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

9575 West Higgins Road, Suite 400 | Rosemont, Illinois 60018
p: 847-518-9990 | f: 847-518-9987

MEMORANDUM TO: Jeff Yates
RJ Development

FROM: Brendan May
Consultant

Luay Aboona, PE
Principal

DATE: April 22, 2016

SUBJECT: Traffic Impact Study
Memory Care Facility
Arlington Heights, Illinois

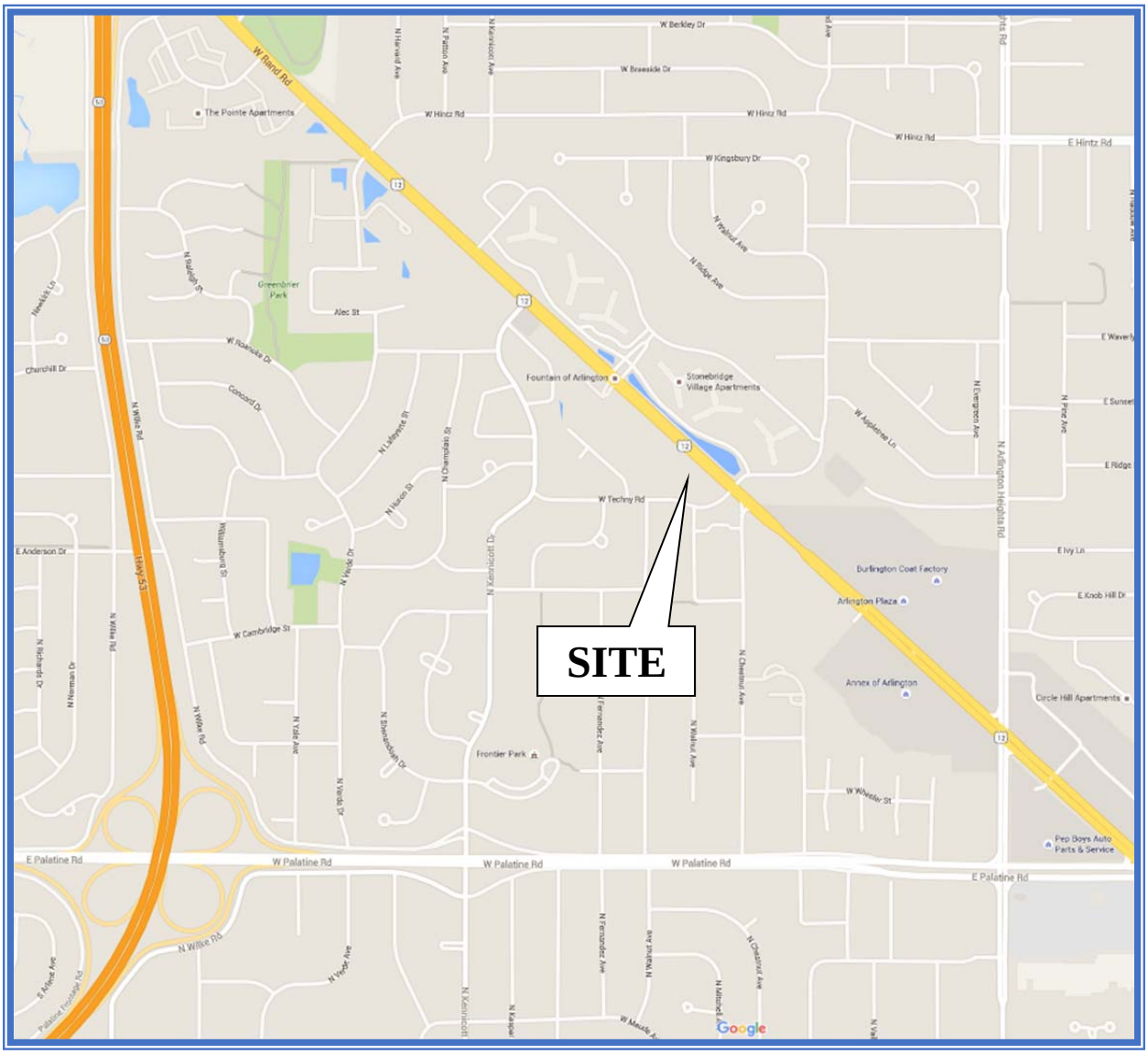
This memorandum summarizes the methodologies, results and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed memory care facility to be located in Arlington Heights, Illinois. The site, which is currently occupied by the Northwest Covenant Church, is located in the northwest quadrant of the intersection of Rand Road with Techny Road. As proposed, the development is to contain 72 memory care units and 4 independent living units. The development will provide 44 parking spaces. Access to the development will be provided via a right-in/right-out access drive on Rand Road and a full movement access drive on Techny Road.

Figure 1 shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site area.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed development.

The sections of this memorandum present the following.

- Existing roadway conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the site
- Traffic analyses for the weekday morning and evening peak hours
- Recommendations with respect to adequacy of the site access system and adjacent roadway system
- Recommendations regarding the adequacy of the parking supply.



Site Location **Figure 1**

Aerial View of Site Location **Figure 2**

Existing Conditions

Existing transportation conditions in the vicinity of the site 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 geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices and existing peak hour traffic volumes.

Site Location

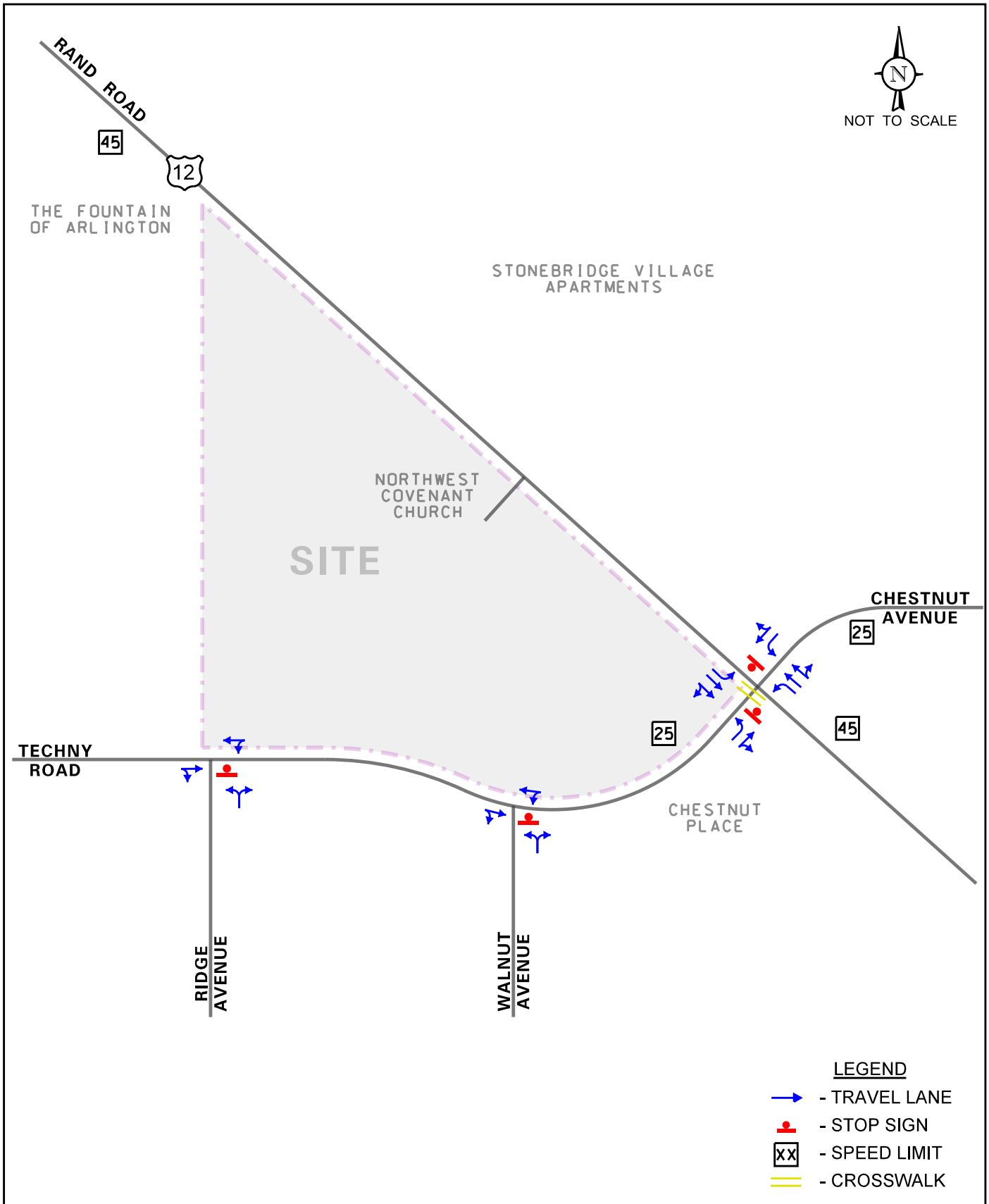
The site, which is currently occupied by the Northwest Covenant Church is located in the northwest quadrant of the intersection of Rand Road with Techny Road. Area land uses in the vicinity of the site are primarily residential in all directions with the Greenbriar Apartments and the Fountain of Arlington to the north, Stonebridge Village Apartments to the north and east, Chestnut Place and Russetwood Terrace subdivision to the south and Greenbriar subdivision and Techny Court subdivision to the west. Furthermore, Arlington Plaza and the Annex of Arlington are located to the southeast.

Existing Roadway System Characteristics

The following and summarizes the existing roadway characteristics within the vicinity of the site which are illustrated in **Figure 3**.

Rand Road (US Route 12) is a northwest-southeast four-lane roadway divided by a painted median. Rand Road in the vicinity of the site provides two lanes in each direction. At its unsignalized intersection with Techny Road, Rand Road provides an exclusive left-turn lane, an exclusive through lane and a shared through/right-turn lane on both approaches. Rand Road is signalized at its intersection with Kennicott Drive approximately 2,000 feet to the northwest and with the Arlington Plaza Access Drive approximately 1,300 feet southeast. Rand Road is under the jurisdiction of the Illinois Department of Transportation (IDOT), is classified as a Strategic Regional Arterial (SRA) route, carries an average daily traffic (ADT) volume of 26,900 vehicles and has a posted speed limit of 35 miles per hour south of Techny Road and a posted speed limit of 45 miles per hour north of Techny Road.

Techny Road is an east-west roadway that extends from Rand Road west to Kennicott Drive and provides one lane in each direction. At its unsignalized intersection with Rand Road, Techny Road provides an exclusive left-turn lane and a shared through/right-turn lane that are under stop-sign control This west leg of Techny Road provides a crosswalk. The east leg at this intersection is Chestnut Avenue which provides an exclusive left-turn lane and a shared through/right-turn lane that are under stop-sign control. At its unsignalized intersections with Walnut Avenue and Ridge Avenue, Techny Road provides a shared through/right-turn lane on the west approach and a shared left-turn/through lane on the east approach. Parking is permitted on both sides of the roadway. Techny Road is under the jurisdiction of the Village of Arlington Heights and has a posted speed limit of 25 miles per hour.



PROJECT:	TITLE:	
Proposed Memory Care Facility Arlington Heights, Illinois	Existing Street Characteristics	KLOA Job No: 15-214 Figure: 3

Walnut Avenue is a north-south two-lane roadway that extends from Techny Road south to Ladd Street. At its unsignalized intersection with Techny Road, Walnut Avenue provides a shared left/right-turn lane that is under stop-sign control. Parking is permitted on both sides of Walnut Avenue. Walnut Avenue is under the jurisdiction of the Village of Arlington Heights and has a posted speed limit of 25 miles per hour.

Ridge Avenue is a north-south two-lane roadway that extends from Techny Road south to its terminus approximately 325 feet south of Ladd Street. In the vicinity of the site, parking is permitted on both sides of the roadway. At its unsignalized intersection with Techny Road, Ridge Avenue provides a shared left/right-turn lane that is under stop-sign control. Ridge Avenue is under the jurisdiction of the Village of Arlington Heights and has a posted speed limit of 25 miles per hour.

