

MEMORANDUM TO: Oak Park and River Forest High School District 200

FROM: Kenig, Lindgren, O'Hara, Aboona, Inc.

DATE: October 1, 2014

SUBJECT: Traffic Study
Vacation of Scoville Avenue between
Lake Street and South Boulevard
Oak Park, Illinois

This memorandum provides the results and findings of a traffic study conducted for the proposed vacation of Scoville Avenue between Lake Street and South Boulevard in Oak Park, Illinois. The subject section of Scoville Avenue has one lane in each direction with 12 parallel parking spaces on the east side of the road and 23 angle parking spaces on the west side of the road. Oak Park and River Forest High School District 200 (District 200) is considering vacating the roadway section in order to increase the athletic fields on the south side of Lake Street. As proposed, pedestrian and bicycle access would be maintained between Lake Street and South Boulevard along the Scoville Avenue right-of-way. **Figure 1** shows the location of the campus. (All of the figures and tables are located in the Appendix.)

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed vacation of Scoville Avenue will have on traffic conditions in the area and determine if any roadway or traffic control improvements are necessary to accommodate the redistribution of traffic.

Existing Conditions

Existing conditions in the area were documented based on field visits conducted by KLOA, Inc. in order to obtain a database for projecting future conditions. The following provides a description of the study area, physical characteristics of the area roadway system including lane usage and traffic control devices and existing peak hour vehicle, pedestrian and bicycle volumes.

Study Area

The subject section of Scoville Avenue to be vacated is located between Lake Street on the north and South Boulevard on the south and bounded by the Oak Park and River Forest High School (OPRF) athletic fields on the west and the Oak Park District's Ridgeland Commons on the east. Ridgeland Avenue is the first north-south road that extends between Lake Street and South Boulevard to the east of Scoville Avenue and East Avenue is the first north-south road to the west of Scoville Avenue. The study area for the project generally is bounded by Lake Street on the north, Ridgeland Avenue on the east, South Boulevard on the south and East Avenue on the west and includes the following intersections.

- Lake Street with Ridgeland Avenue
- Lake Street with Scoville Avenue
- Lake Street with East Avenue
- South Boulevard with Ridgeland Avenue
- South Boulevard with Scoville Avenue
- South Boulevard with East Avenue
- Scoville Avenue with the high school parking garage access drive

Area Roadways

The characteristics of the roadways serving the study area are described in the following paragraphs and illustrated in **Figures 2**.

Scoville Avenue is a north-south local road. Within the study area, Scoville Avenue generally has one lane in each direction with parking permitted on both sides of the road. Between Erie Street and the alley just north of Lake Street, Scoville Avenue is a one-way southbound road that provides one moving lane with parking generally permitted on both sides of the road. A physical barrier is provided on Scoville Avenue at the alley north of Lake Street which prohibits northbound traffic from traveling past the alley. At its intersection with Lake Street and South Boulevard, Scoville Avenue is under traffic signal control. Only right-turn movements are permitted on the southbound approach of Scoville Avenue as its intersection with Lake Street.

Scoville Avenue extends along the east side of the high school campus and provides access to the front of the high school and the parking garage. Further, with the existing vacation of Elmwood Avenue, Scoville Avenue is the only local, north-south road that extends from Lake Street to South Boulevard between Ridgeland Avenue and East Avenue. In addition to providing a secondary circulation route and an additional outlet for the traffic generated by the high school, Ridgeland Commons and the Farmers Market, Scoville Avenue serves as a pick-up/drop-off location for the high school and to a lesser extent the Farmers Market and Ridgeland Commons.

Lake Street is an east-west arterial road that has a three-lane cross section with parking generally permitted on both sides of the road. Separate left-turn lanes are provided on Lake Street at its signalized intersections with Ridgeland Avenue and East Avenue and its unsignalized intersection with Scoville Avenue. Lake Street has a posted speed limit of 25 mph and a school speed limit of 20 mph. Pedestrian crosswalks are generally provided at all of the Lake Street intersections and pedestrian traffic signals are provided at its signalized intersections with Ridgeland Avenue and East Avenue.

South Boulevard is an east-west local road that has one lane in each direction with parking generally permitted on both sides of the road. The intersection of South Boulevard/Ridgeland Avenue is under traffic signal control and the intersection of South Boulevard/East Avenue is under all-way stop sign control. South Boulevard has a posted speed limit of 25 mph. Pedestrian crosswalks are generally provided at all of the South Boulevard intersections and pedestrian traffic signals are provided at its signalized intersection with East Avenue.

