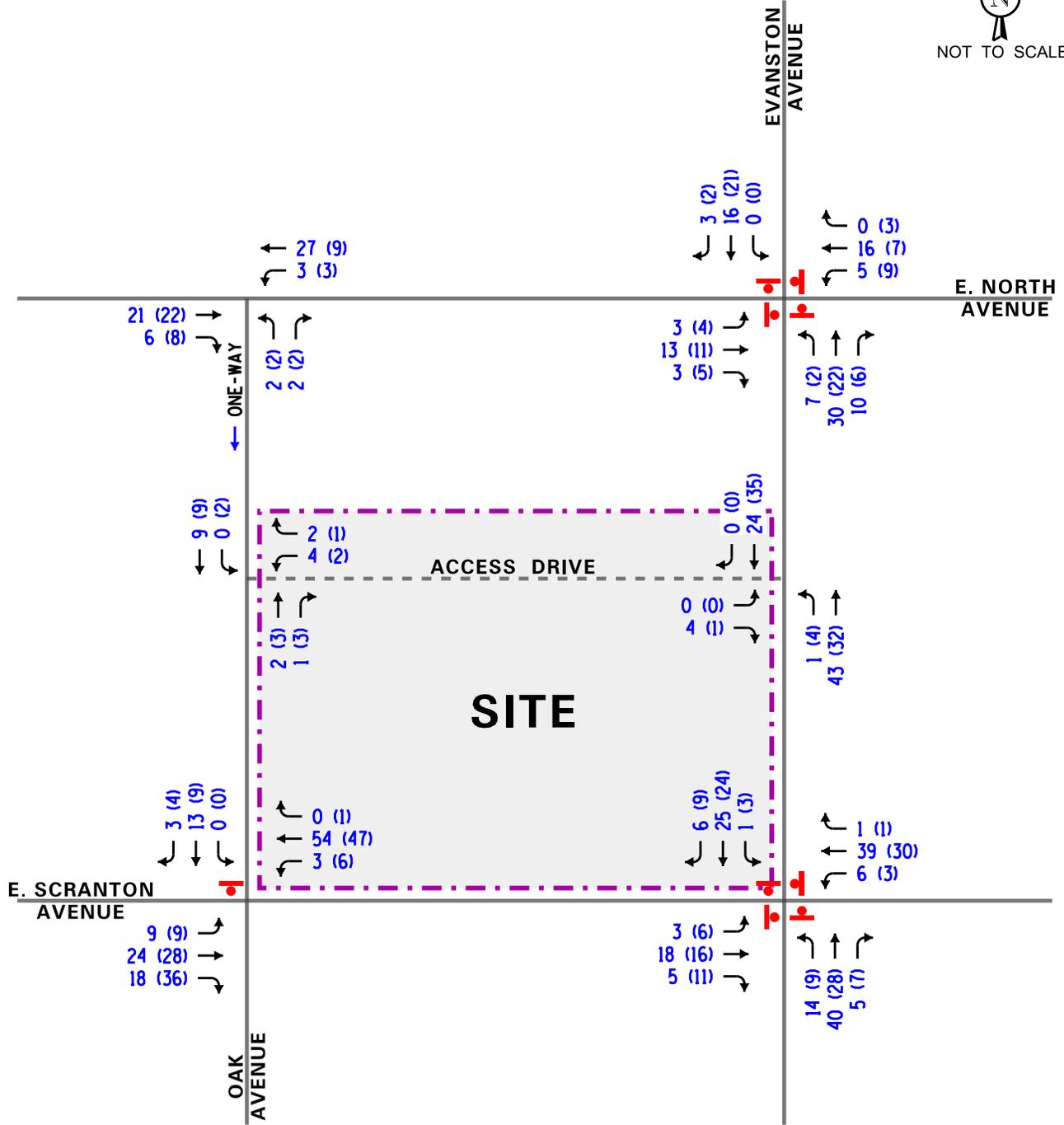
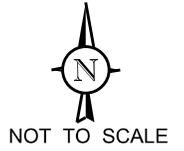
The total projected traffic volumes reflect a traffic growth factor of one percent per year in consideration of potential ambient growth in through traffic along E. Scranton Avenue to the year 2018, which is the anticipated buildout year of the 120 E. Scranton Avenue Condominium project.



LEGEND

- 00 - AM PEAK HOUR (7:30-8:30 AM)
- (00) - PM PEAK HOUR (4:15-5:15 PM)
- - - - PROPOSED ACCESS DRIVE

PROJECT: 120 E. Scranton Avenue Lake Bluff, Illinois	TITLE: Total Projected Traffic Volumes with Existing Street System	 Job No: 16-125
		Figure: 9



LEGEND

- 00** - AM PEAK HOUR (7:30-8:30 AM)
- (00)** - PM PEAK HOUR (4:15-5:15 PM)
- - - - PROPOSED ACCESS DRIVE

PROJECT:

120 E. Scranton Avenue
Lake Bluff, Illinois

TITLE:

Total Projected Traffic Volumes
with Oak Avenue Two-Way Conversion



Figure: 10

5.

Traffic Analysis

Capacity analyses were performed for the intersections of E. Scranton Avenue and E. North Avenue with Oak Avenue and Evanston Avenue to determine the operation of the existing street system, evaluate the incremental impact of the proposed condominium development, and determine the ability of street system to accommodate future traffic demands. Analyses were performed for the following weekday morning and afternoon peak hour traffic conditions:

1. Existing traffic conditions
2. Total projected traffic conditions with existing street system configuration
3. Total projected traffic conditions with two-way conversion of Oak Avenue

The capacity analyses were accomplished using HCS2010 computer software, which is based on the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual 2010*. The methodologies utilize traffic controls, traffic volumes, and other characteristics to determine the average control delay, levels of service, and vehicle queuing at an intersection.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is a qualitative term developed to express intersection operating conditions. Alpha designations from A to F are assigned based on the average control delay experienced by vehicles passing through the intersection. Control delay is that portion of the total delay attributed to the traffic signal or stop sign control operation, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay until resumption of free flow speed. Level of Service A is the highest grade (best traffic flow, least delays), Level of Service E represents saturated or at-capacity conditions, and Level of Service F is the lowest grade (oversaturated conditions, extensive delays). Typically, Level of Service D is the lowest acceptable grade for peak-hour conditions in a suburban environment such as Lake Bluff.

For all-way stop controlled (AWSC) intersections, an intersection level of service is calculated based on the weighted average of the delay on each of the approaches to the intersection. For two-way stop controlled (TWSC) intersections, levels of service are only calculated for the approaches controlled by a stop sign (not for the intersection as a whole). Level of service F at

TWSC intersections occurs when there are not enough suitable gaps in the flow of traffic on the major (uncontrolled) street to allow minor-street traffic to safely enter the major street flow or cross the major street.

The *Highway Capacity Manual* criteria for levels of service and the corresponding control delay for unsignalized intersections are shown in **Table 4**. **Table 5** summarizes the results of the traffic analyses for the existing and total projected weekday morning and afternoon peak hour conditions. The capacity analysis worksheets are included in the Appendix of this report.

The capacity analysis results shown in **Table 5** indicate that the traffic impact of the 120 E. Scranton Avenue Condominiums development is minimal. All of the study area intersection presently operate at the very good level of service (LOS) of A in the morning and afternoon peak hours, and will continue to operate at the same level of service upon occupancy of the 120 E. Scranton Avenue Condominium project with minimal increases in average vehicle delay.

In addition, the intersections of the site access driveways with Evanston Avenue and Oak Avenue with also operate at level of service A under total projected conditions.

Table 4
LEVEL OF SERVICE CRITERIA – UNSIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (seconds per vehicle)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Source: *Highway Capacity Manual*, 2010.

