

16.0 TRAFFIC & PARKING

16.1 Introduction

16.1.1 Purpose

The purpose of this traffic study is to document the operational characteristics for existing and future traffic conditions during the weekday AM, midday and PM peak hours, evaluate operating conditions for the project build year, and assess the potential for traffic impacts due to the proposed project. Hospital activities are significantly lower during the weekends than the weekdays. The project generated vehicular trips and pedestrians would be approximately 30% lower during the weekends than the weekdays. Based on the ATR counts in the study area, the background traffic volumes on Saturday were 78% of those on the weekday and the background traffic volumes on Sunday were 73% of those on the weekday. Therefore, the weekend traffic analysis is not necessary.

The study analyzed existing and future traffic conditions, both with and without the proposed project, and no significant project-related adverse traffic impacts were identified.

16.1.2 Project Description

The proposed project consists of a total of 137,869 square feet (SF) of which 50,998 SF is approved to be constructed on the 9th through 11th floors on the East Wing and 86,869 SF proposed to be constructed on a platform over the FDR Drive as the new 12-story River Building. The build year for the proposed project is 2010.

16.1.3 Project Location

The project site is located adjacent to the FDR Drive between East 70th and 72nd Streets and the air space over the FDR Drive. The proposed River Building would be located over the FDR Drive between East 71st and 72nd Streets. The surrounding neighborhood is comprised of a mix of institutional, commercial, and residential uses.

16.2 Existing Condition

16.2.1 Street and Highway Network

The street network in the project area is composed primarily of streets which accommodate local and through traffic. The FDR Drive is located under the proposed River Building.

York Avenue is a major two-way north/south roadway with two (2) moving lanes per direction. First Avenue is a major one-way northbound roadway with five (5) moving lanes. They are used by both local and commercial traffic. FDR Southbound Service Road between East 68th Street and East 73rd Street is a one-way southbound roadway with one (1) moving lane.

The streets on the east side of York Avenue between East 63rd and East 73rd Streets are two-way east/west roadways, except East 71st Street. The street direction of East 71st Street between York Avenue and FDR Drive varies. Near York Avenue, East 71st Street is a two-way roadway, and

near the FDR Drive is a one-way₂ westbound roadway. In addition, there is a parking lane located on the north side of East 71st Street. They are used by both local and commercial traffic. The streets on the west side of York Avenue are one-way east/west roadways except East 72nd Street which is a two-way east/west roadway with two (2) moving lanes per direction. They are used by both local and commercial traffic.

16.2.2 Key Intersections Studied

The project site is located on East 71st Street at the FDR Drive. Based on the project size and location, the following key intersections were analyzed for the study, in order to determine peak hour operational characteristics, existing and future conditions and the potential impact of the proposed project at these intersections:

1. 1st Avenue at East 72nd Street
2. 1st Avenue at East 71st Street
3. 1st Avenue at East 70th Street
4. York Avenue at East 73rd Street
5. York Avenue at East 72nd Street
6. York Avenue at East 71st Street
7. York Avenue at East 70th Street
8. York Avenue at East 69th Street
9. York Avenue at East 68th Street
10. York Avenue at East 67th Street
11. York Avenue at East 63rd Street
12. FDR Drive Service Road at East 73rd Street
13. FDR Drive Service Road at East 71st Street
14. HSS Drop-Off at East 71st Street

The locations of the fourteen (14) intersections are shown in Figure 16-1. The pedestrian crosswalks, located on East 71st Street between York Avenue and the FDR Drive, which accepts traffic coming off the FDR Drive Southbound Service Road, western trip counts were not included as part of the trip generation intersections, since all trips that would result from that intersection would have been counted from the right hand turn count from the FDR Drive Service Road at East 71st Street.