Ridgeland Avenue is a north-south arterial road that generally has one lane in each direction with parking permitted on both sides of the road. Between Lake Street and South Boulevard, Ridgeland Avenue has two lanes in each direction with parking prohibited on both sides of the road. Separate left-turn lanes are provided on Ridgeland Avenue at its intersection with Lake Street. Ridgeland Avenue has a posted speed limit of 30 mph. Pedestrian crosswalks and pedestrian traffic signals are provided at its signalized intersections with Lake Street and South Boulevard.

East Avenue is a north-south collector road that has one lane in each direction with parking generally permitted on both sides of the road. The road has been vacated through the high school campus. East Avenue has a posted school speed limit of 20 mph. Pedestrian crosswalks and pedestrian traffic signals are provided at its signalized intersection with Lake Street.

Existing Vehicle, Pedestrian and Bicycle Volumes

In order to determine current traffic conditions within the study area, KLOA, Inc. conducted peak period vehicle, pedestrian and bicycle counts at the seven intersections within the study area. The traffic counts were conducted on Tuesday, September 9 and 16, 2014, during the morning (7:00 A.M. to 9:00 A.M.) and afternoon/evening (2:00 P.M. to 6:00 P.M.) peak periods and Saturday, September 6, 2014 during the late morning peak period (10:00 A.M. to noon). Based on the results of the traffic counts, the weekday morning peak hour of traffic occurs from 7:15 A.M. to 8:15 A.M., the weekday afternoon peak hour occurs from 3:00 P.M. to 4:00 P.M., the weekday evening peak hour of traffic occurs from 5:00 P.M. to 6:00 P.M. and the Saturday peak hour occurs from 11:00 A.M. to noon.

Daily traffic counts were performed on Scoville Avenue just north of the railroad tracks. The daily traffic counts were conducted on Saturday, September 6, 2014 and Tuesday, September 9, 2014. In addition, weekday daily traffic volumes were obtained by the Village of Oak Park for Ridgeland Avenue and East Avenue. **Figure 3** illustrates the existing traffic volumes and **Figure 4** illustrates the existing pedestrian and bicycle volumes.

Projected Traffic Volumes

In order to evaluate future traffic conditions, it was necessary to estimate the redistribution of the traffic due to the vacation of Scoville Avenue.

Vacation of Scoville Avenue

Table 1 shows the existing daily and peak hour traffic volumes along the section of Scoville Avenue proposed to be vacated and the following summarizes the results of the traffic counts.

- Scoville Avenue had a daily, two-way volume of approximately 1,200 vehicles on a weekday and 1,300 vehicles on a Saturday. The Saturday volumes were likely higher due to the activity at the Farmers Market and Ridgeland Commons. Based on the Village's data, Ridgeland Avenue had a weekday daily traffic volume of approximately 16,300 vehicles and East Avenue had a weekday daily volume of approximately 3,100 vehicles.
- The peak hour volume of traffic along Scoville Avenue occurred during the weekday morning peak hour with an average two-way volume of approximately 214 vehicles. This time period corresponds with the peak drop-off activity at the high school and the morning commuter peak period. The two-way volume during the afternoon peak hour and evening peak hour was approximately half the volume during the morning peak hour.
- Scoville Avenue had an average peak hour volume of approximately 167 vehicles during the Saturday late morning peak period. This time period corresponds with the peak activity at the Farmers Market as well as activity at Ridgeland Commons.

From the traffic counts, it can be seen that the traffic using Scoville Avenue is primarily local traffic that is traveling to/from the neighborhood south of South Boulevard and traffic generated by the high school, Ridgeland Commons and the Farmers Market. As such, it is expected that the Scoville Avenue traffic would be redistributed to the parallel north-south routes (Ridgeland Avenue and East Avenue) east and west of Scoville Avenue.

Redistributed Existing Traffic Volumes

The existing Scoville Avenue traffic volumes were redistributed along the area roadway system to obtain existing redistributed traffic volumes. It should be noted that District 200 is considering replacing the 300-space campus parking garage with a proposed natatorium building with the parking demand provided in the garage accommodate on the area roadways. The elimination of the parking garage would result in a reduction in the traffic volumes in the study area as the parking would be redistributed to the area roadways. However, to provide a worst case analysis the study was performed assuming the traffic currently generated by the parking garage. Further, to ascertain the impact of the Scoville Avenue vacation only, no additional traffic growth was assumed as part of the study. **Figure 5** shows the existing redistributed traffic volumes assuming the vacation of Scoville Avenue.

Traffic Analysis

Traffic analyses were performed for the intersections within the study area to determine the operation of the existing roadway system, evaluate the impact of the proposed roadway vacation and determine the ability of the roadway system to accommodate the redistributed traffic. Analyses were performed for the existing volumes and the existing redistributed volumes.