Table 5
SUMMARY OF INTERSECTION CAPACITY ANALYSIS

Intersection	Existing Conditions				Total Projected Conditions (w/ Existing Street System)				Total Projected Conditions (w/ Oak Ave Two-Way Conversion)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
<i>Unsignalized Intersections / Critical Movements</i>												
E. Scranton Ave / Evanston Ave ¹	A	7.3	A	7.2	A	7.3	A	7.2	A	7.3	A	7.2
E. North Ave / Evanston Ave ¹	A	7.1	A	7.1	A	7.1	A	7.1	A	7.1	A	7.1
E. Scranton Ave / Oak Ave ²												
• Eastbound Left-Turn	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	A	7.3	A	7.3
• Westbound Left-Turn	A	7.3	A	7.3	A	7.3	A	7.3	A	7.3	A	7.3
• Southbound Approach	A	9.6	A	9.4	A	9.6	A	9.4	A	9.6	A	9.5
E. North Ave / Oak Ave ²												
• Westbound Left-Turn	A	7.3	A	7.3	A	7.3	A	7.3	A	7.3	A	7.3
• Northbound Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	A	8.6	A	8.6
Evanston Ave / Site Access Dr ²												
• Eastbound Approach	n/a	n/a	n/a	n/a	A	8.6	A	8.7	A	8.4	A	8.5
• Northbound Left-Turn	n/a	n/a	n/a	n/a	A	7.2	A	7.3	A	7.2	A	7.3
Oak Ave / Site Access Dr ²												
• Westbound Approach	n/a	n/a	n/a	n/a	A	5.8	A	6.4	A	8.5	A	8.5
• Southbound Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	A	7.2	A	7.2

Note: LOS=Level of Service; Delay is measured in seconds. n/a – not applicable.
¹ All-way Stop Control
² Two-way Stop Control

6. Parking Supply

The 120 E. Scranton Avenue Condominiums development will provide a total of 32 off-street parking spaces in ground-level parking garages. These parking spaces will be enclosed and accessible to residents only. The resulting parking ratio for the project is 2.0 spaces per unit. The parking garages will be accessed from the proposed east-west driveway that will extend across the north side of the site from Oak Avenue to Evanston Avenue.

By comparison, the former PNC Bank on the property provided 38 off-street parking spaces in a surface lot accessed from E. Scranton Avenue and Oak Avenue.

The site is located within both the CBD and R-4 zoning districts. The Village of Lake Bluff Zoning Ordinance specifies that multi-family residential developments provide two off-street parking spaces per unit, as shown in **Table 6**. Thus, the proposed 32-space off-street parking supply satisfies the Zoning Ordinance parking requirement.

Table 6
ZONING ORDINANCE PARKING REQUIREMENTS

Multiple-Family Dwelling Unit Density	Parking Ratio	Parking Spaces Required
16 Units	2.0 spaces/unit	32

Guest parking will occur on the street along E. Scranton Avenue. On the block between Oak Avenue and Evanston Avenue there are currently six parallel parking spaces along both the north and south sides of the street. The parking spaces on the north side of the street, and the four parking spaces in front of the Lake Bluff Public Library on the south side of the street, all have two-hour parking regulations from 7:00 A.M. to 7:00 P.M. The remaining two spaces in front of the single-family residences on the south side of the street are unregulated. The closure of the existing two site access driveways on E. Scranton Avenue will allow for the addition of two parking spaces on the north side of the street and an approximately 40-foot long loading zone at the center of the block between the two proposed condominium buildings.

7.

Conclusions and Recommendations

Based on the 120 E. Scranton Avenue Condominiums development plan and the preceding Traffic Impact Study, the following conclusions and recommendations are made:

1. The site is ideally situated within a short two- block walking distance of the Village of Lake Bluff's downtown commercial district and Metra Station, which will effectively lower the traffic generation from the proposed development.
2. Approximately 12 to 13 new vehicle trips are estimated to be added to the street system during the weekday morning and afternoon peak hours, respectively. This estimate conservatively assumes that all residents of the development drive and do not take advantage of the alternative travel modes available nearby (i.e., Metra commuter rail, Robert McClory Bike Path).
3. A trip generation comparison between the proposed 16-unit condominium development and the potential redevelopment of the site under current zoning, which assumes a single-family home and the re-use of the existing bank building as a bank, indicates that the condominium development would generate less than one-half of the volume of traffic of the bank/single-family home during the weekday peak hours and approximately one-third of the traffic volume of the bank/single-family home over a 24-hour period.
4. All study area intersections presently operate at the very good level of service (LOS) of A in the morning and afternoon peak hours, and will continue to operate at the same level of service upon occupancy of the 120 E. Scranton Avenue Condominium project with minimal increases in average vehicle delay.
5. As such, the traffic impact from the proposed development will be minimal and the adjoining street system has adequate capacity to accommodate site-generated traffic safely and efficiently under the current traffic controls.
6. Vehicular access to the site and the condominium parking garages will be provided from a new 22-foot wide two-way private driveway that will extend across the north side of the site from Oak Avenue to Evanston Avenue, allowing site traffic to enter and exit the development from either street.

7. The two current access driveways to the site on E. Scranton Avenue will be closed, as will the southern access driveway on Oak Avenue that formerly served as the exit drive for the bank drive-in lanes.
8. The closure of the existing two site access driveways on E. Scranton Avenue will eliminate mid-block pedestrian conflicts along the site frontage and allow for the addition of two parking spaces on the north side of the street and an approximately 40-foot long loading zone at the center of the block between the two proposed condominium buildings. This would increase the parking capacity on the north side of the street by 25% (from 6 spaces to 8 spaces).
9. The proposed development will provide 32 enclosed parking spaces for residents (2.0 spaces/unit), which satisfies the off-street parking requirement from the Village of Lake Bluff's Zoning Ordinance.
10. Guest parking will occur on the street along E. Scranton Avenue where there is ample parking available on both sides of the street.
11. The one-way southbound orientation of Oak Avenue hampers traffic circulation in the area and limits site ingress and egress. Consideration should be given to converting the one-way segment of Oak Avenue between E. North Avenue and E. Scranton Avenue to two-way travel.
12. The traffic analysis indicates that the proposed reorientation of Oak Avenue to two-way travel would have a negligible impact on traffic operations at the Oak Avenue intersections with E. Scranton Avenue and E. North Avenue.
13. If this one block segment of Oak Avenue is converted to two-way travel, a stop sign should be installed on Oak Avenue at E. North Avenue and parallel parking should be prohibited on both sides of the street, similar to the parking regulations on Evanston Avenue.

Appendix

Site Plan

Traffic Counts

Lake Bluff, IL Weather: Sunny and Cool
 Scranston Ave and Oak Ave
 Thursday May 5, 2016

05/06/16
 10:08:21

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - by Mvmt

Intersection # 4 scranton/oak													
Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
700	0	2	0	0	7	0	0	0	0	5	4	0	18
715	2	1	0	0	13	1	0	0	0	10	4	0	31
730	1	5	0	0	18	1	0	0	0	5	12	0	42
745	0	1	0	0	7	2	0	0	0	4	6	0	20
800	0	4	0	0	9	0	0	0	0	5	5	0	23
815	0	1	0	0	17	0	0	0	0	4	2	0	24
830	0	2	0	0	7	2	0	0	0	3	5	0	19
845	1	2	0	0	8	0	0	0	0	7	2	0	20
1600	1	0	0	0	2	0	0	0	0	1	6	0	10
1615	0	2	0	0	7	1	0	0	0	9	9	0	28
1630	2	2	0	0	15	1	0	0	0	4	7	0	31
1645	0	2	0	0	11	1	0	0	0	12	8	0	34
1700	1	2	0	0	12	3	0	0	0	10	5	0	33
1715	2	0	0	0	5	0	0	0	0	3	10	0	20
1730	1	1	0	0	8	2	0	0	0	9	6	0	27
1745	0	1	0	0	6	1	0	0	0	14	15	0	37
Total	11	28	0	0	152	15	0	0	0	105	106	0	417

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - Totals

Intersection # 4 scranton/oak													
Begin Time	Approach Totals				Exit Totals				Int Total				
	N	E	S	W	N	E	S	W					
700	2	7	0	9	0	4	7	7	18				
715	3	14	0	14	0	4	12	15	31				
730	6	19	0	17	0	12	11	19	42				
745	1	9	0	10	0	6	7	7	20				
800	4	9	0	10	0	5	9	9	23				
815	1	17	0	6	0	2	5	17	24				
830	2	9	0	8	0	5	7	7	19				
845	3	8	0	9	0	2	9	9	20				
1600	1	2	0	7	0	6	1	3	10				
1615	2	8	0	18	0	9	12	7	28				
1630	4	16	0	11	0	7	7	17	31				
1645	2	12	0	20	0	8	15	11	34				
1700	3	15	0	15	0	5	15	13	33				
1715	2	5	0	13	0	10	3	7	20				
1730	2	10	0	15	0	6	12	9	27				
1745	1	7	0	29	0	15	16	6	37				
Total	39	167	0	211	0	106	148	163	417				