16.2.3 Traffic Controls and Roadway Widths

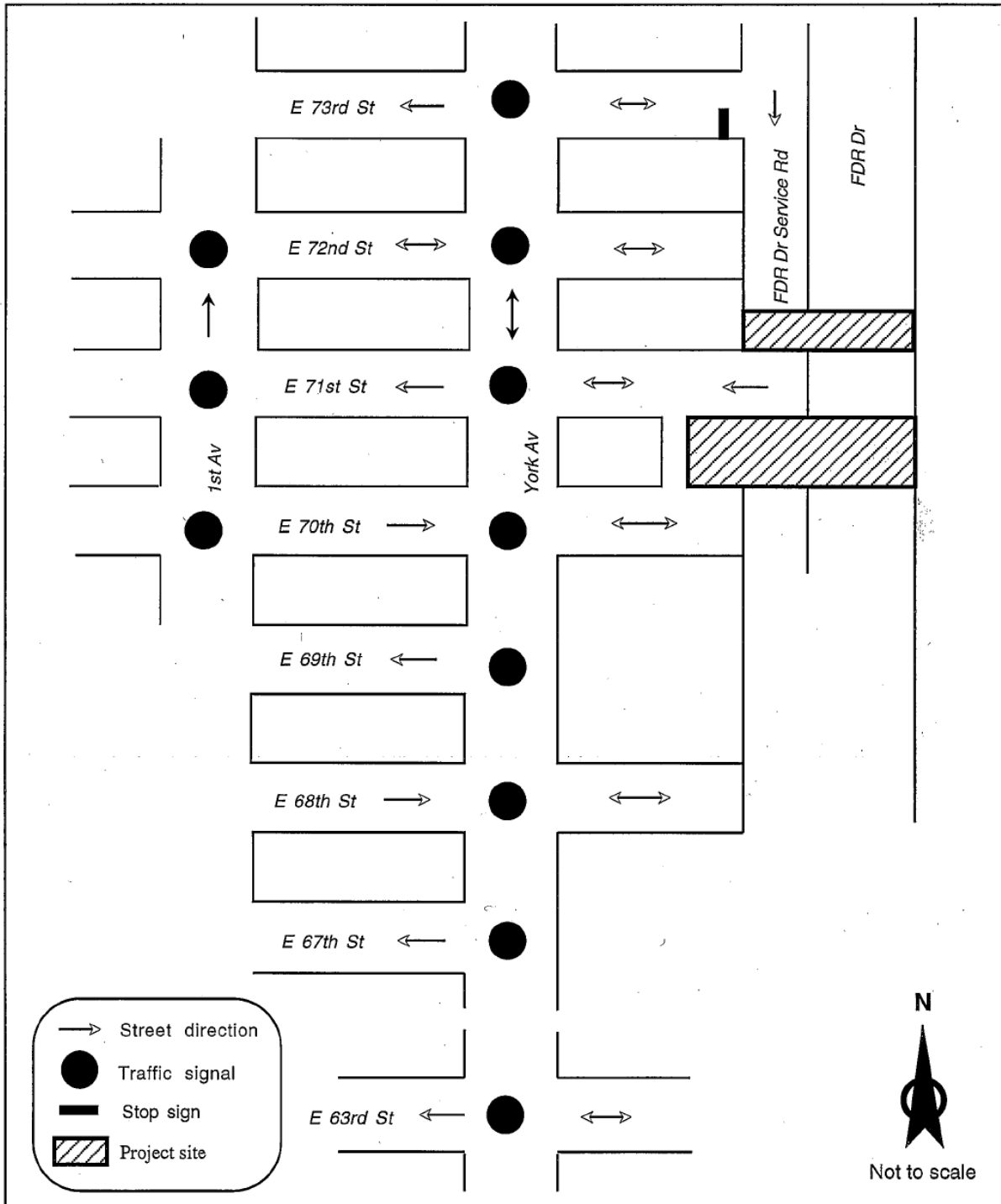
As indicated in Figure 16-1, eleven (11) of the fourteen (14) intersections studied are signalized. At the intersection of First Avenue and East 72nd Street with a ninety (90) cycle length, thirty-five (35) seconds of green time are allocated for the eastbound and westbound approaches and forty-five (45) seconds of green time for the northbound approach.

At the intersection of First Avenue and East 71st Street with a ninety (90) cycle length, thirty-one (31) seconds of green time are allocated for the westbound approach and forty-nine (49) seconds of green time for the northbound approach.

At the intersection of First Avenue and East 70th Street with a ninety (90) cycle length, thirty-one (31) seconds of green time are allocated for the eastbound approach and forty-nine (49) seconds of green time for the northbound approach.

At the intersection of York Avenue and East 73rd Street with a 120 cycle length, thirty-four (34) seconds of green time are allocated for the westbound approach, ten (10) seconds of green time for the southbound leading phase and sixty-one (61) seconds of green time for the northbound and southbound approaches.