The traffic analyses were performed using Synchro 8 computer software, which is based on the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 2010. The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter grade from A to F 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. Level of Service A is the highest grade (best traffic flow and least delay), Level of Service E represents saturated or at-capacity conditions and Level of Service F is the lowest grade (oversaturated conditions, extensive delays). 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).

The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are shown in **Table 2**. The results of the capacity analysis are summarized in **Tables 3** and **4**. The following summarizes how the intersections are currently operating and projected to operate with the proposed vacation of Scoville Avenue.

Operations of Existing Conditions

General Intersection Operations. The results of the capacity analyses and field observations show that under existing conditions all of the intersections in the study area generally operate at a good level of service. During the weekday morning and evening peak hours the intersections are generally operating at a Level of Service C or D and during the weekday afternoon and Saturday morning peak hours are generally operating at a Level of Service B or C. It is important to note that certain approaches and movements experience additional delay and queuing during the peak periods, particularly along Ridgeland Avenue and East Avenue. Further, the southbound approach of Scoville Avenue at Lake Street also experiences additional congestion associated with the high school and Farmers Market. However, crossing guards are located at this intersection before and after school and on Saturdays when the Farmers Market is in operation to help direct traffic and to assist pedestrians/bicyclists crossing Lake Street.

Localized Congestion. While the intersections are projected to operate at a good overall level of service, several of the roads and intersections within the study area experience localized congestion associated with the high school, large events at the high school and the Farmers Market. During the weekday, this is usually only concentrated for a 20 to 30 minute period before and after school. On a Saturday the congestion can occur at various times during the late morning/early afternoon peak period. The localized congestion typically occurs along Lake Street, East Avenue and Scoville Avenue north of Lake Street.

Projected Conditions

General Intersection Operations. With the redistribution of the Scoville Avenue traffic, all of the intersections are projected to generally operate at a good level of service with a limited increase in overall intersection delay. However, the intersection of East Avenue/Lake Street is projected to experience a greater increase in average intersection delay (10 to 15 seconds) during the morning peak hour when the drop-off activity occurs at the high school. In addition, several intersections are projected to drop a grade in level of service during certain peak hours as many of these intersections are currently operating on the threshold between two levels of service.

Further, the redistribution of the traffic will have a greater impact on specific intersection movements and/or approaches that will serve as the primary alternative routes around the vacated section of Scoville Avenue. For example, the northbound approach of East Avenue at Lake Street and the southbound approach of East Avenue at South Boulevard are projected to operate at a poor level of service during the morning peak hour when the peak drop-off activity occurs at the high school. In addition, the left-turn movements from (1) northbound Ridgeland Avenue to westbound Lake Street and (2) westbound Lake Street to southbound East Avenue are projected to experience a greater increase in delay.

Finally, given the reduction in traffic and the elimination of one leg of the intersections, the vacation of Scoville Avenue would improve the operation of the intersections of (1) Scoville Avenue with Lake Street and (2) Scoville Avenue with South Boulevard.

Localized Queueing. In addition to the traffic that currently traverses Scoville Avenue, the vacation of Scoville Avenue will also result in the redistribution of the drop-off/pick-up activity and parking that currently occurs along Scoville Avenue. As such, the Scoville Avenue vacation will only further increase the localized congestion experienced in the study area that occurs before and after school, during larger events at the high school and during the Farmers Market, particularly along East Avenue, Lake Street and Scoville Avenue.

Roadway Improvements. Potential improvements/modifications that would enhance the roadway operations and help mitigate the impact of the redistributed Scoville Avenue traffic volumes include the following.

- Traffic signal modifications.
- The addition of a right-turn lane on the northbound approach of East Avenue at Lake Street. This improvement would require the widening of the roadway, the elimination of some on-street parking and, possibly, the relocation of portions of the traffic signal.
- To help direct and manage the vehicle and pedestrian traffic as well as the drop-off/pick-up activity associated with the start and end of school, additional school traffic control personnel should be located along Lake Street, particularly at its intersection with East Avenue.

Conclusion

The following summarizes the results of the traffic evaluation regarding the vacation of Scoville Avenue between Lake Street and South Boulevard.