Lake Bluff, IL Weather: Sunny and Cool
 Scranston Ave and Oak Ave
 Thursday May 5, 2016

05/06/16
 10:08:21

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 4 scranton/oak

Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	3	9	0	0	45	4	0	0	0	24	26	0	111
715	3	11	0	0	47	4	0	0	0	24	27	0	116
730	1	11	0	0	51	3	0	0	0	18	25	0	109
745	0	8	0	0	40	4	0	0	0	16	18	0	86
800	1	9	0	0	41	2	0	0	0	19	14	0	86
815	1	5	0	0	32	2	0	0	0	14	9	0	63*
830	1	4	0	0	15	2	0	0	0	10	7	0	39*
845	1	2	0	0	8	0	0	0	0	7	2	0	20*
1600	3	6	0	0	35	3	0	0	0	26	30	0	103
1615	3	8	0	0	45	6	0	0	0	35	29	0	126
1630	5	6	0	0	43	5	0	0	0	29	30	0	118
1645	4	5	0	0	36	6	0	0	0	34	29	0	114
1700	4	4	0	0	31	6	0	0	0	36	36	0	117
1715	3	2	0	0	19	3	0	0	0	26	31	0	84*
1730	1	2	0	0	14	3	0	0	0	23	21	0	64*
1745	0	1	0	0	6	1	0	0	0	14	15	0	37*

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 4 scranton/oak

Begin Time	Approach Totals				Exit Totals				Int Total
	N	E	S	W	N	E	S	W	
700	12	49	0	50	0	26	37	48	111
715	14	51	0	51	0	27	39	50	116
730	12	54	0	43	0	25	32	52	109
745	8	44	0	34	0	18	28	40	86
800	10	43	0	33	0	14	30	42	86
815	6	34	0	23	0	9	21	33	63*
830	5	17	0	17	0	7	16	16	39*
845	3	8	0	9	0	2	9	9	20*
1600	9	38	0	56	0	30	35	38	103
1615	11	51	0	64	0	29	49	48	126
1630	11	48	0	59	0	30	40	48	118
1645	9	42	0	63	0	29	45	40	114
1700	8	37	0	72	0	36	46	35	117
1715	5	22	0	57	0	31	31	22	84*
1730	3	17	0	44	0	21	28	15	64*
1745	1	7	0	29	0	15	16	6	37*

Lake Bluff, IL Weather: Sunny and Cool
 Scranston Ave and Evanston Ave
 Thursday May 5, 2016

05/06/16
 10:04:46

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - by Mvmt

Intersection # 3 scranston/evanston													
Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
700	2	4	0	0	5	0	0	4	2	2	2	0	21
715	0	3	0	0	7	1	0	0	3	0	3	1	18
730	0	2	0	0	16	1	2	9	3	1	10	2	46
745	0	11	0	1	6	1	1	5	3	2	4	1	35
800	1	5	0	0	8	3	1	7	1	1	2	2	31
815	3	5	1	0	8	1	1	17	7	1	2	0	46
830	1	2	0	0	6	1	1	2	4	3	3	0	23
845	0	4	1	0	7	0	0	4	0	2	1	0	19
1600	3	9	0	0	2	2	2	5	3	1	6	1	34
1615	5	8	3	1	5	0	1	8	1	4	7	3	46
1630	3	3	0	1	2	0	3	9	5	2	1	2	31
1645	0	8	0	0	13	2	1	3	1	3	4	2	37
1700	0	5	0	0	8	1	2	4	2	2	4	1	29
1715	0	8	0	0	2	1	0	7	3	2	3	2	28
1730	1	5	0	1	4	0	4	11	4	3	2	2	37
1745	1	5	0	0	4	2	1	9	2	4	7	4	39
Total	20	87	5	4	103	16	20	104	44	33	61	23	520

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - Totals

Intersection # 3 scranston/evanston										
Begin Time	Approach Totals				Exit Totals				Int Total	
	N	E	S	W	N	E	S	W		
700	6	5	6	4	4	2	6	9	21	
715	3	8	3	4	1	3	4	10	18	
730	2	17	14	13	11	12	4	19	46	
745	11	8	9	7	7	5	14	9	35	
800	6	11	9	5	9	3	9	10	31	
815	9	9	25	3	17	4	7	18	46	
830	3	7	7	6	2	4	6	11	23	
845	5	7	4	3	4	2	6	7	19	
1600	12	4	10	8	6	8	12	8	34	
1615	16	6	10	14	12	11	12	11	46	
1630	6	3	17	5	12	4	5	10	31	
1645	8	15	5	9	5	5	13	14	37	
1700	5	9	8	7	5	6	8	10	29	
1715	8	3	10	7	9	3	11	5	28	
1730	6	5	19	7	14	6	8	9	37	
1745	6	6	12	15	13	8	11	7	39	
Total	112	123	168	117	131	86	136	167	520	

Lake Bluff, IL Weather: Sunny and Cool
 Scranston Ave and Evanston Ave
 Thursday May 5, 2016

05/06/16
 10:04:47

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 3 scranston/evanston

Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	2	20	0	1	34	3	3	18	11	5	19	4	120
715	1	21	0	1	37	6	4	21	10	4	19	6	130
730	4	23	1	1	38	6	5	38	14	5	18	5	158
745	5	23	1	1	28	6	4	31	15	7	11	3	135
800	5	16	2	0	29	5	3	30	12	7	8	2	119
815	4	11	2	0	21	2	2	23	11	6	6	0	88*
830	1	6	1	0	13	1	1	6	4	5	4	0	42*
845	0	4	1	0	7	0	0	4	0	2	1	0	19*
1600	11	28	3	2	22	4	7	25	10	10	18	8	148
1615	8	24	3	2	28	3	7	24	9	11	16	8	143
1630	3	24	0	1	25	4	6	23	11	9	12	7	125
1645	1	26	0	1	27	4	7	25	10	10	13	7	131
1700	2	23	0	1	18	4	7	31	11	11	16	9	133
1715	2	18	0	1	10	3	5	27	9	9	12	8	104*
1730	2	10	0	1	8	2	5	20	6	7	9	6	76*
1745	1	5	0	0	4	2	1	9	2	4	7	4	39*

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 3 scranston/evanston

Begin Time	Approach Totals				Exit Totals				Int Total
	N	E	S	W	N	E	S	W	
700	22	38	32	28	23	22	28	47	120
715	22	44	35	29	28	23	31	48	130
730	28	45	57	28	44	24	34	56	158
745	29	35	50	21	35	16	36	48	135
800	23	34	45	17	32	13	28	46	119
815	17	23	36	12	23	10	19	36	88*
830	8	14	11	9	6	6	12	18	42*
845	5	7	4	3	4	2	6	7	19*
1600	42	28	42	36	35	28	42	43	148
1615	35	33	40	35	34	26	38	45	143
1630	27	30	40	28	31	18	37	39	125
1645	27	32	42	30	33	20	40	38	131
1700	25	23	49	36	41	23	38	31	133
1715	20	14	41	29	36	17	30	21	104*
1730	12	11	31	22	27	14	19	16	76*
1745	6	6	12	15	13	8	11	7	39*

Lake Bluff, IL Weather: Sunny and Cool
 North Ave and Oak Ave
 Thursday May 5, 2016