Existing Traffic Volumes

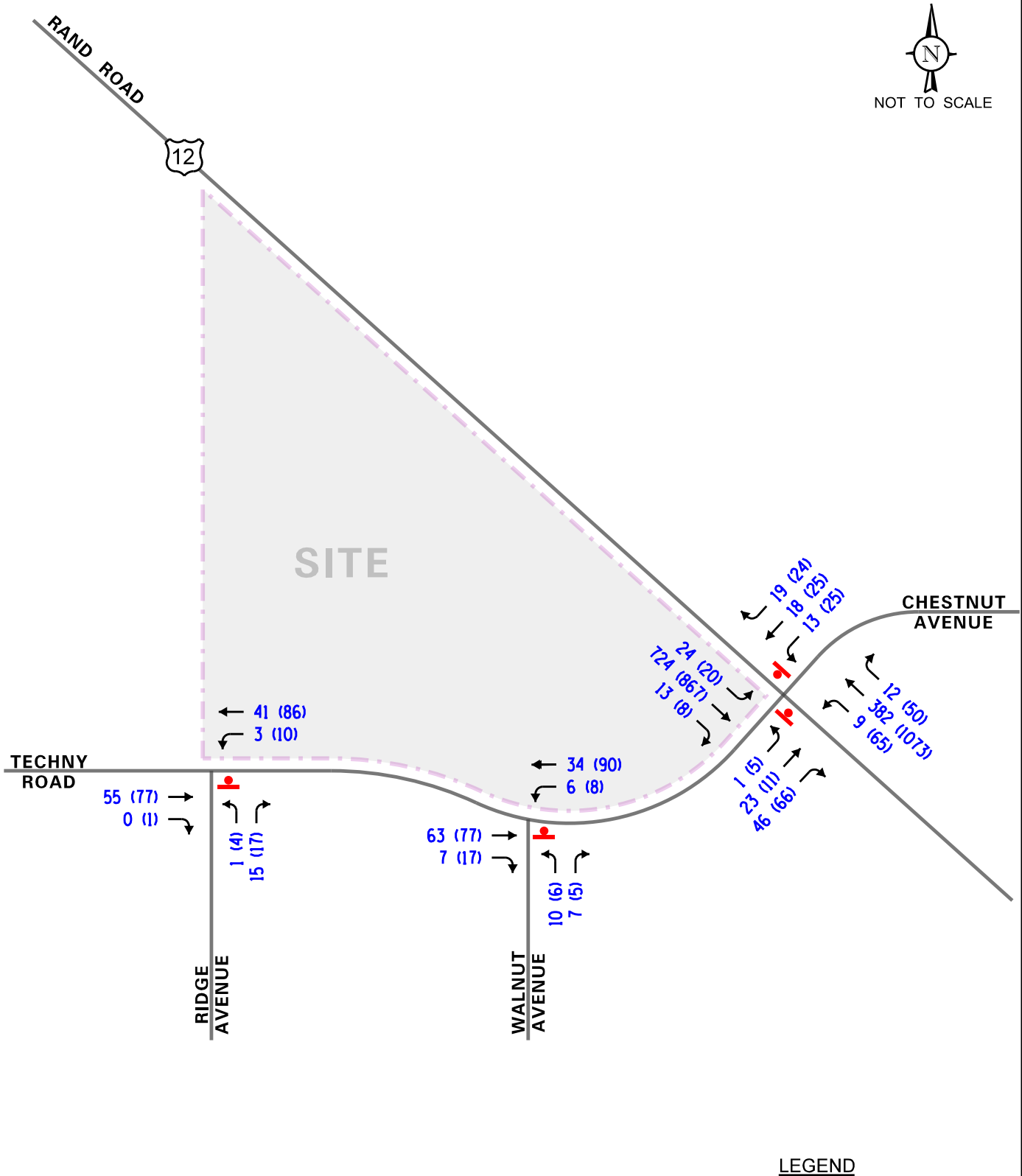
In order to determine current traffic conditions on the existing roads, KLOA, Inc. conducted peak period vehicle traffic counts on Thursday, September 17, 2015 during the morning (7:00 A.M. to 9:00 A.M.) and evening (4:00 P.M. to 6:00 P.M.) peak periods at the following intersections:

- Rand Road with Techny Road
- Techny Road with Walnut Road
- Techny Road with Ridge Road

The results of the traffic counts showed that the weekday morning peak hour of traffic occurs from 7:30 A.M. to 8:30 A.M. and the weekday evening peak hour of traffic occurs 5:00 P.M. to 6:00 P.M. **Figure 4** illustrates the existing peak hour vehicle volumes.

Accident Data

KLOA, Inc. obtained accident data from IDOT for the past five years (2009 to 2013) for the intersections of Rand Road with Techny Road/Chestnut Avenue, Techy Road with Walnut Avenue and Techny Road with Ridge Avenue. A review of the accident data indicated that the intersections of Techny Road with Walnut Avenue and Techny Road with Ridge Avenue experienced zero accidents between 2010 and 2014. The intersection of Rand Road with Techny Road/Chestnut Avenue experienced only two accidents in 2010, three accidents in 2011 and 2014, five accidents in 2012 and one accident in 2013. In addition, there were no fatalities reported and the frequency of accidents was low. Furthermore, the intersection is not listed in IDOT's Statewide or Local Five Percent Report which presents the five percent of state, county, township and municipal roadway segments and intersections exhibiting the most pressing safety needs.



PROJECT:	TITLE:	
Proposed Memory Care Facility Arlington Heights, Illinois	Existing Traffic Volumes	KLOA Job No: 15-214 Figure: 4

Gap Study Results

A gap study was conducted along Rand Road at the location of the proposed access drive in order to determine the availability of gaps or interruptions in the Rand Road traffic stream. The gap study was conducted on Thursday, September 17, 2015 during the weekday morning and weekday evening peak periods and examined the availability of gaps or interruptions in the traffic streams. Gaps in the southbound direction on Rand Road will allow traffic to turn left onto Techny Road and right onto Rand Road. Gaps in both directions on Rand Road will allow traffic to turn left onto Rand Road and travel across Rand Road onto Chestnut Avenue. The results of the gap study are summarized in **Table 1**. As can be seen, the results indicate that numerous gaps are available in the traffic stream to accommodate turning movements.

Table 1
GAP STUDY RESULTS – RAND ROAD

Time Periods	Number of Potential Movements Based on Gaps Available			
	Northbound Left-Turn	Eastbound Left-Turn	Eastbound Right-Turn	Eastbound Through
Weekday 7:30 - 8:30 A.M.	681	178	312	201
Weekday 5:00 – 6:00 P.M.	742	166	337	135

Traffic Characteristics of the Proposed Development

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Development Plan

As proposed, the development is to consist of memory care facility providing 72 beds and two senior duplexes (four independent living units). A total of 44 parking spaces will be provided for staff, visitors and residents. Access to the development is proposed to be provided via a full movement access drive on Techny Road and via a right-in/right-out access drive on Rand Road. The access drive off Techny Road will be aligned opposite of Walnut Avenue and will provide one inbound lane and one outbound lane with outbound movements under stop-sign control. The access drive off Rand Road will be located approximately 600 feet north of Techny Road. This access drive will provide one inbound lane and one outbound lane with outbound movements under stop-sign control. This access drive should provide a raised channelizing island to physically restrict movements to right-turn in and right-turn out movements only. Additionally, appropriate “No Left-Turn singing should be provided within the raised island to reinforce this restriction.

Directional Distribution

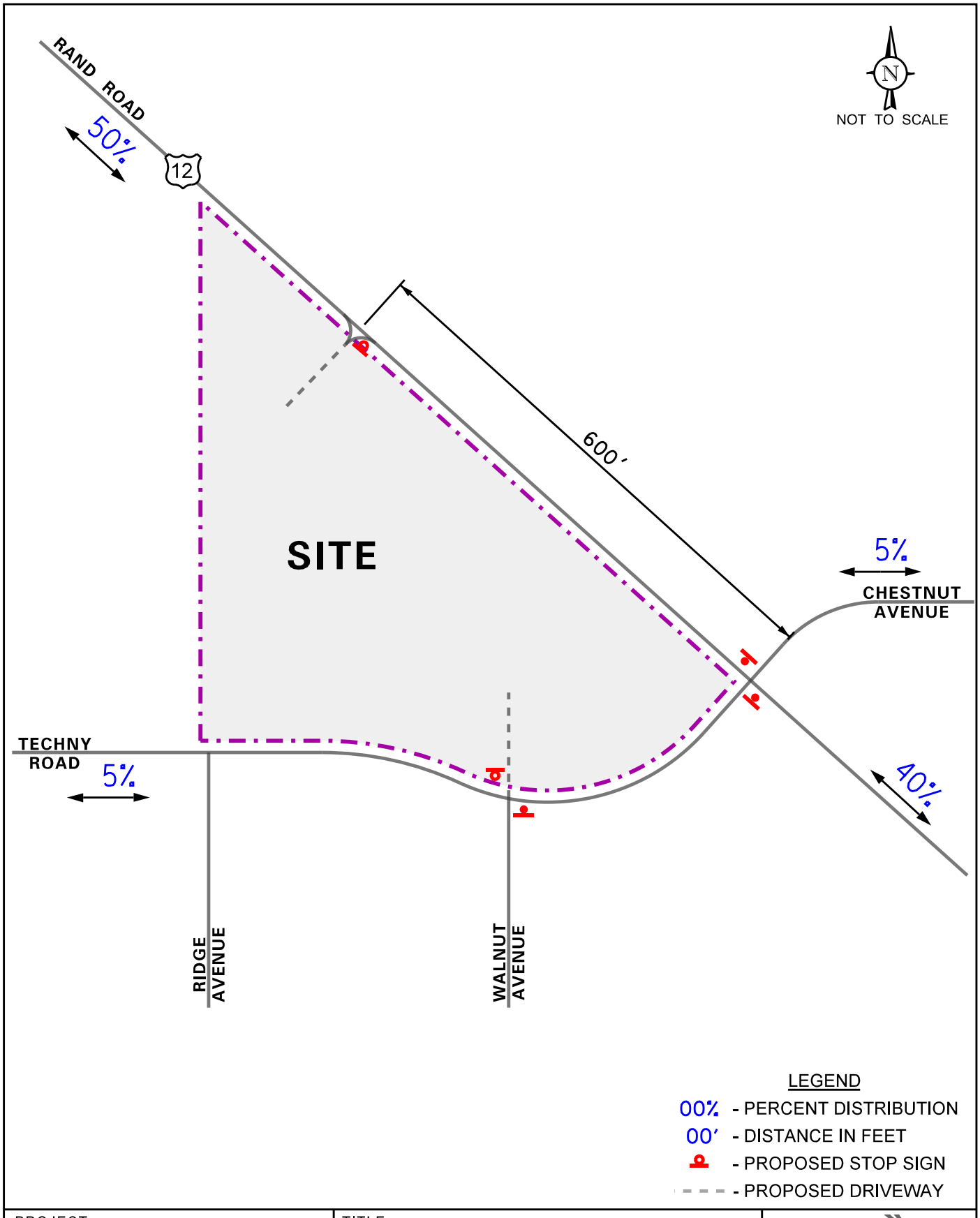
The directional distribution of development-generated trips on the roadway system is a function of several variables, including the operational characteristics of the roadway system and the ease with which drivers can travel over various sections of the roadway system without encountering congestion. The directions from which development-generated traffic will approach and depart the facility's proposed location were estimated based on existing travel patterns, as determined from the traffic counts at the existing location. The estimated directional distribution of development traffic is shown in **Figure 5**.

Estimated Site Traffic Generation

The volume of traffic generated by the facility is based on the type of land use and size of the development. The number of peak hour vehicle trips estimated to be generated by the proposed assisted living facility is based on the trip generation rates published in the 9th Edition of the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE). Since the ITE *Trip Generation Manual* does not provide rates for memory care units, the Assisted Living (Land-Use Code 254) rates were used to estimate the trips to be generated by the memory care units. **Table 2** shows the site-generated traffic volumes for the proposed facility during the weekday morning and evening peak hours. Copies of the corresponding ITE *Trip Generation Manual* graphs and equations used are included in the Appendix.