Function and Characteristics of Scoville Avenue

- Scoville Avenue is a local roadway that serves the residential area south of South Boulevard as well as the high school, Ridgeland Commons, the Farmers Market and the other commercial and instructional uses along Lake Street.
- With the previous vacation of Elmwood Avenue, the vacation of Scoville Avenue would eliminate any north-south connections between Ridgeland Avenue and East Avenue, further reducing the grid roadway system and ability to circulate around the area. The vacation of Scoville Avenue would result in additional circulation and travel in the area as Ridgeland Avenue and East Avenue are separated by ¼ of mile.
- Scoville Avenue provides secondary access and an additional circulation route for the area as well as the high school, Ridgeland Commons and the Farmers Market. In addition to distributing the traffic generated by these uses/activities, Scoville Avenue serves as a pick-up/drop-off location for the high school and to a lesser extent the Farmers Market and Ridgeland Commons as well as providing additional parking for these uses. As such, traffic currently traversing Scoville Avenue as well as the drop-off/pick-up and parking activity will be redistributed to the other area roadways, particularly East Avenue, Lake Street and Scoville Avenue north of Lake Street.

Scoville Avenue Traffic Volumes

- Scoville Avenue had a daily, two-way volume of approximately 1,300 vehicles and an peak hourly, two-way traffic volume that varied between 110 to 210 vehicles.
- It is estimated that the redistribution of the Scoville Avenue traffic would increase the volume of traffic on Ridgeland Avenue by approximately five to seven percent and the daily traffic along East Avenue by 20 to 25 percent.

Roadway Operations

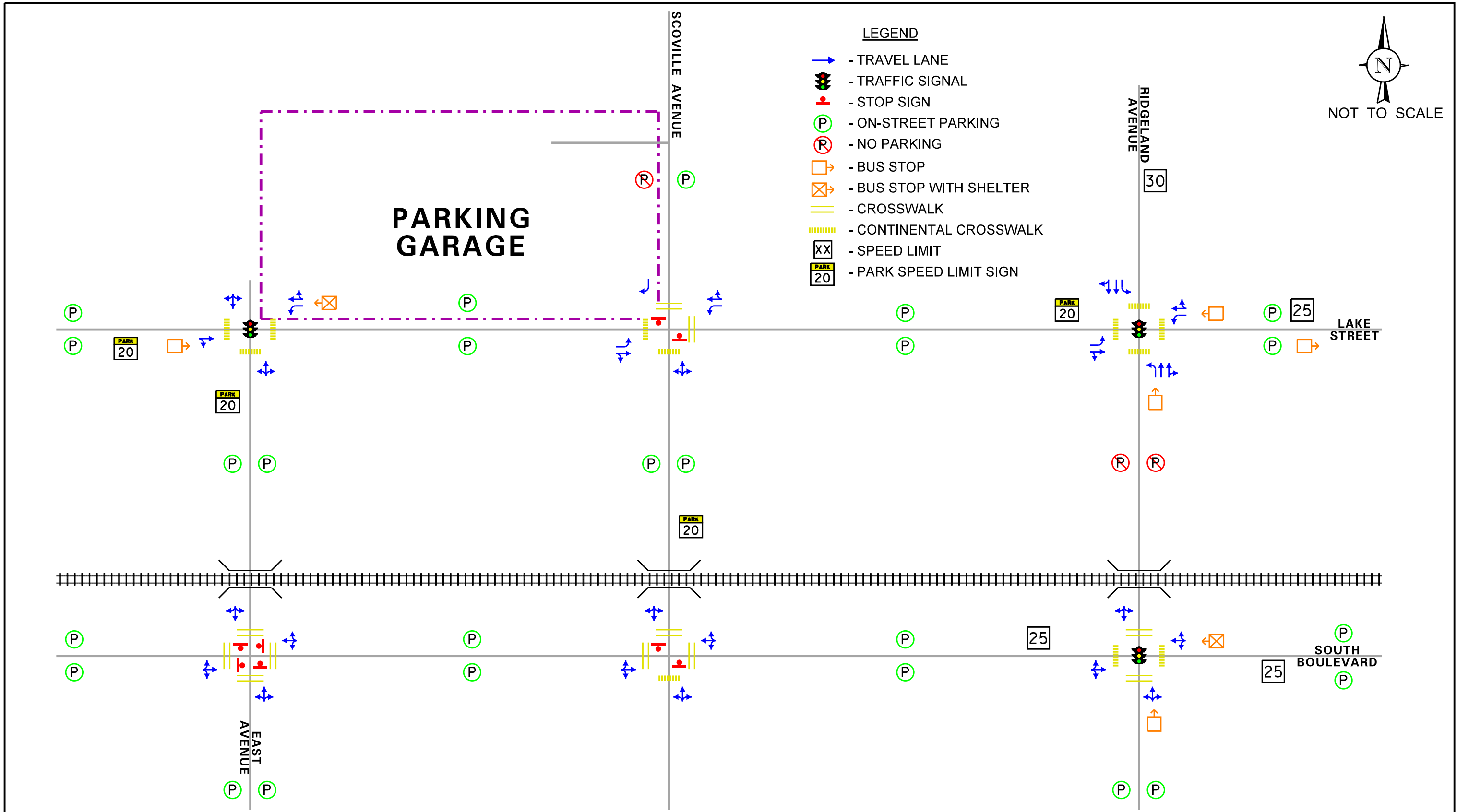
- With the redistribution of the Scoville Avenue traffic, all of the intersections are projected to generally operate at a good level of service with a limited increase in overall intersection delay. However, the intersections of East Avenue/Lake Street will experience a greater increase in average intersection delay of (10 to 15 seconds) during the morning peak hour when the drop-off activity occurs at the high school. In addition, several intersections are projected to drop a grade in level of service during certain peak hours as many of these intersections are currently operating on the threshold between two levels of service.
- Further, the redistribution of the traffic will have a greater impact on specific intersection movements and/or approaches that will serve as the primary alternative routes around the vacated section of Scoville Avenue. For example, the northbound approach of East Avenue at Lake Street and the southbound approach of East Avenue at South Boulevard are projected to operate at a poor level of service during the morning peak hour when the peak drop-off activity occurs at the high school. In addition, the left-turn movements from (1) northbound Ridgeland Avenue to westbound Lake Street and (2) westbound Lake Street to southbound East Avenue are projected to experience a greater increase in delay.
- While the intersections are projected to operate at a good overall level of service, several of the roads and intersection within the study area experience localized congestion associated with the high school, large events at the high school and the Farmers Market. During the weekday, this is usually only concentrated for a 20 to 30 minute period before and after school. On a Saturday the congestion can occur at various times during the late morning/early afternoon peak period. Given the increase in traffic and drop-off/pick-up and parking activity, the vacation of Scoville Avenue will further increase the localized congestion experienced in the study area, particularly along East Avenue, Lake Street and Scoville Avenue north of Lake Street.
- Potential improvements/modifications that would enhance the roadway operations and help mitigate the impact of the redistributed Scoville Avenue traffic include the following.
 - Traffic signal timing modifications.
 - The use of additional school traffic control personnel at select locations along Lake Street.
 - The addition of a right-turn lane on the northbound approach of East Avenue at Lake Street, which would require the elimination of some on-street parking and roadway widening.