05/06/16
 10:00:20

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - by Mvmt

Intersection # 2 north/oak													
Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	0	0	0	0	0	0	0	0	0	2	1	0	3
715	0	0	0	0	6	0	0	0	0	2	3	0	11
730	0	0	0	0	10	3	0	0	0	5	9	0	27
745	0	0	0	0	6	0	0	0	0	1	5	0	12
800	0	0	0	0	5	0	0	0	0	2	3	0	10
815	0	0	0	0	5	0	0	0	0	1	4	0	10
830	0	0	0	0	3	0	0	0	0	2	3	0	8
845	0	0	0	0	4	2	0	0	0	1	6	0	13
1600	0	0	0	0	3	1	0	0	0	1	4	0	9
1615	0	0	0	0	2	1	0	0	0	1	5	0	9
1630	0	0	0	0	4	0	0	0	0	4	8	0	16
1645	0	0	0	0	2	0	0	0	0	4	5	0	11
1700	0	0	0	0	1	2	0	0	0	1	4	0	8
1715	0	0	0	0	2	1	0	0	0	3	7	0	13
1730	0	0	0	0	3	0	0	0	0	1	5	0	9
1745	0	0	0	0	5	0	0	0	0	0	7	0	12
Total	0	0	0	0	61	10	0	0	0	31	79	0	181

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - Totals

Intersection # 2 north/oak													
Begin Time	Approach Totals				Exit Totals				Int Total				
	N	E	S	W	N	E	S	W					
700	0	0	0	3	0	1	2	0	3				
715	0	6	0	5	0	3	2	6	11				
730	0	13	0	14	0	9	8	10	27				
745	0	6	0	6	0	5	1	6	12				
800	0	5	0	5	0	3	2	5	10				
815	0	5	0	5	0	4	1	5	10				
830	0	3	0	5	0	3	2	3	8				
845	0	6	0	7	0	6	3	4	13				
1600	0	4	0	5	0	4	2	3	9				
1615	0	3	0	6	0	5	2	2	9				
1630	0	4	0	12	0	8	4	4	16				
1645	0	2	0	9	0	5	4	2	11				
1700	0	3	0	5	0	4	3	1	8				
1715	0	3	0	10	0	7	4	2	13				
1730	0	3	0	6	0	5	1	3	9				
1745	0	5	0	7	0	7	0	5	12				
Total	0	71	0	110	0	79	41	61	181				

Lake Bluff, IL Weather: Sunny and Cool
 North Ave and Oak Ave
 Thursday May 5, 2016

05/06/16
 10:00:20

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 2 north/oak

Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	0	0	0	0	22	3	0	0	0	10	18	0	53
715	0	0	0	0	27	3	0	0	0	10	20	0	60
730	0	0	0	0	26	3	0	0	0	9	21	0	59
745	0	0	0	0	19	0	0	0	0	6	15	0	40
800	0	0	0	0	17	2	0	0	0	6	16	0	41
815	0	0	0	0	12	2	0	0	0	4	13	0	31*
830	0	0	0	0	7	2	0	0	0	3	9	0	21*
845	0	0	0	0	4	2	0	0	0	1	6	0	13*
1600	0	0	0	0	11	2	0	0	0	10	22	0	45
1615	0	0	0	0	9	3	0	0	0	10	22	0	44
1630	0	0	0	0	9	3	0	0	0	12	24	0	48
1645	0	0	0	0	8	3	0	0	0	9	21	0	41
1700	0	0	0	0	11	3	0	0	0	5	23	0	42
1715	0	0	0	0	10	1	0	0	0	4	19	0	34*
1730	0	0	0	0	8	0	0	0	0	1	12	0	21*
1745	0	0	0	0	5	0	0	0	0	0	7	0	12*

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 2 north/oak

Begin Time	Approach Totals				Exit Totals				Int Total
	N	E	S	W	N	E	S	W	
700	0	25	0	28	0	18	13	22	53
715	0	30	0	30	0	20	13	27	60
730	0	29	0	30	0	21	12	26	59
745	0	19	0	21	0	15	6	19	40
800	0	19	0	22	0	16	8	17	41
815	0	14	0	17	0	13	6	12	31*
830	0	9	0	12	0	9	5	7	21*
845	0	6	0	7	0	6	3	4	13*
1600	0	13	0	32	0	22	12	11	45
1615	0	12	0	32	0	22	13	9	44
1630	0	12	0	36	0	24	15	9	48
1645	0	11	0	30	0	21	12	8	41
1700	0	14	0	28	0	23	8	11	42
1715	0	11	0	23	0	19	5	10	34*
1730	0	8	0	13	0	12	1	8	21*
1745	0	5	0	7	0	7	0	5	12*

Lake Bluff, IL Weather: Sunny and Cool
 North Ave and Evanston Ave
 Thursday May 5, 2016

05/06/16
 09:56:08

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - by Mvmt

Intersection # 1 north/evanston													
Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	0	4	0	0	0	0	0	2	0	1	0	0	7
715	1	3	0	0	4	1	1	1	0	0	3	0	14
730	2	1	0	0	8	0	4	6	1	1	6	1	30
745	0	4	0	0	3	4	0	5	3	0	2	2	23
800	0	6	0	0	2	0	1	6	2	0	3	0	20
815	1	5	0	0	3	1	5	12	1	2	2	0	32
830	1	4	0	1	1	0	0	1	1	0	0	3	12
845	0	1	0	0	3	4	0	2	1	0	4	1	16
1600	0	8	1	0	2	3	2	6	1	0	2	2	27
1615	1	7	0	1	1	3	2	7	2	2	3	0	29
1630	1	5	0	1	3	2	3	6	1	3	3	2	30
1645	0	5	0	0	1	2	0	5	0	0	2	2	17
1700	0	4	0	1	2	2	1	4	0	0	3	0	17
1715	0	4	0	0	0	2	4	5	1	3	3	1	23
1730	0	6	0	0	2	0	2	11	0	0	3	1	25
1745	0	2	0	0	1	1	0	6	4	2	5	0	21
Total	7	69	1	4	36	25	25	85	18	14	44	15	343

URNS/TEAPAC[Ver 3.61.12] - 15-Minute Counts: All Vehicles - Totals

Intersection # 1 north/evanston										
Begin Time	Approach Totals				Exit Totals				Int Total	
	N	E	S	W	N	E	S	W		
700	4	0	2	1	2	0	5	0	7	
715	4	5	2	3	1	4	4	5	14	
730	3	8	11	8	7	10	2	11	30	
745	4	7	8	4	7	2	8	6	23	
800	6	2	9	3	6	4	6	4	20	
815	6	4	18	4	12	7	8	5	32	
830	5	2	2	3	5	0	4	3	12	
845	1	7	3	5	3	4	5	4	16	
1600	9	5	9	4	8	5	11	3	27	
1615	8	5	11	5	8	5	12	4	29	
1630	6	6	10	8	9	6	10	5	30	
1645	5	3	5	4	7	2	7	1	17	
1700	4	5	5	3	5	4	6	2	17	
1715	4	2	10	7	6	7	9	1	23	
1730	6	2	13	4	12	5	6	2	25	
1745	2	2	10	7	6	5	5	5	21	
Total	77	65	128	73	104	70	108	61	343	

Lake Bluff, IL Weather: Sunny and Cool
 North Ave and Evanston Ave
 Thursday May 5, 2016

05/06/16
 09:56:08

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: by Movement

Intersection # 1 north/evanston

Begin Time	N-Approach			E-Approach			S-Approach			W-Approach			Int Total
	RT	TH	LT										
700	3	12	0	0	15	5	5	14	4	2	11	3	74
715	3	14	0	0	17	5	6	18	6	1	14	3	87
730	3	16	0	0	16	5	10	29	7	3	13	3	105
745	2	19	0	1	9	5	6	24	7	2	7	5	87
800	2	16	0	1	9	5	6	21	5	2	9	4	80
815	2	10	0	1	7	5	5	15	3	2	6	4	60*
830	1	5	0	1	4	4	0	3	2	0	4	4	28*
845	0	1	0	0	3	4	0	2	1	0	4	1	16*
1600	2	25	1	2	7	10	7	24	4	5	10	6	103
1615	2	21	0	3	7	9	6	22	3	5	11	4	93
1630	1	18	0	2	6	8	8	20	2	6	11	5	87
1645	0	19	0	1	5	6	7	25	1	3	11	4	82
1700	0	16	0	1	5	5	7	26	5	5	14	2	86
1715	0	12	0	0	3	3	6	22	5	5	11	2	69*
1730	0	8	0	0	3	1	2	17	4	2	8	1	46*
1745	0	2	0	0	1	1	0	6	4	2	5	0	21*