Table 2
PROJECTED SITE-GENERATED TRAFFIC VOLUMES

		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Land Use Code	Quantity	In	Out	Total	In	Out	Total
Assisted Living (254)	72 Beds	9	4	13	11	10	21
Independent Living (252)	4 Units	1	1	2	2	1	3
	Total	**10**	**5**	**15**	**13**	**11**	**24**



PROJECT:	TITLE:	
Proposed Memory Care Facility Arlington Heights, Illinois	Estimated Directional Distribution	KLOA Job No: 15-214 Figure: 5

Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth and the traffic estimated to be generated by the proposed subject development.

Development Traffic Assignment

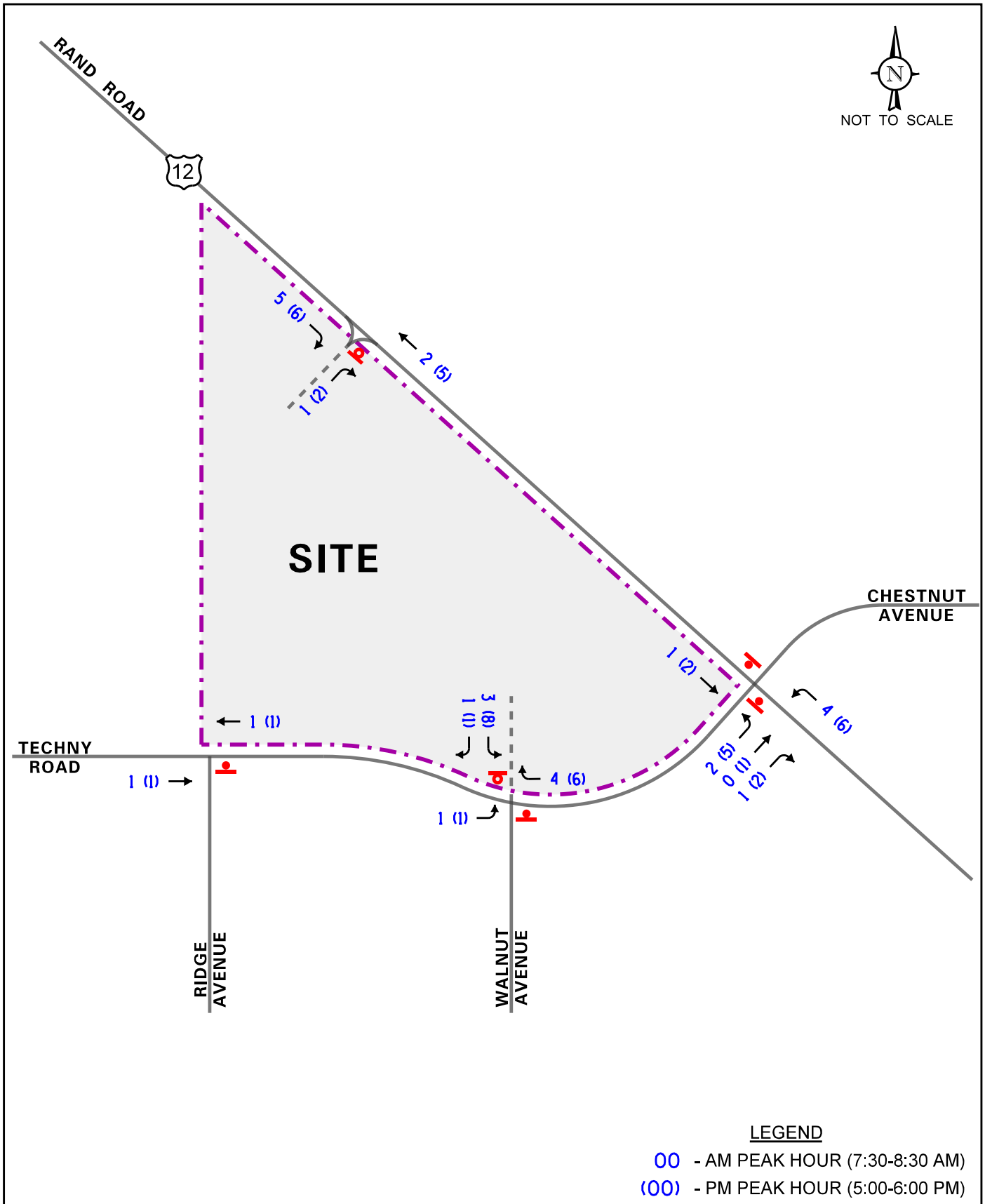
The estimated weekday morning and evening peak hour traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5) and are illustrated in **Figure 6**.

Background Traffic Conditions

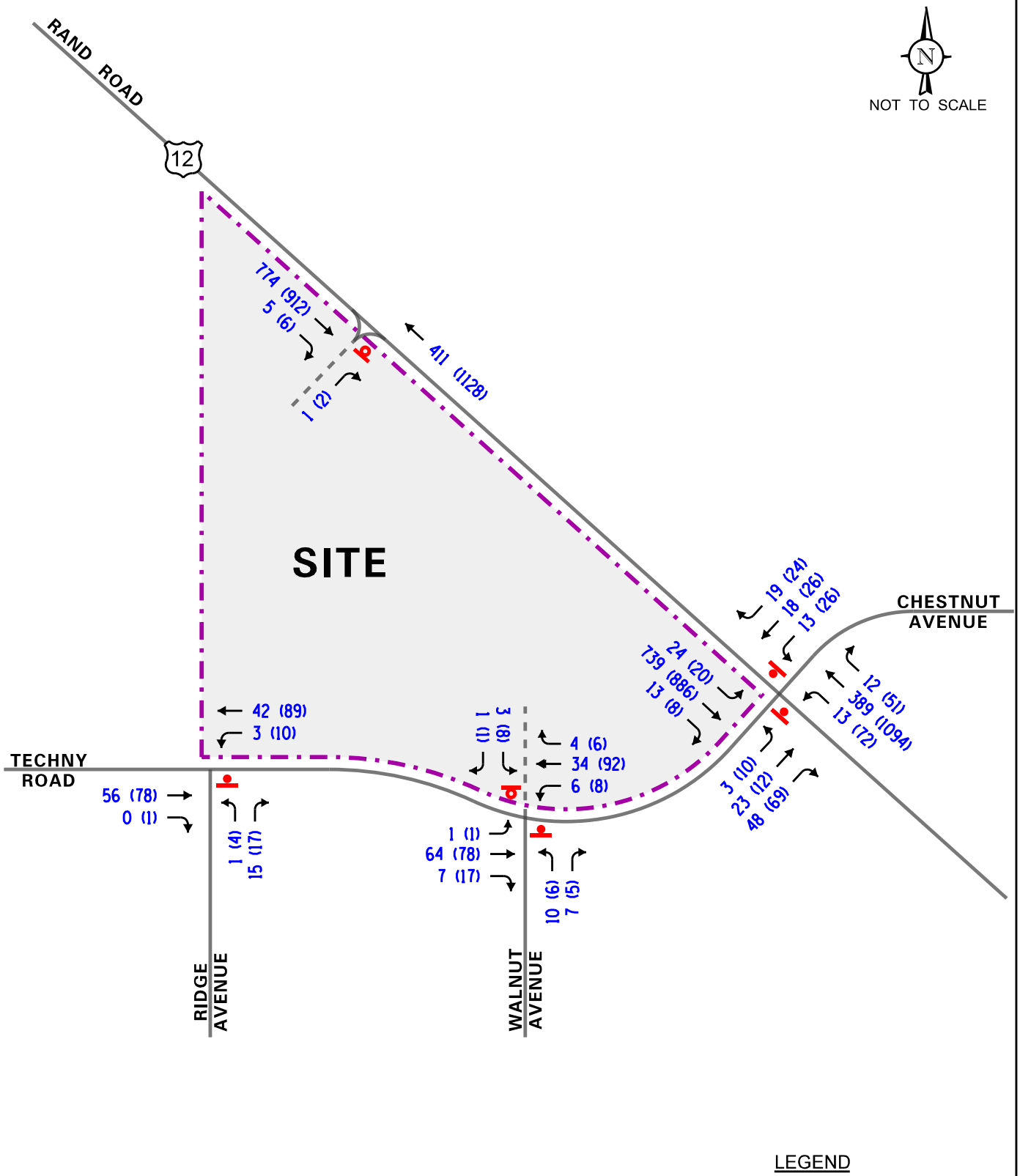
Based on the Chicago Metropolitan Agency for Planning (CMAP) Year 2040 population and employment projections, the existing traffic volumes were increased by one-third percent per year for six years (buildout year plus five) to project the Year 2021 background traffic volumes. A copy of the CMAP Year 2040 projections letter is included in the Appendix.

Total Projected Traffic Volumes

The existing traffic volumes accounting for growth were combined with the peak hour traffic volumes generated by the development to determine the Year 2021 total projected traffic volumes that are shown in **Figure 7**.



PROJECT:	TITLE:	
Proposed Memory Care Facility Arlington Heights, Illinois	Estimated Site-Generated Traffic Volumes	KLOA Job No: 15-214 Figure: 6



PROJECT:	TITLE:	
Proposed Memory Care Facility Arlington Heights, Illinois	Year 2021 Total Projected Traffic Volumes	KLOA Job No: 15-214 Figure: 7

Traffic Analysis

Traffic analyses were performed for the intersections in the study area to determine the operation of the existing roadway system, evaluate the impact of the proposed development and determine the ability of the roadway system to accommodate projected traffic demands. Analyses were performed for the weekday morning and evening peak hours for both the existing and projected traffic volumes.

The traffic analyses were performed using the Highway Capacity Software (HCS) computer software. 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 unsignalized and signalized intersections are provided in the Appendix. The results of the capacity analysis for both existing and future conditions are summarized in **Table 3** and **Table 4**, respectively.

Table 3
CAPACITY ANALYSIS RESULTS—EXISTING TRAFFIC CONDITIONS

	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
Intersection	LOS	Delay	LOS	Delay
Rand Road with Techny Road/Chestnut Avenue				
• Eastbound Approach	C	18.8	E	45.7
• Westbound Approach	C	20.7	F	>100
• Northbound Lefts	A	9.6	B	10.3
• Southbound Lefts	A	8.2	B	11.2
Techny Road with Walnut Avenue				
• Northbound Approach	A	9.1	A	9.4
• Westbound Lefts	A	7.4	A	7.4
Techny Road with Ridge Avenue				
• Northbound Approach	A	8.8	A	9.0
• Westbound Lefts	A	7.3	A	7.4

LOS - Level of Service
Delay is measured in seconds.
Note: All of the intersections operate under stop sign control

Table 4
CAPACITY ANALYSIS RESULTS—PROJECTED TRAFFIC CONDITIONS

Intersection	Weekday A.M. Peak Hour LOS	Weekday A.M. Peak Hour Delay	Weekday P.M. Peak Hour LOS	Weekday P.M. Peak Hour Delay
Rand Road with Techny Road/Chestnut Avenue				
• Eastbound Approach	C	19.6	F	76.0
• Westbound Approach	C	21.5	F	>100
• Northbound Lefts	A	9.7	B	10.5
• Southbound Lefts	A	8.3	B	11.3
Techny Road with Walnut Avenue/Proposed Access Drive				
• Northbound Approach	A	9.2	A	9.4
• Southbound Approach	A	9.2	A	9.9
• Eastbound Lefts	A	7.3	A	7.4
• Westbound Lefts	A	7.4	A	7.4
Techny Road with Ridge Avenue				
• Northbound Approach	A	8.8	A	9.1
• Westbound Lefts	A	7.3	A	7.4
Rand Road with Proposed Access Drive				
• Eastbound Approach	B	11.0	B	11.8

LOS - Level of Service
Delay is measured in seconds.
Note: All of the intersections operate under stop sign control

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identify any roadway and traffic control improvements to accommodate the development traffic.