Appendix



Location of High School Campus

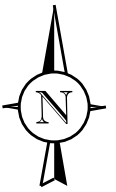
Figure 1



PROJECT:
 Oak Park and River Forest
 High School
 Oak Park, Illinois

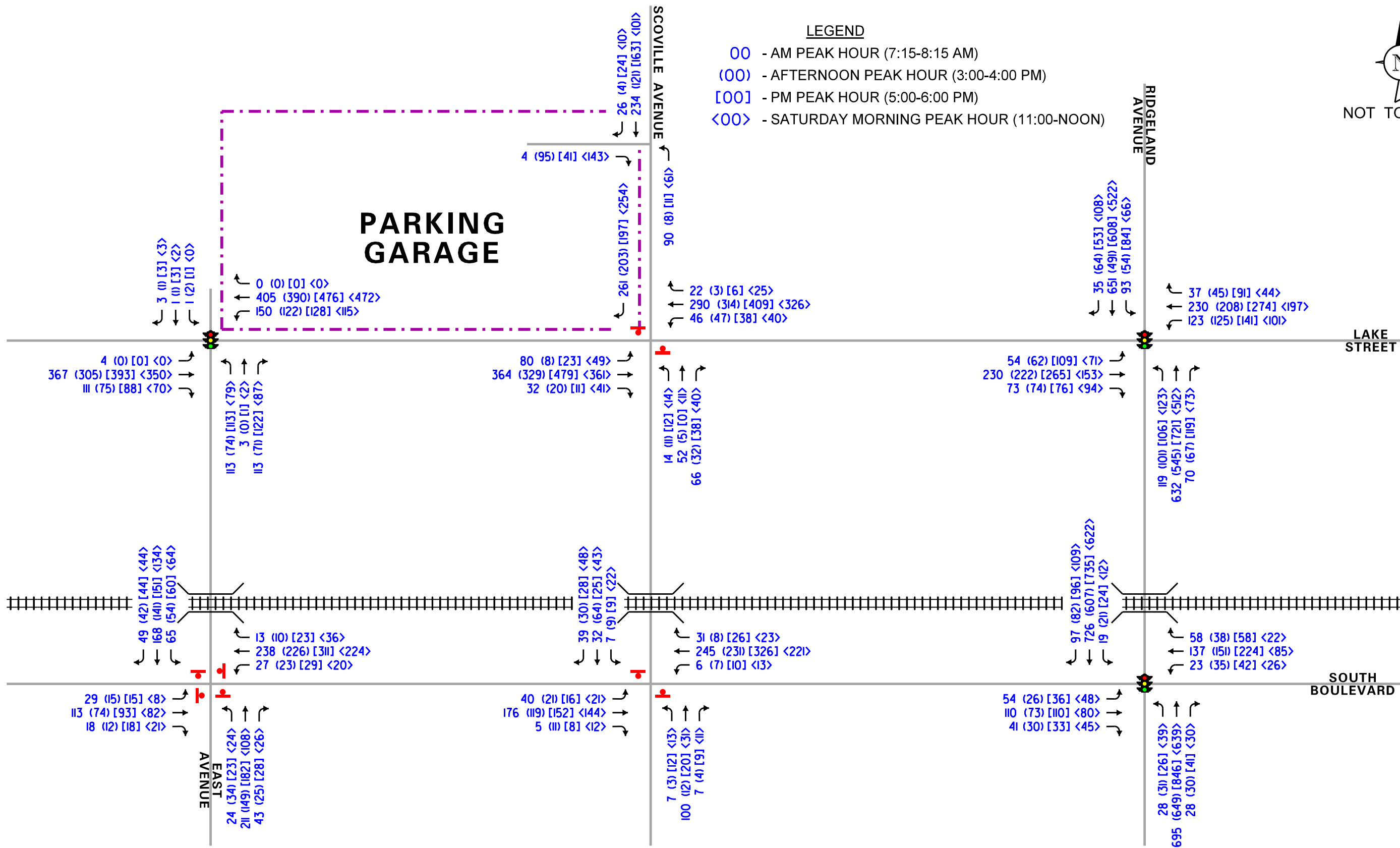
TITLE:
 EXISTING ROADWAY CHARACTERISTICS