URNS/TEAPAC[Ver 3.61.12] - 60-Minute Volumes: Appr/Exit Totals

Intersection # 1 north/evanston

Begin Time	Approach Totals				Exit Totals				Int Total
	N	E	S	W	N	E	S	W	
700	15	20	23	16	17	16	19	22	74
715	17	22	30	18	21	20	20	26	87
730	19	21	46	19	32	23	24	26	105
745	21	15	37	14	30	13	26	18	87
800	18	15	32	15	26	15	23	16	80
815	12	13	23	12	20	11	17	12	60*
830	6	9	5	8	8	4	9	7	28*
845	1	7	3	5	3	4	5	4	16*
1600	28	19	35	21	32	18	40	13	103
1615	23	19	31	20	29	17	35	12	93
1630	19	16	30	22	27	19	32	9	87
1645	19	12	33	18	30	18	28	6	82
1700	16	11	38	21	29	21	26	10	86
1715	12	6	33	18	24	17	20	8	69*
1730	8	4	23	11	18	10	11	7	46*
1745	2	2	10	7	6	5	5	5	21*

Capacity Analysis Worksheets
Existing Traffic Volumes

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	NJB				Intersection	Scranton and Evanston			
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff			
Date Performed	5/9/2016				Analysis Year	2016			
Analysis Time Period	AM								
Project ID									
East/West Street: Scranton Avenue					North/South Street: Evanston Avenue				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R	L	T	R	L	R	
Volume (veh/h)	5	18	5	6	38	1			
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R	L	T	R	L	R	
Volume (veh/h)	14	38	5	1	23	4			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.95		0.95		0.95		0.95		
Flow Rate (veh/h)	28		47		59		29		
% 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		0.0		
Prop. Right-Turns	0.2		0.0		0.1		0.1		
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	0.02		0.04		0.05		0.03		
hd, final value (s)	4.07		4.13		4.09		4.05		
x, final value	0.032		0.054		0.067		0.033		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	2.1		2.1		2.1		2.0		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	933		940		843		967		
Delay (s/veh)	7.2		7.4		7.4		7.2		
LOS	A		A		A		A		
Approach: Delay (s/veh)	7.2		7.4		7.4		7.2		
LOS	A		A		A		A		
Intersection Delay (s/veh)	7.3								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	NJB				Intersection	Scranton and Evanston			
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff			
Date Performed	5/9/2016				Analysis Year	2016			
Analysis Time Period	PM								
Project ID									
East/West Street: Scranton Avenue					North/South Street: Evanston Avenue				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R	L	T	R	L	T	
Volume (veh/h)	8	16	11	3	28	2			
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R	L	T	R	L	T	
Volume (veh/h)	9	24	7	3	24	8			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.95		0.95		0.95		0.95		
Flow Rate (veh/h)	35		34		41		36		
% 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		0.2		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		-0.1		-0.1		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.03		0.03		0.04		0.03		
hd, final value (s)	3.95		4.08		4.02		3.97		
x, final value	0.038		0.039		0.046		0.040		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	2.0		2.1		2.0		2.0		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	875		850		820		900		
Delay (s/veh)	7.1		7.2		7.2		7.1		
LOS	A		A		A		A		
Approach: Delay (s/veh)	7.1		7.2		7.2		7.1		
LOS	A		A		A		A		
Intersection Delay (s/veh)	7.2								
Intersection LOS	A								

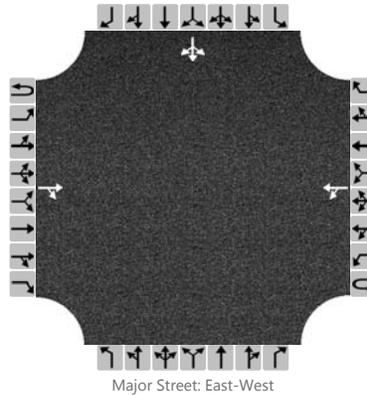
ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	NJB				Intersection	North and Evanston			
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff			
Date Performed	5/9/2016				Analysis Year	2016			
Analysis Time Period	AM								
Project ID									
East/West Street: North Avenue					North/South Street: Evanston Avenue				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	3	13	3		5	16	0		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	7	29	10		0	16	3		
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.95		0.95		0.95		0.95		
Flow Rate (veh/h)	19		21		47		19		
% 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		0.2		0.1		0.0		
Prop. Right-Turns	0.2		0.0		0.2		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		-0.1		-0.1		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.02		0.02		0.04		0.02		
hd, final value (s)	4.00		4.10		3.91		3.94		
x, final value	0.021		0.024		0.051		0.021		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	2.0		2.1		1.9		1.9		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	950		1050		940		950		
Delay (s/veh)	7.1		7.2		7.1		7.0		
LOS	A		A		A		A		
Approach: Delay (s/veh)	7.1		7.2		7.1		7.0		
LOS	A		A		A		A		
Intersection Delay (s/veh)	7.1								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	North and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2016		
Analysis Time Period	PM							
Project ID								
East/West Street: North Avenue					North/South Street: Evanston Avenue			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	4	11	5		9	7	3	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	3	22	6		0	21	2	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	20		19		32		24	
% 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		0.5		0.1		0.0	
Prop. Right-Turns	0.3		0.2		0.2		0.1	
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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.02		0.03		0.02	
hd, final value (s)	3.93		4.04		3.91		3.96	
x, final value	0.022		0.021		0.035		0.026	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.9		2.0		1.9		2.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	1000		950		1067		800	
Delay (s/veh)	7.0		7.1		7.1		7.1	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.0		7.1		7.1		7.1	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.1							
Intersection LOS	A							

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Scranton and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	Scranton Avenue		
Analysis Year	2016			North/South Street	Oak Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Existing AM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration				TR		LT									LTR	
Volume (veh/h)			25	18		3	51							0	11	1
Percent Heavy Vehicles						0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

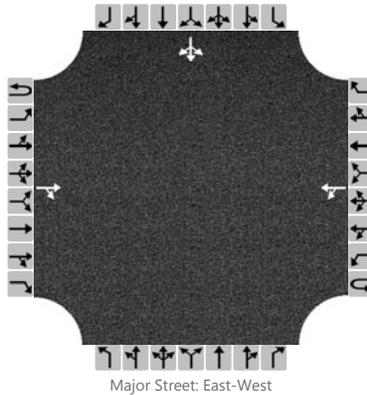
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						57										13
Capacity						1576										801
v/c Ratio						0.04										0.02
95% Queue Length						0.0										0.0
Control Delay (s/veh)						7.3										9.6
Level of Service (LOS)						A										A
Approach Delay (s/veh)					0.4								9.6			
Approach LOS													A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Scranton and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	Scranton Avenue		
Analysis Year	2016			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Existing PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration				TR		LT									LTR	
Volume (veh/h)			29	35		6	45							0	8	3
Percent Heavy Vehicles						0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

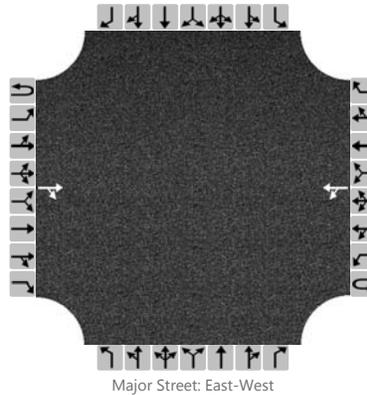
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						53										11
Capacity						1546										822
v/c Ratio						0.03										0.01
95% Queue Length						0.0										0.0
Control Delay (s/veh)						7.3										9.4
Level of Service (LOS)						A										A
Approach Delay (s/veh)					0.9								9.4			
Approach LOS													A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	North and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	North Avenue		
Analysis Year	2016			North/South Street	Oak Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Existing AM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT										
Volume (veh/h)			21	9		3	26									
Percent Heavy Vehicles						0										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

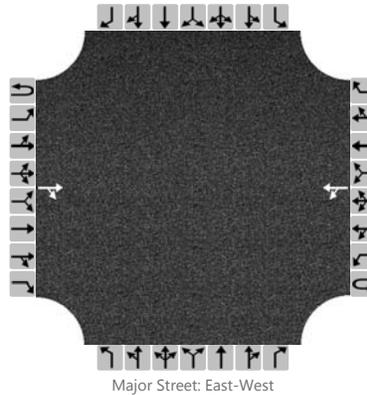
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						30										
Capacity						1595										
v/c Ratio						0.02										
95% Queue Length						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.7											
Approach LOS																