Rand Road with Techny Road/Chestnut Avenue

The results of the capacity analyses indicate that the eastbound approach at this intersection currently operates at Level of Service (LOS) C during the weekday morning peak hour and at LOS E during the weekday evening peak hour. The westbound approach at this intersection experiences longer delays especially during the evening peak hour due to the higher volume of left-turning vehicles. Under future conditions, the eastbound and westbound approaches are projected to continue operating at their current LOS with the exception of the eastbound approach that is projected to operate at LOS F during the weekday evening peak hour with increases in delay attributed primarily to the assumed growth in background traffic. This is evident by the fact that the proposed development traffic will result in an increase of approximately only one-half percent of the total traffic traversing the intersection. Furthermore, this LOS is expected for minor roadways like Techny Road and Chestnut Avenue that intersect major roadways like Rand Road. As the results of the gap study have shown, there are numerous gaps available in the roadway system created by the existing signals to the northwest and southeast. These available gaps allow for traffic to turn out of Techny Road and Chestnut Avenue more efficiently than the results of the capacity analyses indicate. In addition, left-turns onto Techny Road and Chestnut Avenue are projected to continue to operate a LOS A during the morning peak hour and at LOS B during the evening peak hour with 95th percentile queues of one to two vehicles which can be accommodated within the provided storage. As such, the proposed development will have a minimal impact on the operations of this intersections.

Techny Road with Walnut Avenue/Proposed Access Drive

The results of the capacity analyses indicate that the Walnut Avenue approach currently operates and is projected to continue operating at LOS A during the peak hours with minimal increases in delay. The proposed access drive is projected to operate at LOS A during both peak hours. Furthermore, left-turns onto Walnut Avenue and the proposed access drive are projected to operate at LOS A during both peak hours with 95th percentile queues of one vehicle. As such, the proposed access driveway will have a minimal impact on the operations of this intersection and no roadway or traffic control improvements are necessary. In addition, this access drive will be adequate in accommodating traffic projected to be generated by the development and will provide efficient and flexible access to the development

Techny Road with Ridge Avenue

The results of the capacity analyses indicate that the Ridge Avenue approach currently operates and is projected to continue operating at LOS A during the peak hours with minimal increases in delay. Furthermore, left-turns onto Ridge Avenue are projected to continue operating at LOS A during both peak hours with 95th percentile queues of one vehicle. As such, the proposed access driveway will have a minimal impact on the operations of this intersection and no roadway or traffic control improvements are necessary.

Rand Road with Proposed Right-In/Right-Out Access Drive

The results of the capacity analyses indicate that this access drive is projected to operate at LOS B during the weekday morning and evening peak hours. When compared to the turn-lane guidelines published in Chapter 36 of the IDOT *Bureau of Design and Environment (BDE*) Manual, it was determined that a southbound right-turn lane will not be required during either peak hour. Based on these results, the access drive will be adequate in accommodating traffic projected to be generated by the development and will provide efficient and flexible access to the development.

Gap Study Evaluation

Table 5 shows the number of available gaps compared to the number of required gaps that are needed to accommodate the projected traffic turning onto and from the eastbound approach of the intersection of Rand Road with Techny Road. As shown in Table 5, there are more sufficient gaps in traffic to accommodate the northbound left-turns onto Techny Road, eastbound right-turns on Rand Road, the eastbound left-turns onto Rand Road and the through movements from Techny Road onto Chestnut Avenue for both the weekday morning and weekday evening peak hours of adjacent roadway traffic. This indicated that this access roadway will operate adequately and will provide efficient access to the development.

Table 5
REQUIRED GAPS AT INTERSECTION OF RAND ROAD WITH TECHNY ROAD

	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
Time Periods	Available Gaps	Required Gaps	Available Gaps	Required Gaps
Northbound Left Turns	150+	11	150+	69
Eastbound Right Turns	150+	48	150+	69
Left Turns From Minor	150+	15	150+	32
Through Movements from Minor	150+	41	135	38

Parking Evaluation

The Village of Arlington Heights requires parking for a nursing home be provided at a ratio of one-half spaces per bed and parking for housing for the elderly (60+) be provided at a ratio of two spaces per dwelling unit. This equates to a total of 44 spaces required. The proposed development is proposed to provide 44 total parking spaces, meeting the amount required by village code. Additionally, the proposed 44 parking spaces exceeds the number of spaces required by the rates published in the ITE *Parking Generation Manual* which requires a total of 32 spaces at a ratio of 0.41 spaces per bed and 0.59 spaces per duplex unit. As such, the proposed parking supply will be adequate in meeting the parking needs of the proposed development.

Conclusion and Recommendations

Based on the proposed development plans and the preceding traffic impact study, the following conclusions and recommendations are made.

- The peak hour traffic that will be generated by the proposed development will be low as very few residents will own a vehicle.

- The limited volume of new traffic to be generated by the proposed development can be accommodated by the existing roadway system.

- The access system has been designed to provide efficient and orderly access to/from the development

- Sufficient gaps are available in the Rand Road traffic stream to accommodate the projected turning movements out of the site for both the weekday morning and weekday evening peak hours.

- The proposed parking supply of 44 parking spaces will be sufficient to meet the peak parking needs of the development.

Appendix

Traffic Count Summary Sheets

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Rand Road with Techny Road
Site Code:
Start Date: 09/17/2015

Turning Movement Data

Start Time	Techny Road Eastbound						Techny Road Westbound						Rand Road Northbound						Rand Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	1	1	6	0	8	0	4	4	4	0	12	0	2	61	1	0	64	0	7	210	2	0	219	303
7:15 AM	0	0	4	6	0	10	0	5	3	4	0	12	0	5	77	1	0	83	0	4	161	0	0	165	270
7:30 AM	0	0	4	18	0	22	0	4	4	4	0	12	0	0	79	3	0	82	0	8	191	3	0	202	318
7:45 AM	0	1	6	9	0	16	0	5	5	4	0	14	0	3	112	4	0	119	0	4	177	1	0	182	331
Hourly Total	0	2	15	39	0	56	0	18	16	16	0	50	0	10	329	9	0	348	0	23	739	6	0	768	1222
8:00 AM	0	0	10	6	0	16	0	1	4	6	0	11	1	3	91	4	0	99	0	6	185	3	0	194	320
8:15 AM	0	0	3	13	2	16	0	3	5	5	0	13	0	2	100	1	0	103	0	6	171	5	2	182	314
8:30 AM	0	1	7	11	1	19	0	6	6	6	0	18	0	0	107	9	0	116	0	5	154	5	1	164	317
8:45 AM	0	1	7	20	0	28	0	5	5	5	0	15	0	2	109	0	0	111	0	7	163	4	0	174	328
Hourly Total	0	2	27	50	3	79	0	15	20	22	0	57	1	7	407	14	0	429	0	24	673	17	3	714	1279
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	1	3	13	0	17	0	5	2	8	0	15	0	17	225	14	0	256	0	5	206	1	0	212	500
4:15 PM	0	0	2	11	1	13	0	0	4	6	0	10	0	21	239	4	0	264	0	2	189	2	0	193	480
4:30 PM	0	0	1	11	0	12	0	3	2	9	0	14	0	10	243	9	0	262	0	6	185	2	0	193	481
4:45 PM	0	1	2	12	0	15	0	0	6	8	0	14	0	12	260	4	0	276	0	4	179	1	0	184	489
Hourly Total	0	2	8	47	1	57	0	8	14	31	0	53	0	60	967	31	0	1058	0	17	759	6	0	782	1950
5:00 PM	0	1	2	13	0	16	0	2	4	6	0	12	0	17	280	10	0	307	0	1	206	3	0	210	545
5:15 PM	0	0	2	19	0	21	0	5	6	5	0	16	0	14	256	15	0	285	0	8	229	2	0	239	561
5:30 PM	0	2	1	14	0	17	0	7	11	7	0	25	0	21	262	10	0	293	0	5	208	3	0	216	551
5:45 PM	0	2	6	20	0	28	0	11	4	6	0	21	0	12	275	15	0	302	0	6	224	0	0	230	581
Hourly Total	0	5	11	66	0	82	0	25	25	24	0	74	0	64	1073	50	0	1187	0	20	867	8	0	895	2238
Grand Total	0	11	61	202	4	274	0	66	75	93	0	234	1	141	2776	104	0	3022	0	84	3038	37	3	3159	6689
Approach %	0.0	4.0	22.3	73.7	-	-	0.0	28.2	32.1	39.7	-	-	0.0	4.7	91.9	3.4	-	-	0.0	2.7	96.2	1.2	-	-	-
Total %	0.0	0.2	0.9	3.0	-	4.1	0.0	1.0	1.1	1.4	-	3.5	0.0	2.1	41.5	1.6	-	45.2	0.0	1.3	45.4	0.6	-	47.2	-
Lights	0	11	60	198	-	269	0	65	74	91	-	230	1	139	2706	100	-	2946	0	83	2964	37	-	3084	6529
% Lights	-	100.0	98.4	98.0	-	98.2	-	98.5	98.7	97.8	-	98.3	100.0	98.6	97.5	96.2	-	97.5	-	98.8	97.6	100.0	-	97.6	97.6
Buses	0	0	1	4	-	5	0	1	0	2	-	3	0	0	8	3	-	11	0	0	11	0	-	11	30
% Buses	-	0.0	1.6	2.0	-	1.8	-	1.5	0.0	2.2	-	1.3	0.0	0.0	0.3	2.9	-	0.4	-	0.0	0.4	0.0	-	0.3	0.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	54	0	-	56	0	1	51	0	-	52	108
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	1.4	1.9	0.0	-	1.9	-	1.2	1.7	0.0	-	1.6	1.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	8	1	-	9	0	0	12	0	-	12	21
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.3	1.0	-	0.3	-	0.0	0.4	0.0	-	0.4	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	1.3	0.0	-	0.4	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Rand Road with Techny Road
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Techny Road Eastbound						Techny Road Westbound						Rand Road Northbound						Rand Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:30 AM	0	0	4	18	0	22	0	4	4	4	0	12	0	0	79	3	0	82	0	8	191	3	0	202	318
7:45 AM	0	1	6	9	0	16	0	5	5	4	0	14	0	3	112	4	0	119	0	4	177	1	0	182	331
8:00 AM	0	0	10	6	0	16	0	1	4	6	0	11	1	3	91	4	0	99	0	6	185	3	0	194	320
8:15 AM	0	0	3	13	2	16	0	3	5	5	0	13	0	2	100	1	0	103	0	6	171	5	2	182	314
Total	0	1	23	46	2	70	0	13	18	19	0	50	1	8	382	12	0	403	0	24	724	12	2	760	1283
Approach %	0.0	1.4	32.9	65.7	-	-	0.0	26.0	36.0	38.0	-	-	0.2	2.0	94.8	3.0	-	-	0.0	3.2	95.3	1.6	-	-	-
Total %	0.0	0.1	1.8	3.6	-	5.5	0.0	1.0	1.4	1.5	-	3.9	0.1	0.6	29.8	0.9	-	31.4	0.0	1.9	56.4	0.9	-	59.2	-
PHF	0.000	0.250	0.575	0.639	-	0.795	0.000	0.650	0.900	0.792	-	0.893	0.250	0.667	0.853	0.750	-	0.847	0.000	0.750	0.948	0.600	-	0.941	0.969
Lights	0	1	23	46	-	70	0	12	18	18	-	48	1	7	352	11	-	371	0	23	701	12	-	736	1225
% Lights	-	100.0	100.0	100.0	-	100.0	-	92.3	100.0	94.7	-	96.0	100.0	87.5	92.1	91.7	-	92.1	-	95.8	96.8	100.0	-	96.8	95.5
Buses	0	0	0	0	-	0	0	1	0	1	-	2	0	0	3	0	-	3	0	0	2	0	-	2	7
% Buses	-	0.0	0.0	0.0	-	0.0	-	7.7	0.0	5.3	-	4.0	0.0	0.0	0.8	0.0	-	0.7	-	0.0	0.3	0.0	-	0.3	0.5
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	22	0	-	23	0	1	20	0	-	21	44
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	12.5	5.8	0.0	-	5.7	-	4.2	2.8	0.0	-	2.8	3.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	5	1	-	6	0	0	1	0	-	1	7
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	1.3	8.3	-	1.5	-	0.0	0.1	0.0	-	0.1	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Rand Road with Techny Road
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Techny Road Eastbound						Techny Road Westbound						Rand Road Northbound						Rand Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
5:00 PM	0	1	2	13	0	16	0	2	4	6	0	12	0	17	280	10	0	307	0	1	206	3	0	210	545
5:15 PM	0	0	2	19	0	21	0	5	6	5	0	16	0	14	256	15	0	285	0	8	229	2	0	239	561
5:30 PM	0	2	1	14	0	17	0	7	11	7	0	25	0	21	262	10	0	293	0	5	208	3	0	216	551
5:45 PM	0	2	6	20	0	28	0	11	4	6	0	21	0	12	275	15	0	302	0	6	224	0	0	230	581
Total	0	5	11	66	0	82	0	25	25	24	0	74	0	64	1073	50	0	1187	0	20	867	8	0	895	2238
Approach %	0.0	6.1	13.4	80.5	-	-	0.0	33.8	33.8	32.4	-	-	0.0	5.4	90.4	4.2	-	-	0.0	2.2	96.9	0.9	-	-	-
Total %	0.0	0.2	0.5	2.9	-	3.7	0.0	1.1	1.1	1.1	-	3.3	0.0	2.9	47.9	2.2	-	53.0	0.0	0.9	38.7	0.4	-	40.0	-
PHF	0.000	0.625	0.458	0.825	-	0.732	0.000	0.568	0.568	0.857	-	0.740	0.000	0.762	0.958	0.833	-	0.967	0.000	0.625	0.947	0.667	-	0.936	0.963
Lights	0	5	11	66	-	82	0	25	25	24	-	74	0	63	1069	50	-	1182	0	20	852	8	-	880	2218
% Lights	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	-	98.4	99.6	100.0	-	99.6	-	100.0	98.3	100.0	-	98.3	99.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	3	0	-	4	0	0	12	0	-	12	16
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	1.6	0.3	0.0	-	0.3	-	0.0	1.4	0.0	-	1.3	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	2	0	-	2	3
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.0	-	0.1	-	0.0	0.2	0.0	-	0.2	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Walnut Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Data