KLOA
 Job No: 14-204
 Figure: 2



NOT TO SCALE

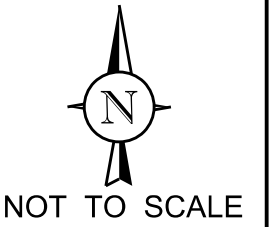
- LEGEND**
- 00 - AM PEAK HOUR (7:15-8:15 AM)
 - (00) - AFTERNOON PEAK HOUR (3:00-4:00 PM)
 - [00] - PM PEAK HOUR (5:00-6:00 PM)
 - <00> - SATURDAY MORNING PEAK HOUR (11:00-NOON)



PROJECT: Oak Park and River Forest High School
Oak Park, Illinois

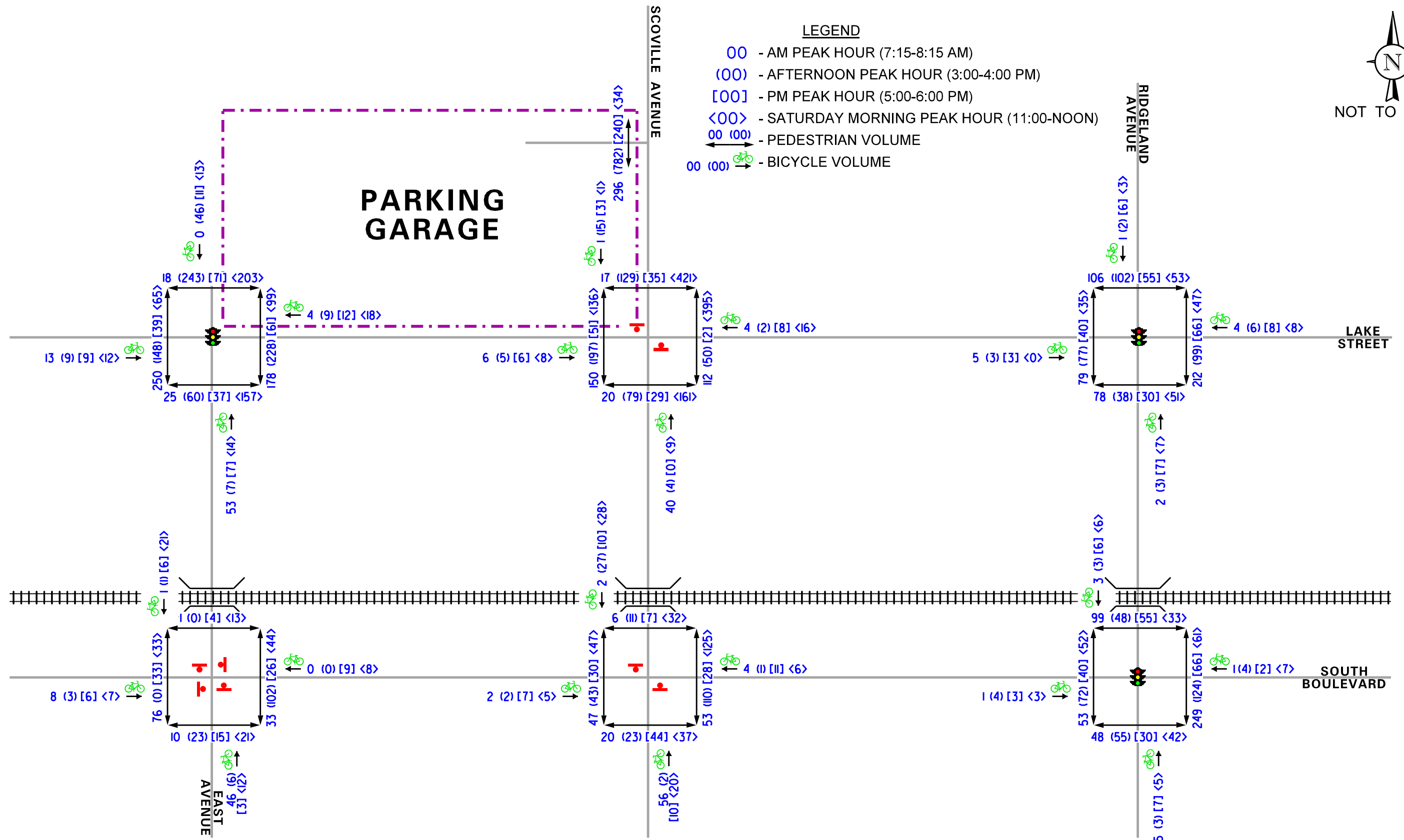
TITLE: EXISTING TRAFFIC VOLUMES

KLOA