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	North and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	North Avenue		
Analysis Year	2016			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Existing PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT										
Volume (veh/h)			22	10		3	9									
Percent Heavy Vehicles						0										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						12										
Capacity						1591										
v/c Ratio						0.01										
95% Queue Length						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					1.8											
Approach LOS																

Capacity Analysis Worksheets
Total Projected Traffic Volumes
with Existing Street System

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	NJB				Intersection	Scranton and Evanston			
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff			
Date Performed	5/9/2016				Analysis Year	2018			
Analysis Time Period	AM								
Project ID									
East/West Street: Scranton Avenue					North/South Street: Evanston Avenue				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R	L	T	R			
Volume (veh/h)	6	18	5	6	39	1			
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R	L	T	R			
Volume (veh/h)	14	40	5	1	25	6			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.95		0.95		0.95		0.95		
Flow Rate (veh/h)	29		48		61		33		
% 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		0.0		
Prop. Right-Turns	0.2		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	0.03		0.04		0.05		0.03		
hd, final value (s)	4.09		4.15		4.10		4.03		
x, final value	0.033		0.055		0.069		0.037		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	2.1		2.1		2.1		2.0		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	967		800		871		825		
Delay (s/veh)	7.2		7.4		7.4		7.2		
LOS	A		A		A		A		
Approach: Delay (s/veh)	7.2		7.4		7.4		7.2		
LOS	A		A		A		A		
Intersection Delay (s/veh)	7.3								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	Scranton and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	PM							
Project ID								
East/West Street: Scranton Avenue					North/South Street: Evanston Avenue			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	11	16	11	3	29	2		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	9	28	7	3	24	9		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	38		35		45		37	
% 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		0.2		0.1	
Prop. Right-Turns	0.3		0.1		0.2		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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.03		0.04		0.03	
hd, final value (s)	3.99		4.09		4.04		3.97	
x, final value	0.042		0.040		0.050		0.041	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		2.0		2.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	950		875		900		925	
Delay (s/veh)	7.2		7.3		7.3		7.1	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.2		7.3		7.3		7.1	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.2							
Intersection LOS	A							

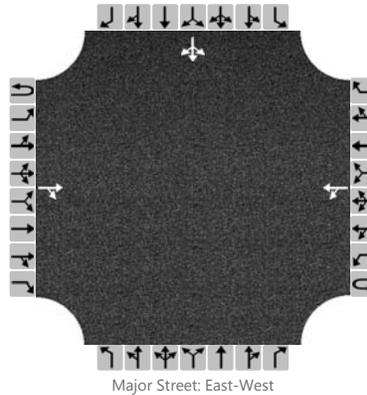
ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	North and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	AM							
Project ID								
East/West Street: North Avenue					North/South Street: Evanston Avenue			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	3	13	3	5	16	0		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	9	30	10	0	16	3		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	19		21		50		19	
% 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		0.2		0.2		0.0	
Prop. Right-Turns	0.2		0.0		0.2		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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.02		0.04		0.02	
hd, final value (s)	4.00		4.11		3.92		3.94	
x, final value	0.021		0.024		0.054		0.021	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		1.9		1.9	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	950		1050		1000		950	
Delay (s/veh)	7.1		7.2		7.1		7.0	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.1		7.2		7.1		7.0	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.1							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	North and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	PM							
Project ID								
East/West Street: North Avenue					North/South Street: Evanston Avenue			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	4	11	5	9	7	3		
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R	L	T	R	L	R
Volume (veh/h)	4	22	6	0	21	2		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	20		19		33		24	
% 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		0.5		0.1		0.0	
Prop. Right-Turns	0.3		0.2		0.2		0.1	
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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.02		0.03		0.02	
hd, final value (s)	3.93		4.04		3.92		3.96	
x, final value	0.022		0.021		0.036		0.026	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.9		2.0		1.9		2.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	1000		950		825		800	
Delay (s/veh)	7.0		7.1		7.1		7.1	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.0		7.1		7.1		7.1	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.1							
Intersection LOS	A							

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Scranton and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	Scranton Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected AM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration				TR		LT									LTR	
Volume (veh/h)			27	18		3	54							0	13	3
Percent Heavy Vehicles						0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

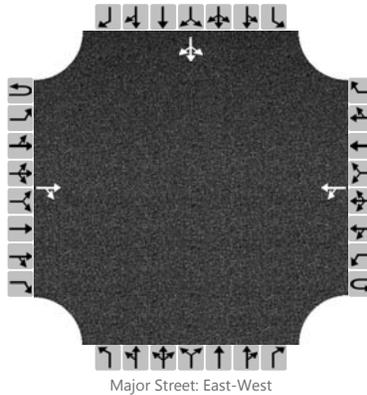
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						60										17
Capacity						1574										815
v/c Ratio						0.04										0.02
95% Queue Length						0.0										0.1
Control Delay (s/veh)						7.3										9.5
Level of Service (LOS)						A										A
Approach Delay (s/veh)					0.4								9.5			
Approach LOS													A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Scranton and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	Scranton Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration				TR		LT									LTR	
Volume (veh/h)			33	36		6	47							0	9	4
Percent Heavy Vehicles						0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

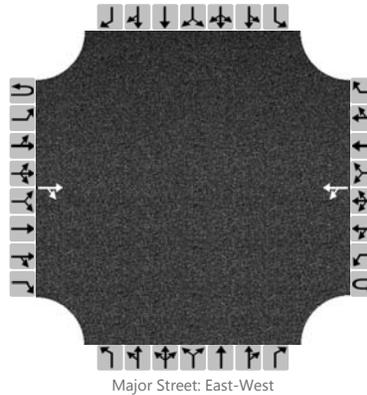
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						55										13
Capacity						1540										824
v/c Ratio						0.04										0.02
95% Queue Length						0.0										0.0
Control Delay (s/veh)						7.3										9.4
Level of Service (LOS)						A										A
Approach Delay (s/veh)					0.8								9.4			
Approach LOS													A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	North and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	North Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected AM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT										
Volume (veh/h)			21	9		3	29									
Percent Heavy Vehicles						0										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

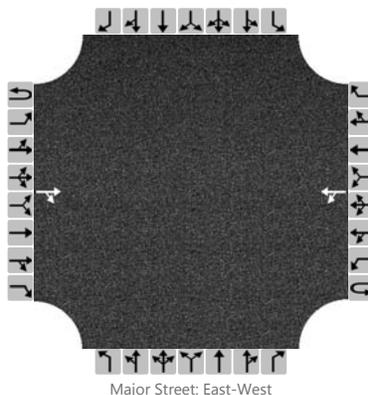
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						34										
Capacity						1595										
v/c Ratio						0.02										
95% Queue Length						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.7											
Approach LOS																

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	North and Oak
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/9/2016	East/West Street	North Avenue
Analysis Year	2018	North/South Street	Oak Avenue
Time Analyzed	PM	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Projected PM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT										
Volume (veh/h)			22	12		3	10									
Percent Heavy Vehicles						0										
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

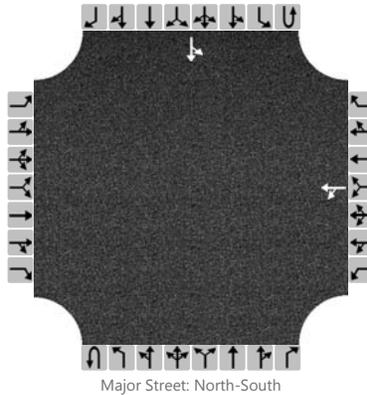
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						14										
Capacity						1588										
v/c Ratio						0.01										
95% Queue Length						0.0										
Control Delay (s/veh)						7.3										
Level of Service (LOS)						A										
Approach Delay (s/veh)					1.6											
Approach LOS																

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	Oak and West Access
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/9/2016	East/West Street	West Access Drive
Analysis Year	2018	North/South Street	Oak Avenue
Time Analyzed	AM	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Projected AM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	0	0	0	0	1	0
Configuration						LT								LT		
Volume (veh/h)						4	1							0	12	
Percent Heavy Vehicles						0	0							0		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