Start Time	Techny Road Eastbound					Techny Road Westbound					Walnut Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	9	1	0	10	0	0	8	0	8	0	1	1	0	2	20
7:15 AM	0	9	1	0	10	0	1	7	0	8	0	0	1	1	1	19
7:30 AM	0	16	1	2	17	0	0	6	0	6	0	9	5	0	14	37
7:45 AM	0	15	1	0	16	0	1	8	0	9	0	1	1	1	2	27
Hourly Total	0	49	4	2	53	0	2	29	0	31	0	11	8	2	19	103
8:00 AM	0	16	2	0	18	0	3	7	0	10	0	0	0	0	0	28
8:15 AM	0	15	3	0	18	0	2	10	0	12	0	0	1	0	1	31
8:30 AM	0	16	4	0	20	0	2	9	0	11	0	7	4	0	11	42
8:45 AM	0	26	6	0	32	0	1	10	0	11	0	10	5	2	15	58
Hourly Total	0	73	15	0	88	0	8	36	0	44	0	17	10	2	27	159
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	17	10	11	27	0	2	16	0	18	0	0	3	1	3	48
4:15 PM	0	9	1	0	10	1	6	22	0	29	0	1	2	0	3	42
4:30 PM	0	12	6	0	18	0	2	11	0	13	0	2	0	0	2	33
4:45 PM	0	15	6	0	21	0	2	16	0	18	0	2	0	0	2	41
Hourly Total	0	53	23	11	76	1	12	65	0	78	0	5	5	1	10	164
5:00 PM	0	17	4	0	21	0	1	23	0	24	0	4	2	0	6	51
5:15 PM	0	17	2	0	19	1	2	19	0	22	0	0	0	0	0	41
5:30 PM	0	16	8	0	24	0	2	33	0	35	0	1	0	0	1	60
5:45 PM	0	27	3	0	30	0	3	13	0	16	0	1	3	0	4	50
Hourly Total	0	77	17	0	94	1	8	88	0	97	0	6	5	0	11	202
Grand Total	0	252	59	13	311	2	30	218	0	250	0	39	28	5	67	628
Approach %	0.0	81.0	19.0	-	-	0.8	12.0	87.2	-	-	0.0	58.2	41.8	-	-	-
Total %	0.0	40.1	9.4	-	49.5	0.3	4.8	34.7	-	39.8	0.0	6.2	4.5	-	10.7	-
Lights	0	248	55	-	303	2	30	217	-	249	0	38	27	-	65	617
% Lights	-	98.4	93.2	-	97.4	100.0	100.0	99.5	-	99.6	-	97.4	96.4	-	97.0	98.2
Buses	0	4	2	-	6	0	0	0	-	0	0	1	1	-	2	8
% Buses	-	1.6	3.4	-	1.9	0.0	0.0	0.0	-	0.0	-	2.6	3.6	-	3.0	1.3
Single-Unit Trucks	0	0	2	-	2	0	0	0	-	0	0	0	0	-	0	2
% Single-Unit Trucks	-	0.0	3.4	-	0.6	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	0.5	-	0.4	-	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	13	-	-	-	-	0	-	-	-	-	5	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Walnut Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Techny Road Eastbound					Techny Road Westbound					Walnut Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:30 AM	0	16	1	2	17	0	0	6	0	6	0	9	5	0	14	37
7:45 AM	0	15	1	0	16	0	1	8	0	9	0	1	1	1	2	27
8:00 AM	0	16	2	0	18	0	3	7	0	10	0	0	0	0	0	28
8:15 AM	0	15	3	0	18	0	2	10	0	12	0	0	1	0	1	31
Total	0	62	7	2	69	0	6	31	0	37	0	10	7	1	17	123
Approach %	0.0	89.9	10.1	-	-	0.0	16.2	83.8	-	-	0.0	58.8	41.2	-	-	-
Total %	0.0	50.4	5.7	-	56.1	0.0	4.9	25.2	-	30.1	0.0	8.1	5.7	-	13.8	-
PHF	0.000	0.969	0.583	-	0.958	0.000	0.500	0.775	-	0.771	0.000	0.278	0.350	-	0.304	0.831
Lights	0	62	5	-	67	0	6	31	-	37	0	10	7	-	17	121
% Lights	-	100.0	71.4	-	97.1	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	98.4
Buses	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Buses	-	0.0	14.3	-	1.4	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.8
Single-Unit Trucks	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	14.3	-	1.4	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Walnut Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Techny Road Eastbound					Techny Road Westbound					Walnut Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
5:00 PM	0	17	4	0	21	0	1	23	0	24	0	4	2	0	6	51
5:15 PM	0	17	2	0	19	1	2	19	0	22	0	0	0	0	0	41
5:30 PM	0	16	8	0	24	0	2	33	0	35	0	1	0	0	1	60
5:45 PM	0	27	3	0	30	0	3	13	0	16	0	1	3	0	4	50
Total	0	77	17	0	94	1	8	88	0	97	0	6	5	0	11	202
Approach %	0.0	81.9	18.1	-	-	1.0	8.2	90.7	-	-	0.0	54.5	45.5	-	-	-
Total %	0.0	38.1	8.4	-	46.5	0.5	4.0	43.6	-	48.0	0.0	3.0	2.5	-	5.4	-
PHF	0.000	0.713	0.531	-	0.783	0.250	0.667	0.667	-	0.693	0.000	0.375	0.417	-	0.458	0.842
Lights	0	77	17	-	94	1	8	88	-	97	0	6	5	-	11	202
% Lights	-	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Ridge Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Data

Start Time	Techny Road Eastbound					Techny Road Westbound					Ridge Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	7	0	0	7	0	0	9	3	9	0	0	3	0	3	19
7:15 AM	0	7	0	0	7	0	2	5	0	7	0	1	2	0	3	17
7:30 AM	0	17	0	0	17	0	1	16	0	17	0	0	2	0	2	36
7:45 AM	0	14	0	0	14	0	1	7	0	8	0	0	3	0	3	25
Hourly Total	0	45	0	0	45	0	4	37	3	41	0	1	10	0	11	97
8:00 AM	0	12	0	0	12	0	0	8	0	8	0	0	4	1	4	24
8:15 AM	0	11	0	0	11	0	1	10	0	11	0	1	6	0	7	29
8:30 AM	0	18	0	1	18	0	0	16	0	16	0	1	3	0	4	38
8:45 AM	0	23	1	0	24	0	2	17	0	19	0	0	9	2	9	52
Hourly Total	0	64	1	1	65	0	3	51	0	54	0	2	22	3	24	143
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	20	0	0	20	0	3	12	0	15	0	0	2	2	2	37
4:15 PM	0	8	0	0	8	0	2	21	0	23	0	0	4	1	4	35
4:30 PM	0	15	0	0	15	0	0	16	0	16	0	0	2	0	2	33
4:45 PM	0	19	0	0	19	0	2	12	0	14	0	0	1	0	1	34
Hourly Total	0	62	0	0	62	0	7	61	0	68	0	0	9	3	9	139
5:00 PM	0	18	1	0	19	0	4	23	0	27	0	0	5	0	5	51
5:15 PM	0	14	0	0	14	0	1	20	0	21	0	2	3	0	5	40
5:30 PM	0	24	0	0	24	0	0	32	0	32	0	2	4	0	6	62
5:45 PM	0	21	0	0	21	0	5	11	0	16	0	0	5	2	5	42
Hourly Total	0	77	1	0	78	0	10	86	0	96	0	4	17	2	21	195
Grand Total	0	248	2	1	250	0	24	235	3	259	0	7	58	8	65	574
Approach %	0.0	99.2	0.8	-	-	0.0	9.3	90.7	-	-	0.0	10.8	89.2	-	-	-
Total %	0.0	43.2	0.3	-	43.6	0.0	4.2	40.9	-	45.1	0.0	1.2	10.1	-	11.3	-
Lights	0	243	2	-	245	0	24	232	-	256	0	7	55	-	62	563
% Lights	-	98.0	100.0	-	98.0	-	100.0	98.7	-	98.8	-	100.0	94.8	-	95.4	98.1
Buses	0	4	0	-	4	0	0	1	-	1	0	0	2	-	2	7
% Buses	-	1.6	0.0	-	1.6	-	0.0	0.4	-	0.4	-	0.0	3.4	-	3.1	1.2
Single-Unit Trucks	0	1	0	-	1	0	0	0	-	0	0	0	1	-	1	2
% Single-Unit Trucks	-	0.4	0.0	-	0.4	-	0.0	0.0	-	0.0	-	0.0	1.7	-	1.5	0.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	2	-	2	0	0	0	-	0	2
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.9	-	0.8	-	0.0	0.0	-	0.0	0.3
Pedestrians	-	-	-	1	-	-	-	-	3	-	-	-	-	8	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Ridge Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Techny Road Eastbound					Techny Road Westbound					Ridge Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:30 AM	0	17	0	0	17	0	1	16	0	17	0	0	2	0	2	36
7:45 AM	0	14	0	0	14	0	1	7	0	8	0	0	3	0	3	25
8:00 AM	0	12	0	0	12	0	0	8	0	8	0	0	4	1	4	24
8:15 AM	0	11	0	0	11	0	1	10	0	11	0	1	6	0	7	29
Total	0	54	0	0	54	0	3	41	0	44	0	1	15	1	16	114
Approach %	0.0	100.0	0.0	-	-	0.0	6.8	93.2	-	-	0.0	6.3	93.8	-	-	-
Total %	0.0	47.4	0.0	-	47.4	0.0	2.6	36.0	-	38.6	0.0	0.9	13.2	-	14.0	-
PHF	0.000	0.794	0.000	-	0.794	0.000	0.750	0.641	-	0.647	0.000	0.250	0.625	-	0.571	0.792
Lights	0	53	0	-	53	0	3	40	-	43	0	1	14	-	15	111
% Lights	-	98.1	-	-	98.1	-	100.0	97.6	-	97.7	-	100.0	93.3	-	93.8	97.4
Buses	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Buses	-	1.9	-	-	1.9	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.9
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	1
% Single-Unit Trucks	-	0.0	-	-	0.0	-	0.0	0.0	-	0.0	-	0.0	6.7	-	6.3	0.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	-	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Bicycles on Road	-	0.0	-	-	0.0	-	0.0	2.4	-	2.3	-	0.0	0.0	-	0.0	0.9
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Techny Road with Ridge Avenue
Site Code:
Start Date: 09/17/2015