Job No: 14-204
Figure: 3



LEGEND

- 00 - AM PEAK HOUR (7:15-8:15 AM)
- (00) - AFTERNOON PEAK HOUR (3:00-4:00 PM)
- [00] - PM PEAK HOUR (5:00-6:00 PM)
- <00> - SATURDAY MORNING PEAK HOUR (11:00-NOON)
- 00 (00) - PEDESTRIAN VOLUME
- 00 (00) - BICYCLE VOLUME



PROJECT: Oak Park and River Forest High School
Oak Park, Illinois

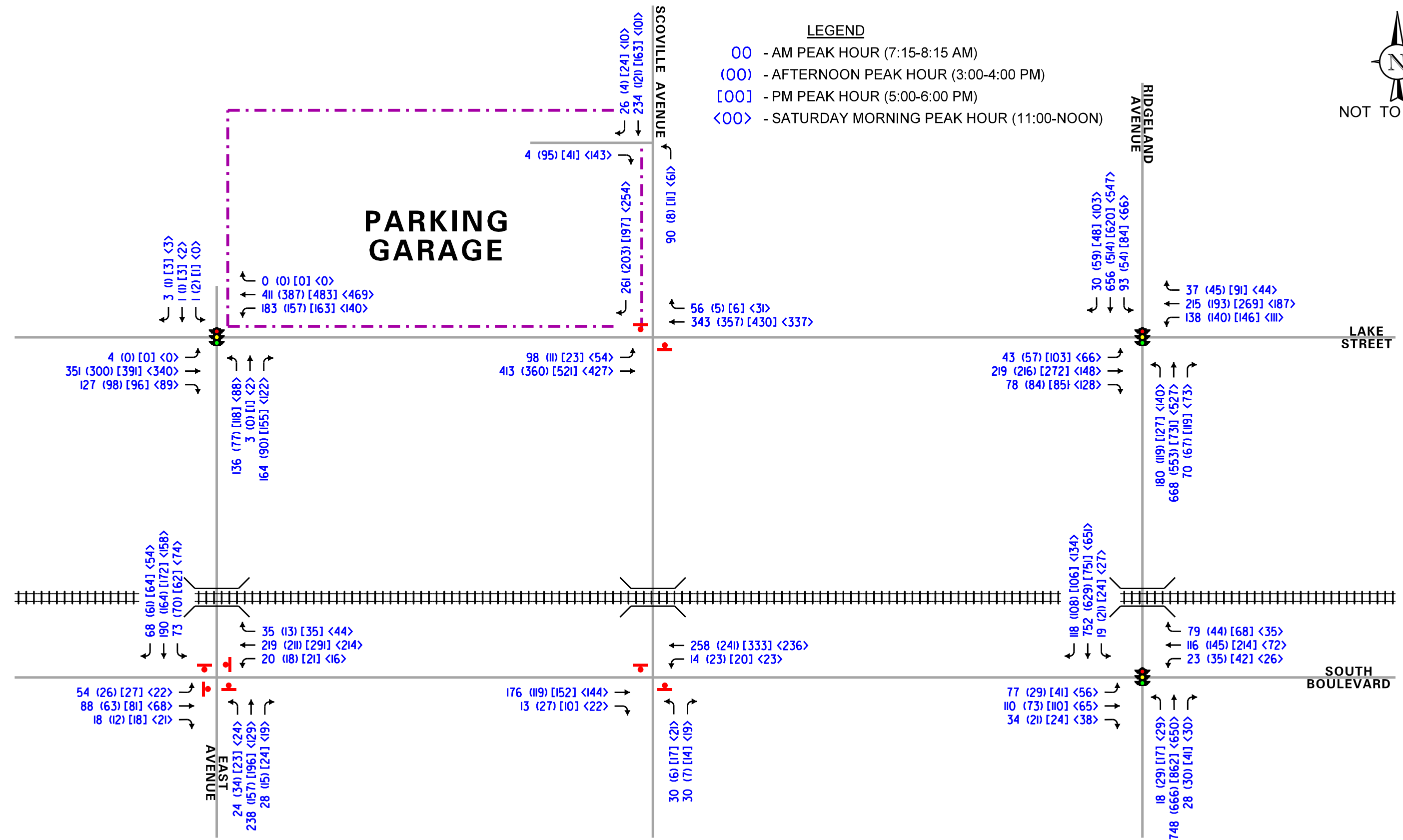
TITLE: EXISTING PEDESTRIAN AND BICYCLE TRAFFIC VOLUMES