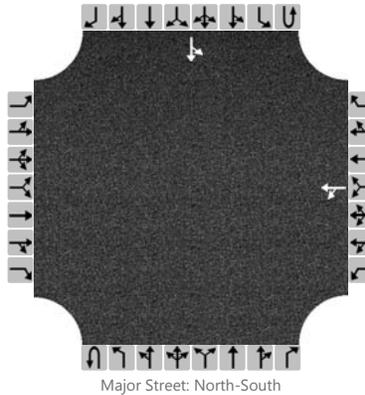
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						5								13		
Capacity						4428										
v/c Ratio						0.00										
95% Queue Length						0.0										
Control Delay (s/veh)						5.8										
Level of Service (LOS)						A										
Approach Delay (s/veh)																
Approach LOS																

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	Oak and West Access
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/9/2016	East/West Street	West Access Drive
Analysis Year	2018	North/South Street	Oak Avenue
Time Analyzed	PM	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Projected PM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	0	0	0	0	1	0
Configuration						LT								LT		
Volume (veh/h)						2	1							2	13	
Percent Heavy Vehicles						0	0							0		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

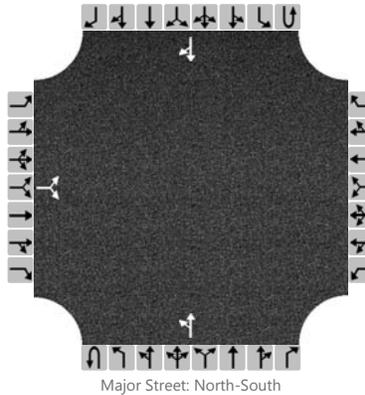
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						3									16	
Capacity						2640										
v/c Ratio						0.00										
95% Queue Length						0.0										
Control Delay (s/veh)						6.4										
Level of Service (LOS)						A										
Approach Delay (s/veh)																
Approach LOS																

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	Evanston and Access Drive
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/9/2016	East/West Street	East Access Drive
Analysis Year	2018	North/South Street	Evanston Avenue
Time Analyzed	AM	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Projected AM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		4						2	45					24
Percent Heavy Vehicles		0		0						0						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

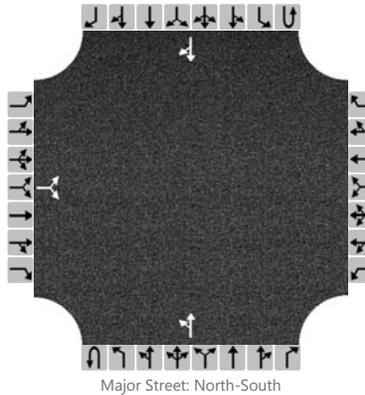
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			6									49				
Capacity			1011									1603				
v/c Ratio			0.01									0.03				
95% Queue Length			0.0									0.0				
Control Delay (s/veh)			8.6									7.2				
Level of Service (LOS)			A									A				
Approach Delay (s/veh)	8.6								0.3							
Approach LOS	A															

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Evanston and Access Drive		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	East Access Drive		
Analysis Year	2018			North/South Street	Evanston Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		1		1						7	34					35	0
Percent Heavy Vehicles		0		0						0							
Proportion Time Blocked																	
Right Turn Channelized	No				No				No				No				
Median Type	Undivided																
Median Storage																	

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			2							43							
Capacity			974							1587							
v/c Ratio			0.00							0.03							
95% Queue Length			0.0							0.0							
Control Delay (s/veh)			8.7							7.3							
Level of Service (LOS)			A							A							
Approach Delay (s/veh)	8.7								1.2								
Approach LOS	A																

Capacity Analysis Worksheets
Total Projected Traffic Volumes
with Oak Avenue Two-Way Conversion

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	Scranton and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	AM							
Project ID <i>Alternative</i>								
East/West Street: <i>Scranton Avenue</i>					North/South Street: <i>Evanston Avenue</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	3	18	5		6	39	1	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	14	40	5		1	25	6	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	26		48		61		33	
% 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		0.1		0.2		0.0	
Prop. Right-Turns	0.2		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	0.02		0.04		0.05		0.03	
hd, final value (s)	4.06		4.14		4.09		4.02	
x, final value	0.029		0.055		0.069		0.037	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.1		2.1		2.1		2.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	867		800		871		825	
Delay (s/veh)	7.2		7.4		7.4		7.2	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.2		7.4		7.4		7.2	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.3							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	NJB				Intersection	Scranton and Evanston			
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff			
Date Performed	5/9/2016				Analysis Year	2018			
Analysis Time Period	PM								
Project ID <i>Alternative</i>									
East/West Street: <i>Scranton Avenue</i>					North/South Street: <i>Evanston Avenue</i>				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	6	16	11		3	30	1		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	9	28	7		3	24	9		
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LTR		
PHF	0.95		0.95		0.95		0.95		
Flow Rate (veh/h)	33		35		45		37		
% 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		0.0		0.2		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	-0.2		-0.0		-0.1		-0.1		
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		
x, initial	0.03		0.03		0.04		0.03		
hd, final value (s)	3.95		4.11		4.03		3.96		
x, final value	0.036		0.040		0.050		0.041		
Move-up time, m (s)	2.0		2.0		2.0		2.0		
Service Time, t _s (s)	1.9		2.1		2.0		2.0		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	825		875		900		925		
Delay (s/veh)	7.1		7.3		7.2		7.1		
LOS	A		A		A		A		
Approach: Delay (s/veh)	7.1		7.3		7.2		7.1		
LOS	A		A		A		A		
Intersection Delay (s/veh)	7.2								
Intersection LOS	A								

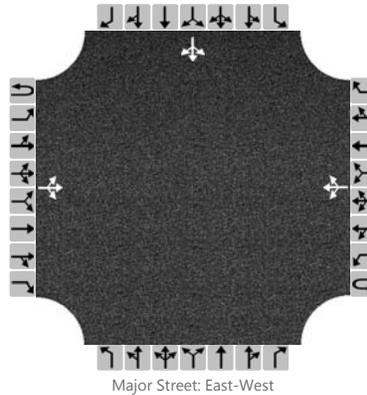
ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	North and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	AM							
Project ID <i>Alternative</i>								
East/West Street: <i>North Avenue</i>					North/South Street: <i>Evanston Avenue</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	3	13	3		5	16	0	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	7	30	10		0	16	3	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	19		21		48		19	
% 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		0.2		0.1		0.0	
Prop. Right-Turns	0.2		0.0		0.2		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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.02		0.04		0.02	
hd, final value (s)	4.00		4.11		3.91		3.94	
x, final value	0.021		0.024		0.052		0.021	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.0		2.1		1.9		1.9	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	950		1050		960		950	
Delay (s/veh)	7.1		7.2		7.1		7.0	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.1		7.2		7.1		7.0	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.1							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	NJB				Intersection	North and Evanston		
Agency/Co.	KLOA, Inc.				Jurisdiction	Lake Bluff		
Date Performed	5/9/2016				Analysis Year	2018		
Analysis Time Period	PM							
Project ID <i>Alternative</i>								
East/West Street: <i>North Avenue</i>					North/South Street: <i>Evanston Avenue</i>			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	4	11	5		9	7	3	
%Thrus Left Lane								
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume (veh/h)	2	22	6		0	21	2	
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.95		0.95		0.95		0.95	
Flow Rate (veh/h)	20		19		31		24	
% 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		0.5		0.1		0.0	
Prop. Right-Turns	0.3		0.2		0.2		0.1	
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		-0.1		-0.1	
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.02		0.02		0.03		0.02	
hd, final value (s)	3.92		4.03		3.90		3.96	
x, final value	0.022		0.021		0.034		0.026	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	1.9		2.0		1.9		2.0	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	1000		950		1033		800	
Delay (s/veh)	7.0		7.1		7.0		7.1	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.0		7.1		7.0		7.1	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.1							
Intersection LOS	A							

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	Scranton and Oak
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/9/2016	East/West Street	Scranton Avenue
Analysis Year	2018	North/South Street	Oak Avenue
Time Analyzed	AM	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Projected AM Peak Alternative		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration			LTR				LTR								LTR	
Volume (veh/h)		9	24	18		3	54	0						0	13	3
Percent Heavy Vehicles		0				0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