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Techny Road Eastbound					Techny Road Westbound					Ridge Avenue Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
5:00 PM	0	18	1	0	19	0	4	23	0	27	0	0	5	0	5	51
5:15 PM	0	14	0	0	14	0	1	20	0	21	0	2	3	0	5	40
5:30 PM	0	24	0	0	24	0	0	32	0	32	0	2	4	0	6	62
5:45 PM	0	21	0	0	21	0	5	11	0	16	0	0	5	2	5	42
Total	0	77	1	0	78	0	10	86	0	96	0	4	17	2	21	195
Approach %	0.0	98.7	1.3	-	-	0.0	10.4	89.6	-	-	0.0	19.0	81.0	-	-	-
Total %	0.0	39.5	0.5	-	40.0	0.0	5.1	44.1	-	49.2	0.0	2.1	8.7	-	10.8	-
PHF	0.000	0.802	0.250	-	0.813	0.000	0.500	0.672	-	0.750	0.000	0.500	0.850	-	0.875	0.786
Lights	0	77	1	-	78	0	10	86	-	96	0	4	17	-	21	195
% Lights	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

ITE Graphs and Equations

Senior Adult Housing - Attached
(252)

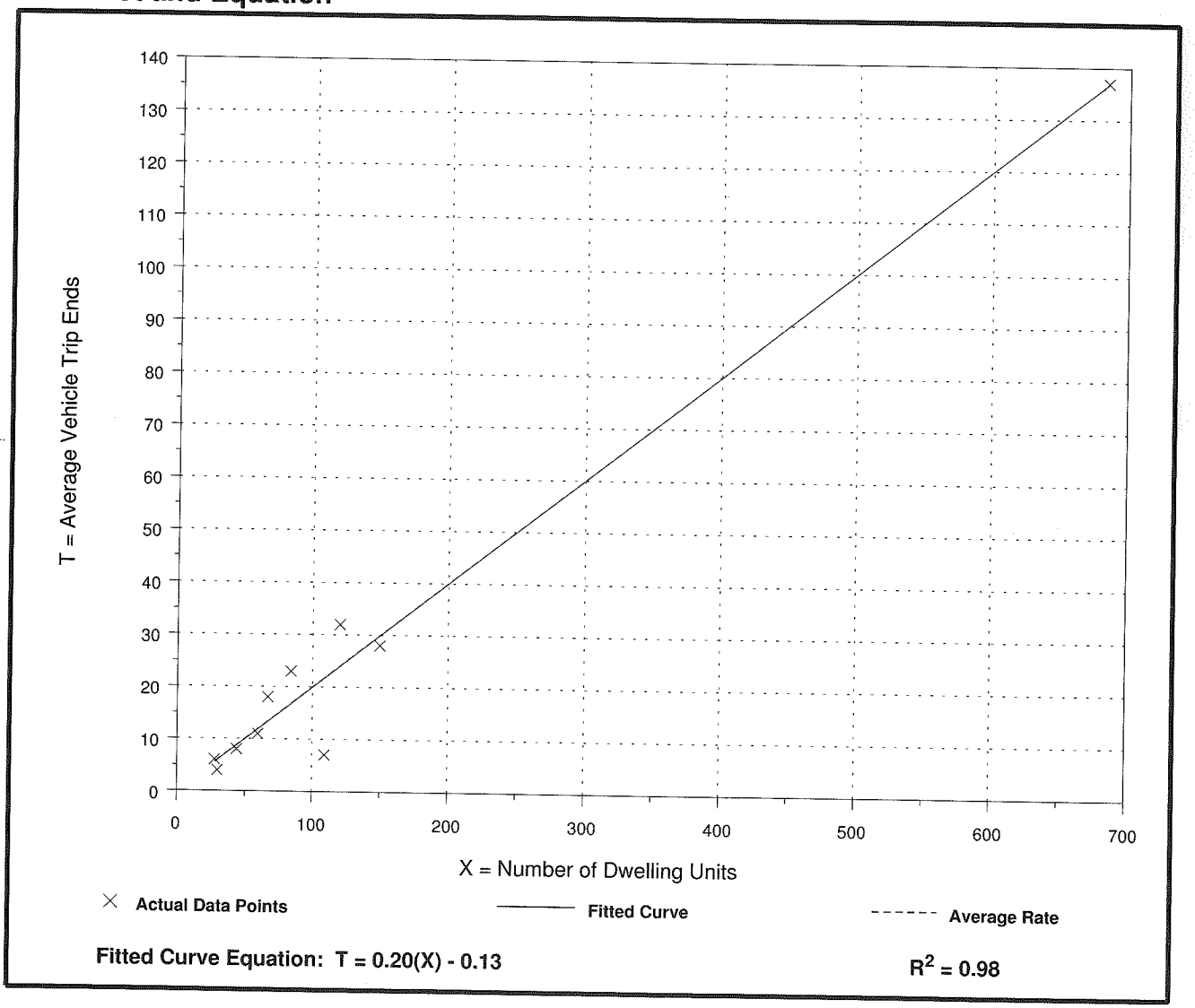
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 10
Avg. Number of Dwelling Units: 138
Directional Distribution: 34% entering, 66% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.06 - 0.27	0.45

Data Plot and Equation



Fitted Curve Equation: T = 0.20(X) - 0.13

R^2 = 0.98

Senior Adult Housing - Attached
(252)

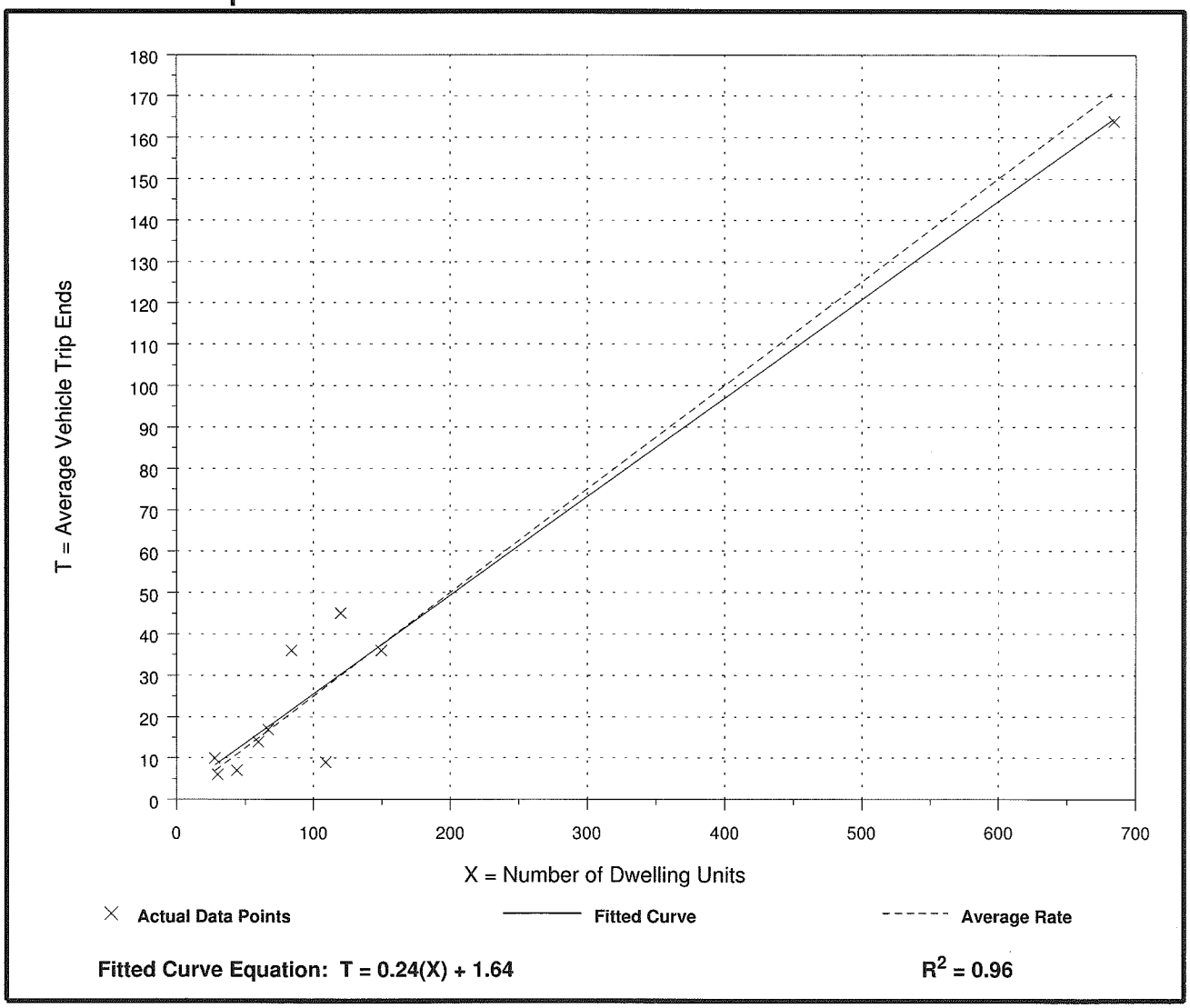
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 10
Avg. Number of Dwelling Units: 138
Directional Distribution: 54% entering, 46% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.25	0.08 - 0.43	0.50

Data Plot and Equation



Fitted Curve Equation: T = 0.24(X) + 1.64

R^2 = 0.96

Assisted Living
(254)

Average Vehicle Trip Ends vs: **Occupied Beds**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

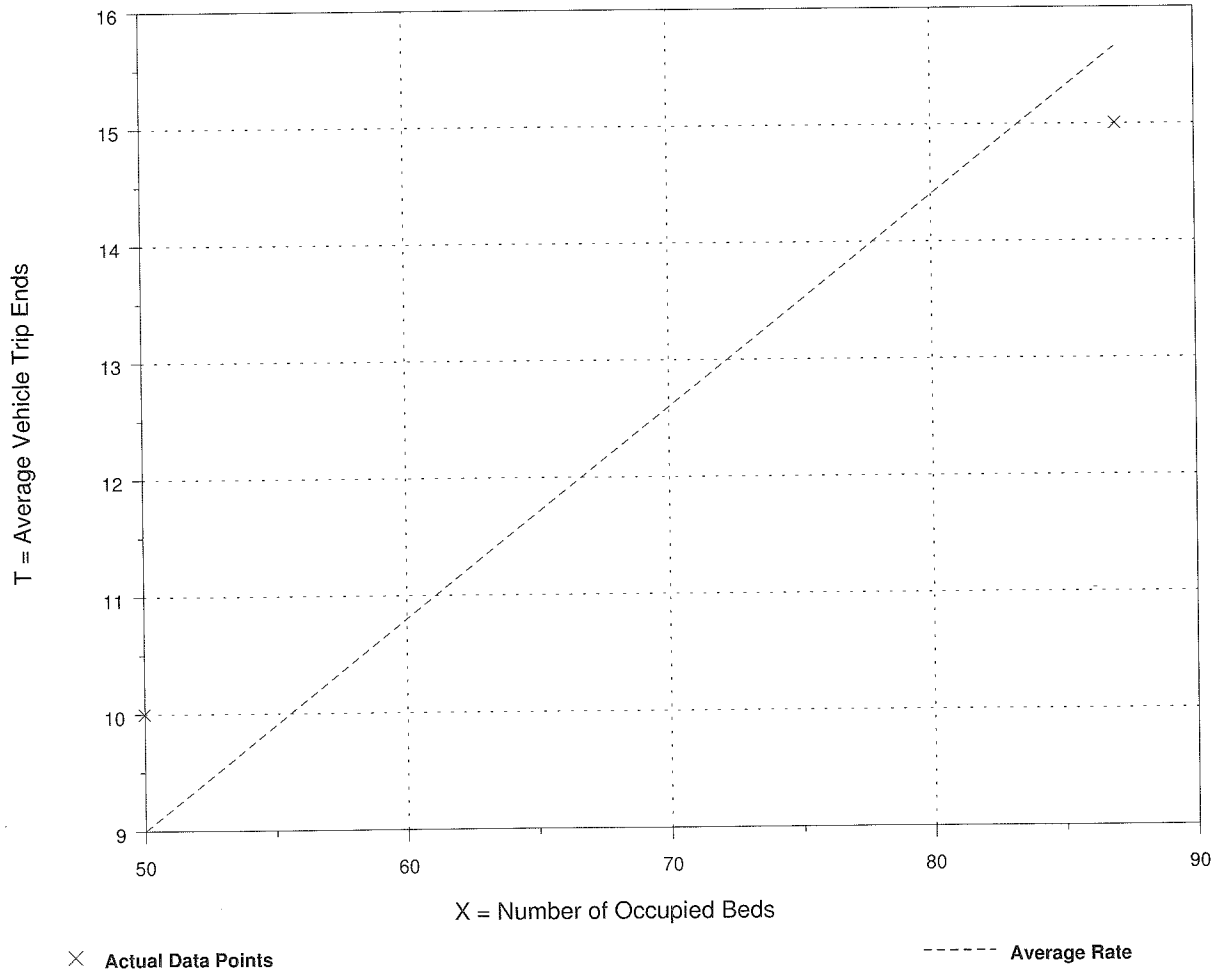
Number of Studies: 2
Average Number of Occupied Beds: 69
Directional Distribution: 68% entering, 32% exiting

Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.18	0.17 - 0.20	*

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Fitted Curve Equation: Not given

R^2 = ****

Assisted Living
(254)

Average Vehicle Trip Ends vs: Occupied Beds
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

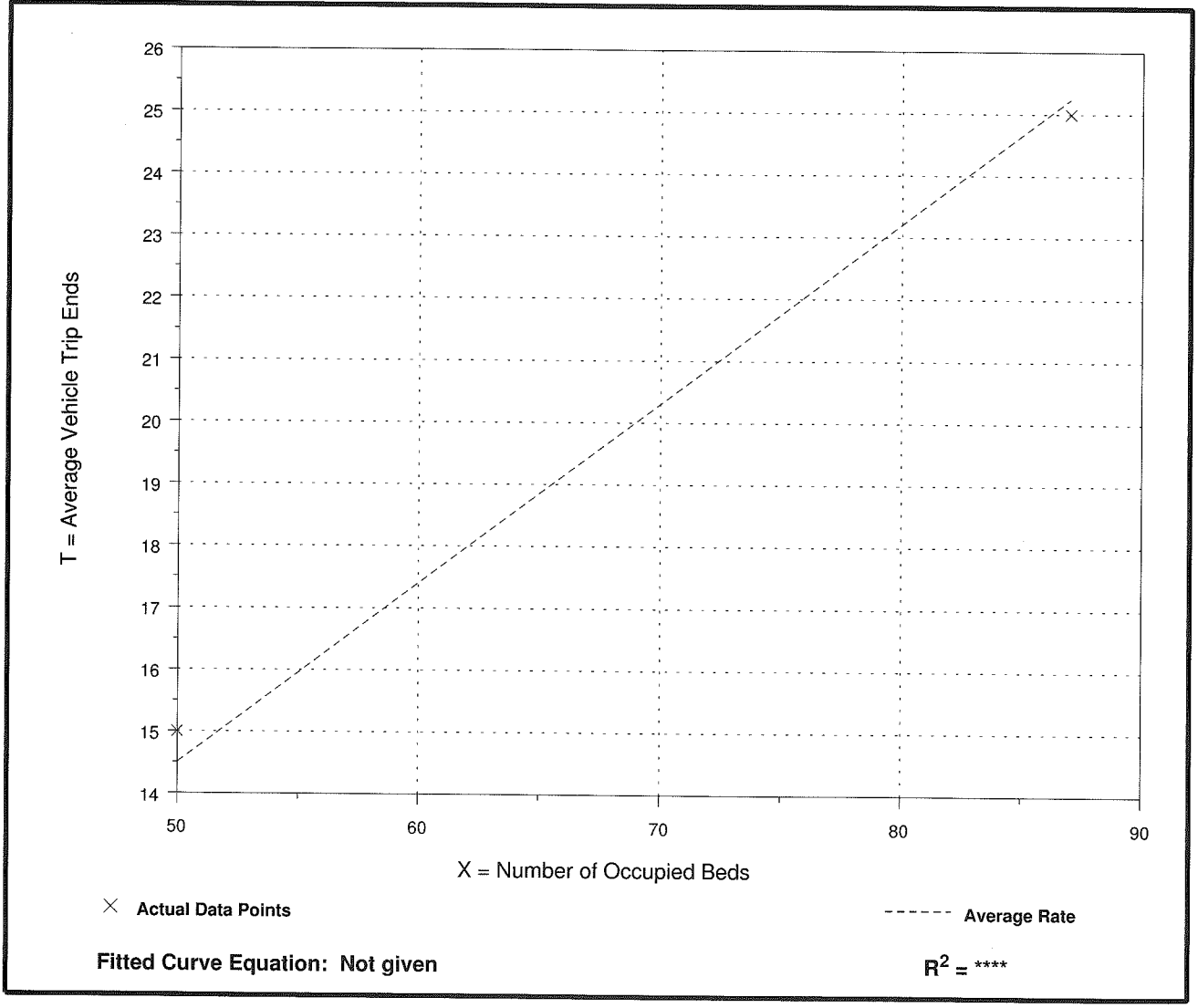
Number of Studies: 2
Average Number of Occupied Beds: 69
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Occupied Bed

Average Rate	Range of Rates	Standard Deviation
0.29	0.29 - 0.30	*

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Fitted Curve Equation: Not given

R^2 = ****

CMAP 2040 Projections Letter

Chicago Metropolitan
Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

April 18, 2016

Brendan May
Consultant
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: Rand Road (@ Techny Road/Chestnut Road)
IDOT

Dear Mr. May:

In response to a request made on your behalf and dated April 15, 2016, we have developed a year 2040 average daily traffic (ADT) projection of 31,000 for the subject location.

Traffic projections are developed using existing ADT data provided in the request letter and the results from the March 2016 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2040 socioeconomic projections and assumes the implementation of the GO TO 2040 Comprehensive Regional Plan for the Northeastern Illinois area.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Fortmann (IDOT)
S:\AdminGroups\ResearchAnalysis\SmallAreaTrafficForecasts_CY16\ArlingtonHeights\ck-30-16\ck-30-16.docx

Level of Service Criteria

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.

Capacity Analysis Summary Sheets

HCS 2010 Two-Way Stop Control Summary Report

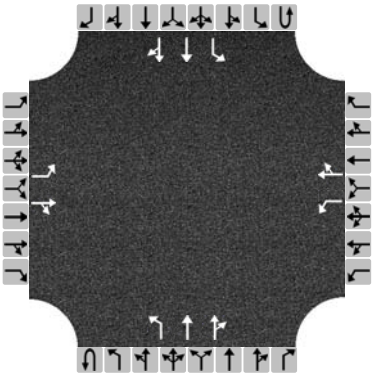
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	AM Existing Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand with Techny
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Techny Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	0	0	1	2	0
Configuration		L		TR		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		1	23	46		13	18	19		9	382	12		24	724	13
Percent Heavy Vehicles		0	0	0		8	0	5		12				4		
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		71		13		39		9				25		
Capacity		167		333		196		290		786				1135		
v/c Ratio		0.01		0.21		0.07		0.13		0.01				0.02		
95% Queue Length		0.0		0.8		0.2		0.5		0.0				0.1		
Control Delay (s/veh)		26.7		18.7		24.7		19.3		9.6				8.2		
Level of Service (LOS)		D		C		C		C		A				A		
Approach Delay (s/veh)	18.8				20.7				0.2				0.3			
Approach LOS	C				C				A				A			

HCS 2010 Two-Way Stop Control Summary Report

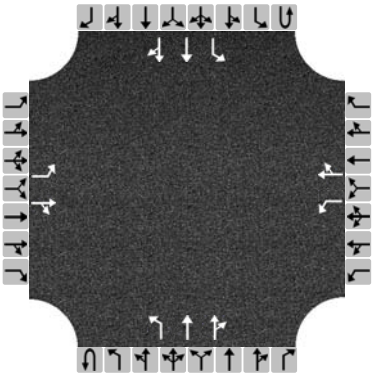
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	PM Existing Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand with Techny
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Techny Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	0	0	1	2	0
Configuration		L		TR		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		5	11	66		25	25	24		65	1073	50		20	867	8
Percent Heavy Vehicles		0	0	0		0	0	5		2				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		80		26		51		68				21		
Capacity		25		189		33		69		744				604		
v/c Ratio		0.20		0.42		0.80		0.74		0.09				0.03		
95% Queue Length		0.6		1.9		2.7		3.4		0.3				0.1		
Control Delay (s/veh)		178.5		37.4		274.3		143.5		10.3				11.2		
Level of Service (LOS)		F		E		F		F		B				B		
Approach Delay (s/veh)	45.7				187.7				0.6				0.3			
Approach LOS	E				F				A				A			

HCS 2010 Two-Way Stop Control Summary Report

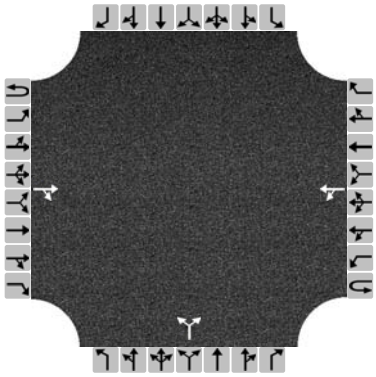
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	AM Existing Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Walnut
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Walnut Avenue
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			63	7		6	34			10		7				
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)						48					20					
Capacity						1526					906					
v/c Ratio						0.03					0.02					
95% Queue Length						0.0					0.1					
Control Delay (s/veh)						7.4					9.1					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					1.1				9.1							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

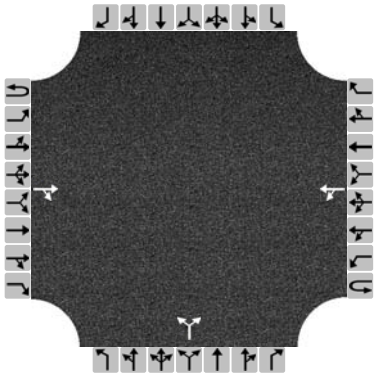
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	PM Existing Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Walnut
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Walnut Avenue
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			77	17		8	90			6		5				
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)						117					13					
Capacity						1490					839					
v/c Ratio						0.08					0.02					
95% Queue Length						0.0					0.0					
Control Delay (s/veh)						7.4					9.4					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.7				9.4							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

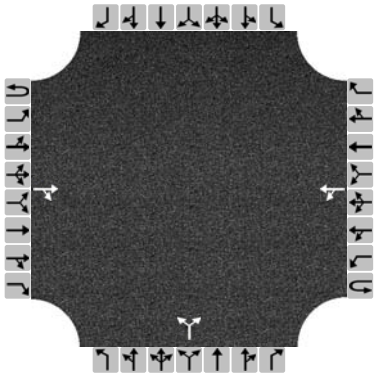
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	AM Existing Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Ridge
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Ridge Avenue
Peak Hour Factor	0.79
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			55	0		3	41			1		15				
Percent Heavy Vehicles						0				0		7				
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)						56					20					
Capacity						1544					974					
v/c Ratio						0.04					0.02					
95% Queue Length						0.0					0.1					
Control Delay (s/veh)						7.3					8.8					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.5				8.8							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

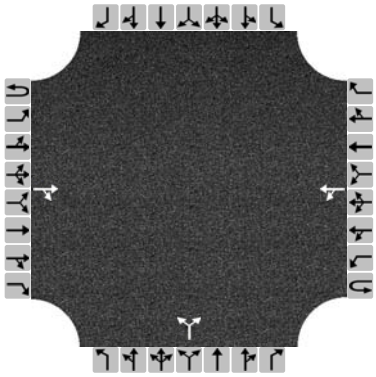
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2015
Time Analyzed	PM Existing Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Ridge
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Ridge Avenue
Peak Hour Factor	0.79
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			77	1		10	86			4		17				
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)						122					27					
Capacity						1508					916					
v/c Ratio						0.08					0.03					
95% Queue Length						0.0					0.1					
Control Delay (s/veh)						7.4					9.0					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.9				9.0							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