KLOA
Job No: 14-204
Figure: 4



NOT TO SCALE

- LEGEND**
- 00 - AM PEAK HOUR (7:15-8:15 AM)
 - (00) - AFTERNOON PEAK HOUR (3:00-4:00 PM)
 - [00] - PM PEAK HOUR (5:00-6:00 PM)
 - <00> - SATURDAY MORNING PEAK HOUR (11:00-NOON)



PROJECT:
Oak Park and River Forest
High School
Oak Park, Illinois

TITLE:
EXISTING REDISTRIBUTED TRAFFIC VOLUMES

KLOA
Job No: 14-204
Figure: 5

Table 1
 SCOVILLE AVENUE BETWEEN LAKE STREET AND SOUTH BOULEVARD
 EXISTING TRAFFIC VOLUMES

	Northbound	Southbound	Total
Weekday			
Daily Traffic Volume	560	625	1,185
Morning Peak Hour	136	78	214
Afternoon Peak Hour	85	45	130
Evening Peak Hour	56	55	111
Saturday			
Daily Traffic Volume	780	510	1,290
Morning Peak Hour	70	97	167

Table 2
LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 – 10	
B	> 10 – 15	
C	> 15 – 25	
D	> 25 – 35	
E	> 35 – 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

Table 3
 INTERSECTION CAPACITY ANALYSES – EXISTING CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour		Saturday Morning Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Lake with Ridgeland ¹	C	33.2	C	23.6	C	36.9	C	23.0
Lake with Scoville ²	F	80+	F	80+	C	23.9	F	80+
Lake with East ¹	C	28.2	B	11.0	B	16.4	B	12.4
South with Ridgeland ¹	C	22.0	B	17.7	D	39.4	B	16.8
South with Scoville ²	C	23.4	B	14.7	C	15.5	C	15.7
South with East ²	C	21.2	B	11.9	B	14.6	B	11.2
Scoville with Garage Drive ²	B	14.7	B	11.9	B	12.7	B	10.0

LOS = Level of Service
 Delay = Seconds
 1. Signalized Intersection
 2. Unsignalized Intersection

Table 4

INTERSECTION CAPACITY ANALYSES –EXISTING REDISTRIBUTED TRAFFIC VOLUMES

Intersection	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour		Saturday Morning Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Lake with Ridgeland ¹	D	37.6	C	24.2	D	40.1	C	25.4
Lake with Scoville ²	E	36.8	E	39.9	C	16.3	F	80+
Lake with East ¹								
• Existing Conditions	D	43.6	B	13.0	B	17.9	B	13.7
• Improvements ³	C	23.7	B	10.6	B	13.5	B	11.3
South with Ridgeland ¹	C	25.8	B	18.5	D	44.5	B	17.2
South with Scoville ²	B	13.3	B	11.6	B	12.4	B	12.3
South with East ²	D	26.7	B	12.5	C	15.1	B	11.8
Scoville with Garage Drive ²	B	14.7	B	11.9	B	12.7	B	10.0

LOS = Level of Service

Delay = Seconds

1. Signalized Intersection

2. Unsignalized Intersection

3. Improvements at this intersection include the addition of a right-turn lane on the north approach of Lake Street and signal modifications.