Traffic Control



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Figure 16-1

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At the intersection of York Avenue and East 72nd Street with a 120 cycle length, forty-three (43) seconds of green time are allocated for the eastbound and westbound approaches and sixty-seven (67) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 71st Street with a 120 cycle length, forty-nine (49) seconds of green time are allocated for the westbound approach and sixty-one (61) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 70th Street with a 120 cycle length, forty-three (43) seconds of green time are allocated for the eastbound and westbound approaches and sixty-seven (67) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 69th Street with a 120 cycle length, thirty-seven (37) seconds of green time are allocated for the pedestrians and seventy-three (73) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 68th Street with a 120 cycle length, thirty-seven (37) seconds of green time are allocated for the eastbound and westbound approaches and seventy-three (73) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 67th Street with a 120 cycle length, thirty-seven (37) seconds of green time are allocated for the pedestrians and seventy-three (73) seconds of green time for the northbound and southbound approaches.

At the intersection of York Avenue and East 63rd Street with a 120 cycle length, signal timing varies with peak hours. Thirty-nine (39) seconds of green time are allocated for the westbound approach and the northbound right-turn movement, ten (10) seconds of green time for pedestrians, thirty-eight (38) seconds of green time for the northbound and southbound approaches and eighteen (18) seconds of green time for the southbound lagging phase during the AM peak hour. Thirty-five seconds of green time are allocated for the westbound approach and the northbound right-turn movement, ten (10) seconds of green time for pedestrians, forty-four (44) seconds of green time for the northbound and southbound approaches and sixteen (16) seconds of green time for the southbound lagging phase for all other time.

The intersection of FDR Drive Service Road and East 73rd Street is controlled by a two-way stop sign on East 73rd Street. The intersection of FDR Drive Service Road and East 71st Street has no traffic control device. The intersection of HSS Drop-Off and East 71st Street is controlled by a two-way stop sign on HSS Drop-Off.

First Avenue is approximately seventy (70) feet in width. York Avenue is approximately sixty (60) feet in width. The FDR Drive Service Road is approximately twelve (12) feet in width. East 73rd Street is approximately thirty (30) feet in width on the west side of York Avenue and approximately forty (40) feet in width on the east side of York Avenue. East 72nd Street is approximately fifty-five (55) feet in width on the west side of York Avenue and approximately forty (40) feet in width on the east side of York Avenue. East 71st and 67th Streets are approximately thirty-three (33) feet in width. East 70th, 69th and 68th Streets are approximately

thirty (30) feet in width. East 63rd Street is approximately thirty-four (34) feet in width on the west side of York Avenue and approximately sixty (60) feet in width on the east side of York Avenue.

16.2.4 Analysis Methodology

In order to calculate the existing conditions, a traffic survey was conducted on March 27-29, 2007. In this traffic study all calculations of intersection capacity and levels of service are based upon the methodologies presented in the 2000 Highway Capacity Manual, published by the Transportation Research Board. Similar methodologies used in the Memorial Sloan-Kettering Rezoning EIS were applied where applicable and as indicated in the text. All analyses and calculations were done in accordance with the CEQR Technical Manual. The key intersections were analyzed as per the procedure for signalized and unsignalized intersections outlined below.

Three (3) day midweek manual traffic counts were conducted for the fourteen (14) intersections¹. Manual traffic counts were conducted between the hours of 7:00-9:00 AM, 12:00-2:00 PM and 4:30-6:30 PM, by Trip Consultants. The survey data is presented in Appendix A. The traffic volumes for the HSS Drop-Off are calculated based the volume balance. Field observations from the 2007 surveys indicated that the AM peak hour is from 7:30-8:30 AM, the midday peak hour is from 1:00-2:00 PM and the PM peak hour is from 5:00-6:00 PM and. Figures 16-2, 16-3 and 16-4 provide the 2007 Existing Condition peak hour traffic volumes for the AM, midday and PM peak hours, respectively.

Signalized Intersections

The signalized intersection capacity analysis methodology divides an intersection approach into lane groups on the basis of the movements occurring during each signal phase. The lane groups are then analyzed to determine the specific vehicular capacity and level of service. The analysis incorporates the following factors: number of travel lanes, width of travel lanes, on-street parking conditions, location of bus stops, number of buses stopping per hour, vehicle turning movements, vehicle classification, allocation of green time, cycle length and conflicting pedestrian movements.

Once the vehicular capacity of each lane group is known, the volume to capacity ability of the specific lane group to accommodate its traffic demand is analyzed. High volume to capacity ratios (>0.85) indicate that congestion usually exists, while low volume to capacity ratios (<0.60) indicate that traffic usually flows smoothly.