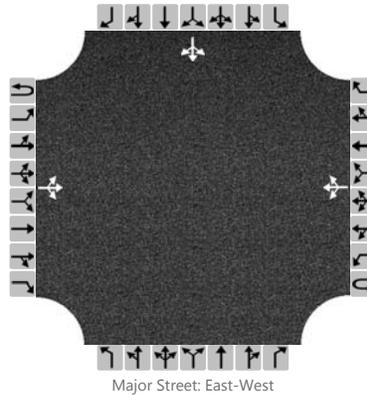
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		9				3										17	
Capacity		1561				1578										798	
v/c Ratio		0.01				0.00										0.02	
95% Queue Length		0.0				0.0										0.1	
Control Delay (s/veh)		7.3				7.3										9.6	
Level of Service (LOS)		A				A										A	
Approach Delay (s/veh)		1.3				0.4								9.6			
Approach LOS														A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Scranton and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	Scranton Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration			LTR				LTR								LTR	
Volume (veh/h)		9	28	36		6	47	1						0	9	4
Percent Heavy Vehicles		0				0								0	0	0
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

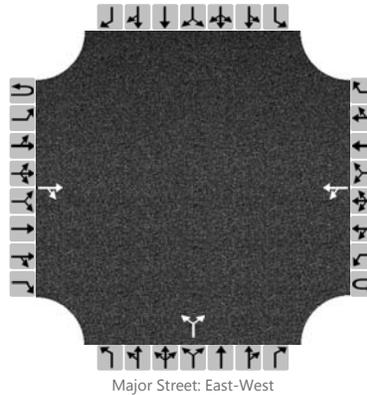
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		9				6										13	
Capacity		1570				1548										810	
v/c Ratio		0.01				0.00										0.02	
95% Queue Length		0.0				0.0										0.0	
Control Delay (s/veh)		7.3				7.3										9.5	
Level of Service (LOS)		A				A										A	
Approach Delay (s/veh)		0.9				0.8								9.5			
Approach LOS														A			

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	North and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	North Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected AM Peak Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			21	6		3	27			2		2				
Percent Heavy Vehicles						0				0		0				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

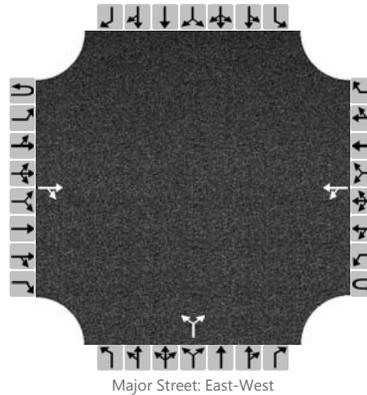
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						31						4				
Capacity						1599						1001				
v/c Ratio						0.02						0.00				
95% Queue Length						0.0						0.0				
Control Delay (s/veh)						7.3						8.6				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)					0.7				8.6							
Approach LOS									A							

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	North and Oak		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	North Avenue		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			22	8		3	9			2		2				
Percent Heavy Vehicles						0				0		0				
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

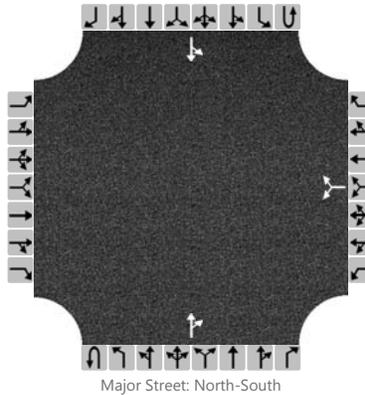
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)						12						4				
Capacity						1595						1012				
v/c Ratio						0.01						0.00				
95% Queue Length						0.0						0.0				
Control Delay (s/veh)						7.3						8.6				
Level of Service (LOS)						A						A				
Approach Delay (s/veh)					1.8				8.6							
Approach LOS									A							

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	NJB	Intersection	Oak and West Access
Agency/Co.	KLOA, Inc.	Jurisdiction	Lake Bluff
Date Performed	5/11/2016	East/West Street	West Access Drive
Analysis Year	2018	North/South Street	Oak Avenue
Time Analyzed	AM	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Projected AM Peak Hour Alternative		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						4		2			2	1		0	12	
Percent Heavy Vehicles						0		0						0		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

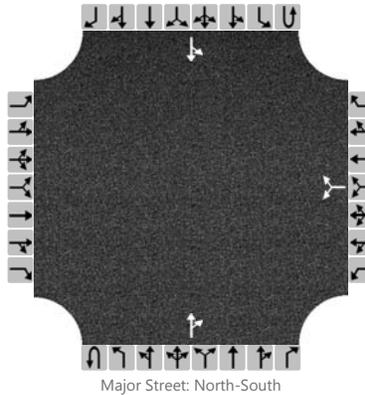
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							6								13	
Capacity							1033								1632	
v/c Ratio							0.01								0.01	
95% Queue Length							0.0									
Control Delay (s/veh)							8.5								7.2	
Level of Service (LOS)							A								A	
Approach Delay (s/veh)					8.5											
Approach LOS					A											

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Oak and West Access		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/11/2016			East/West Street	West Access Drive		
Analysis Year	2018			North/South Street	Oak Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak Hour Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						2		1			3	3		2	13	
Percent Heavy Vehicles						0		0						0		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

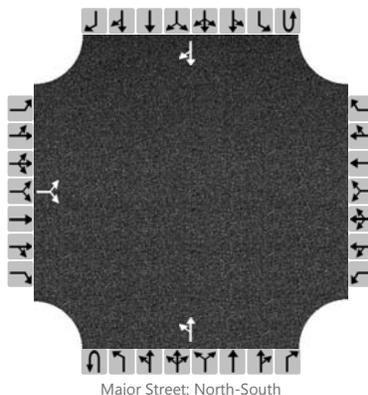
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							3								16	
Capacity							1026								1628	
v/c Ratio							0.00								0.01	
95% Queue Length							0.0								0.0	
Control Delay (s/veh)							8.5								7.2	
Level of Service (LOS)							A								A	
Approach Delay (s/veh)					8.5								0.9			
Approach LOS					A											

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Evanston and Access Drive		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	East Access Drive		
Analysis Year	2018			North/South Street	Evanston Avenue		
Time Analyzed	AM			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Existing AM Peak Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		0		4						1	43					24
Percent Heavy Vehicles		0		0						0						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

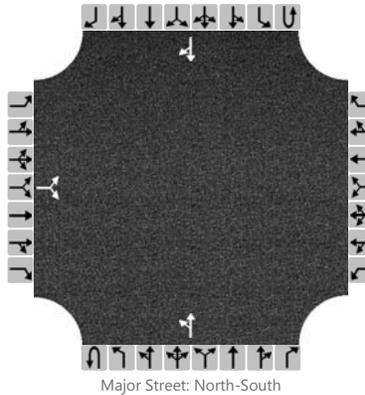
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			4									46					
Capacity			1057									1603					
v/c Ratio			0.00									0.03					
95% Queue Length			0.0									0.0					
Control Delay (s/veh)			8.4									7.2					
Level of Service (LOS)			A									A					
Approach Delay (s/veh)	8.4								0.2								
Approach LOS	A																

HCS 2010 Two-Way Stop Control Summary Report

General Information				Site Information			
Analyst	NJB			Intersection	Evanston and Access Drive		
Agency/Co.	KLOA, Inc.			Jurisdiction	Lake Bluff		
Date Performed	5/9/2016			East/West Street	East Access Drive		
Analysis Year	2018			North/South Street	Evanston Avenue		
Time Analyzed	PM			Peak Hour Factor	0.95		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Projected PM Peak Alternative						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT							TR
Volume (veh/h)		0		1						4	32					35	0
Percent Heavy Vehicles		0		0						0							
Proportion Time Blocked																	
Right Turn Channelized	No				No				No				No				
Median Type	Undivided																
Median Storage																	

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			1							38							
Capacity			1041							1587							
v/c Ratio			0.00							0.02							
95% Queue Length			0.0							0.0							
Control Delay (s/veh)			8.5							7.3							
Level of Service (LOS)			A							A							
Approach Delay (s/veh)	8.5								0.8								
Approach LOS	A																