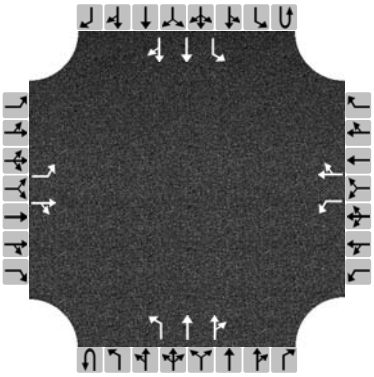
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	AM Projected Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand with Techny
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Techny Road
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	0	0	1	2	0
Configuration		L		TR		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		3	23	48		13	18	19		13	389	12		24	739	13
Percent Heavy Vehicles		0	0	0		8	0	5		12				4		
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		73		13		39		13				25		
Capacity		158		326		186		279		775				1128		
v/c Ratio		0.02		0.22		0.07		0.14		0.02				0.02		
95% Queue Length		0.1		0.8		0.2		0.5		0.1				0.1		
Control Delay (s/veh)		28.2		19.2		25.8		20.0		9.7				8.3		
Level of Service (LOS)		D		C		D		C		A				A		
Approach Delay (s/veh)	19.6				21.5				0.3				0.3			
Approach LOS	C				C											

HCS 2010 Two-Way Stop Control Summary Report

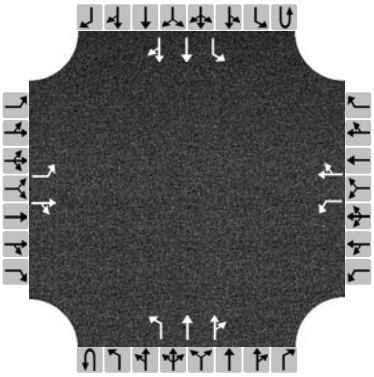
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	PM Projected Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand with Techny
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Techny Road
Peak Hour Factor	0.96
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	1	2	0	0	1	2	0
Configuration		L		TR		L		TR		L	T	TR		L	T	TR
Volume (veh/h)		10	12	69		26	26	24		72	1094	51		20	886	8
Percent Heavy Vehicles		0	0	0		0	0	5		2				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)		10		84		27		52		75				21		
Capacity		18		171		28		62		731				592		
v/c Ratio		0.54		0.49		0.97		0.84		0.10				0.04		
95% Queue Length		1.5		2.4		3.1		3.8		0.3				0.1		
Control Delay (s/veh)		337.9		44.8		367.9		180.0		10.5				11.3		
Level of Service (LOS)		F		E		F		F		B				B		
Approach Delay (s/veh)	76.0				244.2				0.6				0.2			
Approach LOS	F				F											

HCS 2010 Two-Way Stop Control Summary Report

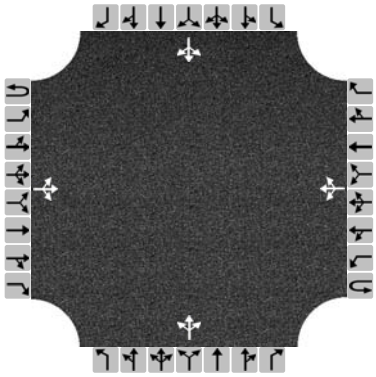
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	AM Projected Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Walnut/Access
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Walnut Avenue/Access
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	64	7		6	34	4		10	0	7		3	0	1
Percent Heavy Vehicles		0				0				0	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)		1				7					20				5	
Capacity		1575				1524					885				855	
v/c Ratio		0.00				0.00					0.02				0.01	
95% Queue Length		0.0				0.0					0.1				0.0	
Control Delay (s/veh)		7.3				7.4					9.2				9.2	
Level of Service (LOS)		A				A					A				A	
Approach Delay (s/veh)	0.1				1.0				9.2				9.2			
Approach LOS									A				A			

HCS 2010 Two-Way Stop Control Summary Report

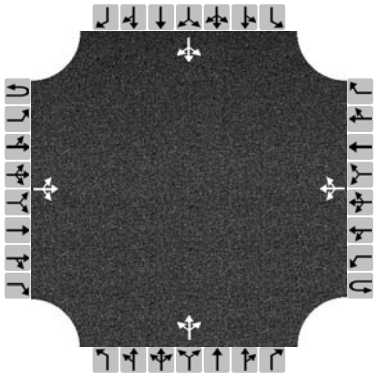
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	PM Projected Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Walnut/Access
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Walnut Avenue/Access
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	78	17		8	92	6		6	0	5		4	0	1
Percent Heavy Vehicles		0				0				0	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)		1				10					13				6	
Capacity		1484				1489					832				738	
v/c Ratio		0.00				0.01					0.02				0.01	
95% Queue Length		0.0				0.0					0.0				0.0	
Control Delay (s/veh)		7.4				7.4					9.4				9.9	
Level of Service (LOS)		A				A					A				A	
Approach Delay (s/veh)	0.1				0.6				9.4				9.9			
Approach LOS									A				A			

HCS 2010 Two-Way Stop Control Summary Report

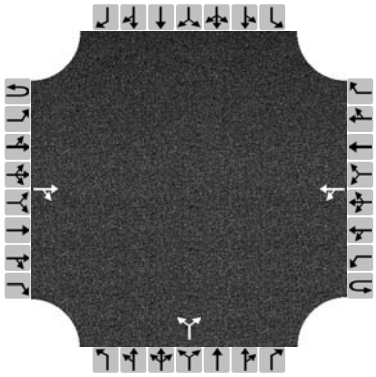
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	AM Projected Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Ridge
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Ridge Avenue
Peak Hour Factor	0.79
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			56	0		3	42			1		15				
Percent Heavy Vehicles						0				0		7				
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					20					
Capacity						1542					972					
v/c Ratio						0.04					0.02					
95% Queue Length						0.0					0.1					
Control Delay (s/veh)						7.3					8.8					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.5				8.8							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

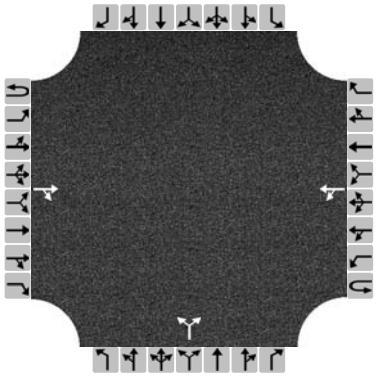
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	PM Projected Peak Hour
Intersection Orientation	East-West
Project Description	Memory Care Facility

Site Information

Intersection	Techny with Ridge
Jurisdiction	Arlington Heights
East/West Street	Techny Road
North/South Street	Ridge Avenue
Peak Hour Factor	0.79
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	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)			78	1		10	89			4		17				
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)						126					27					
Capacity						1505					913					
v/c Ratio						0.08					0.03					
95% Queue Length						0.0					0.1					
Control Delay (s/veh)						7.4					9.1					
Level of Service (LOS)						A					A					
Approach Delay (s/veh)					0.8				9.1							
Approach LOS					A				A							

HCS 2010 Two-Way Stop Control Summary Report

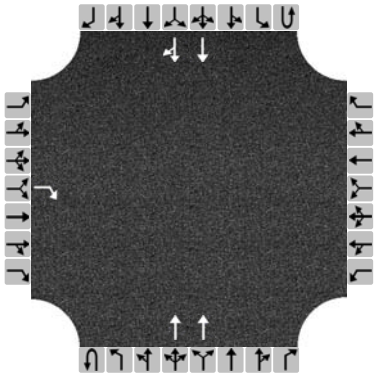
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	AM Projected Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand Road with Access
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Access Drive
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T				T	TR
Volume (veh/h)				1							411				774	5
Percent Heavy Vehicles				0												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				1												
Capacity				597												
v/c Ratio				0.00												
95% Queue Length				0.0												
Control Delay (s/veh)				11.0												
Level of Service (LOS)				B												
Approach Delay (s/veh)	11.0															
Approach LOS	B															

HCS 2010 Two-Way Stop Control Summary Report

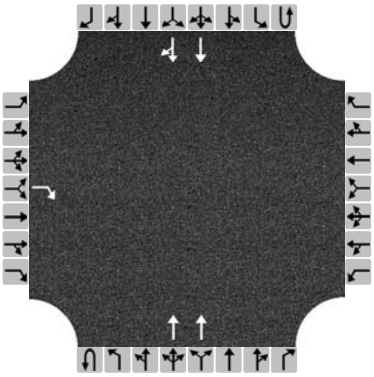
General Information

Analyst	BSM
Agency/Co.	KLOA, Inc.
Date Performed	11/12/2015
Analysis Year	2021
Time Analyzed	PM Projected Peak Hour
Intersection Orientation	North-South
Project Description	Memory Care Facility

Site Information

Intersection	Rand Road with Access
Jurisdiction	IDOT
East/West Street	Rand Road
North/South Street	Access Drive
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T				T	TR
Volume (veh/h)				2							1128				912	6
Percent Heavy Vehicles				0												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Left Only															
Median Storage	1															

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				2												
Capacity				535												
v/c Ratio				0.00												
95% Queue Length				0.0												
Control Delay (s/veh)				11.8												
Level of Service (LOS)				B												
Approach Delay (s/veh)	11.8															
Approach LOS	B															

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

9575 West Higgins Road, Suite 400 | Rosemont, Illinois 60018
p: 847-518-9990 | f: 847-518-9987

April 22, 2016

Mr. Tom Gallenbach
Illinois Department of Transportation
Division of Highways/Region One/District One
201 West Center Court
Schaumburg, Illinois 60196-1096

Location: US 12 (Rand Rd.) n/o Techny Road
Municipality: Village of Arlington Heights, Cook County
Re: Arlington Heights Memory Care
Reference No: 016-69811

Dear Tom:

Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) has reviewed and prepared a response to the comments raised by the Illinois Department of Transportation (IDOT) in its April 12, 2016 letter. Our responses to the comments are summarized below:

Bureau of Traffic Operations Review Comments (March 17, 2016)

1. **A new full access driveway along southeast-bound US Route 12 cannot be granted. Desirable new full access locations along Strategic Regional Arterial (SRA) designated routes should achieve 1000-foot spacing. The proposed full access would only be 600 feet from Techy Road/Chestnut Avenue and only 600 feet from the "Fountains of Arlington" and "Stonebridge Village" full access driveways.**

   The access drive has been modified to right-turn in and out only.

2. **A new limited Right-In/Right-Out (RI-RO) access northwest of Techny Road/Chestnut Avenue can be permitted along US Route 12. The Traffic Impact Study (TIS) should reassign site-traffic destined for northwest-bound US Route 12 to the new access driveway on Techny Road followed by an eastbound to northwest-bound left-turn at the intersection. The TIS should also reassign all site-traffic coming from the southeast on US Route 12 to Techny Road to access the site.**

   Site-traffic has been reassigned to reflect the provision of a right-in/right-out access drive on Rand Road.

3. **The new access should provide a raised channelizing island (i.e. "pork chop") to physically prohibit inbound and outbound left-turn movements as US Route 12 lacks a raised median in this area. Appropriate "No Left-Turn" signing should be placed within the raised island to reinforce the prohibition.**

   Noted.

4. **Site traffic destined for the northwest can also take Techny Road west to Kennicott Drive north and use the existing traffic signal at US Route 12 and Kennicott Drive. Additionally, a new cross access connection from this site to the "Fountains of Arlington" to the north would allow the small number of projected outbound left-turns to use the existing full access already serving that site.**

   As shown in the directional distribution (Figure 5) traffic was projected to travel west to Kennicott Drive. A cross access connection will not be provided to the "Fountains of Arlington" to the north. Therefore, projected site traffic has been reassigned to the intersection of Rand Road with Techny Road.

5. **Documentation from the Chicago Metropolitan Agency for Planning (CMAP) stating the projected percentages of growth for this segment of US Route 12 should be provided in the TIS.**

   A copy of CMAP letter is included in the revised traffic study.

6. **Please provide copies of the corresponding ITE Trip Generation Manual graphs and equations used to determine the estimated development traffic generation.**

   Copies of the corresponding trip generation rates are included in the revised traffic study.

7. **Given the proposed senior facility as part of this redevelopment, the existing sidewalk at US Route 12 and Techny Road I Chestnut should be upgraded to meet Americans with Disabilities Act (ADA) and IDOT standards, including, but not limited to ramp and landing compliance.**

   Noted.

8. **Submit a revised Traffic Impact Study (TIS) for continued review.**

   Noted.

Enclosed please find three copies of the revised Traffic Impact Study for your continued review. Should you have any questions or require additional information, please let me know. I look forward to receiving your response at your earliest convenience.

Sincerely,

Luay R. Aboona
Principal

Encs.

C: Jim Masarelli, Village of Arlington Heights
Angelo Zografos, P.E., Pearson Brown & Associates