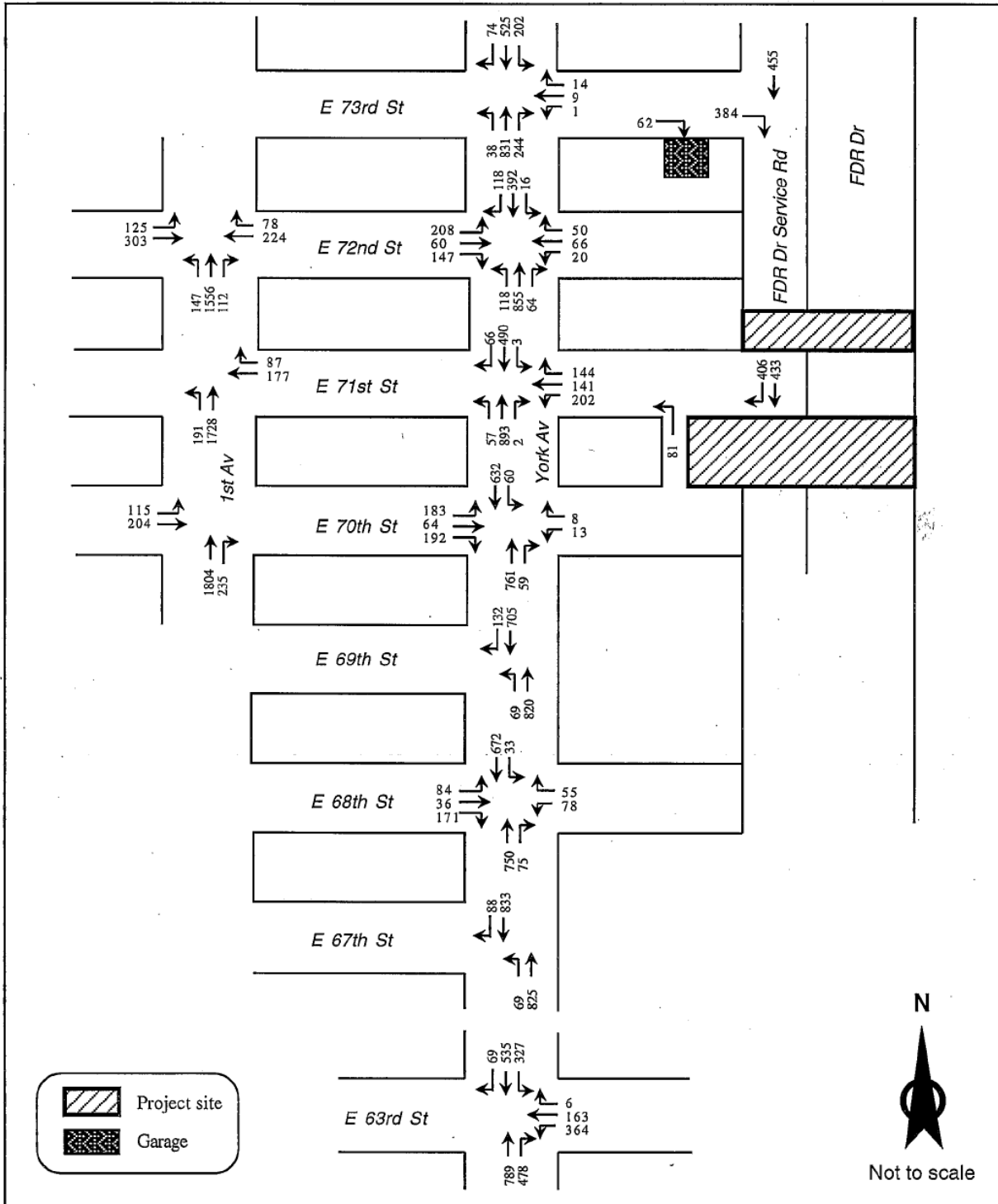
Based upon the capacity of a lane group, the amount of green time allotted to the lane group, the signal cycle length and the volume to capacity ratio, a determination of the delay time (i.e., the average stopped time per vehicle) can be made. The delay time, not the volume to capacity ratio, is the determining factor in assigning a level of service (LOS) to a lane group. There are six (6) classes of level of service, ranging from A (best) to F (worst). These classes are defined in Table 16-1.

¹ The traffic survey was conducted on March 27, 28 and 29, 2007.

Unsignalized Intersections

The unsignalized intersection capacity analysis uses two (2) separate methodologies for two-way stop-controlled (TWSC) intersections and all-way stop-controlled (AWSC) intersections.

2007 Existing Condition Traffic Volumes-AM Peak Hour

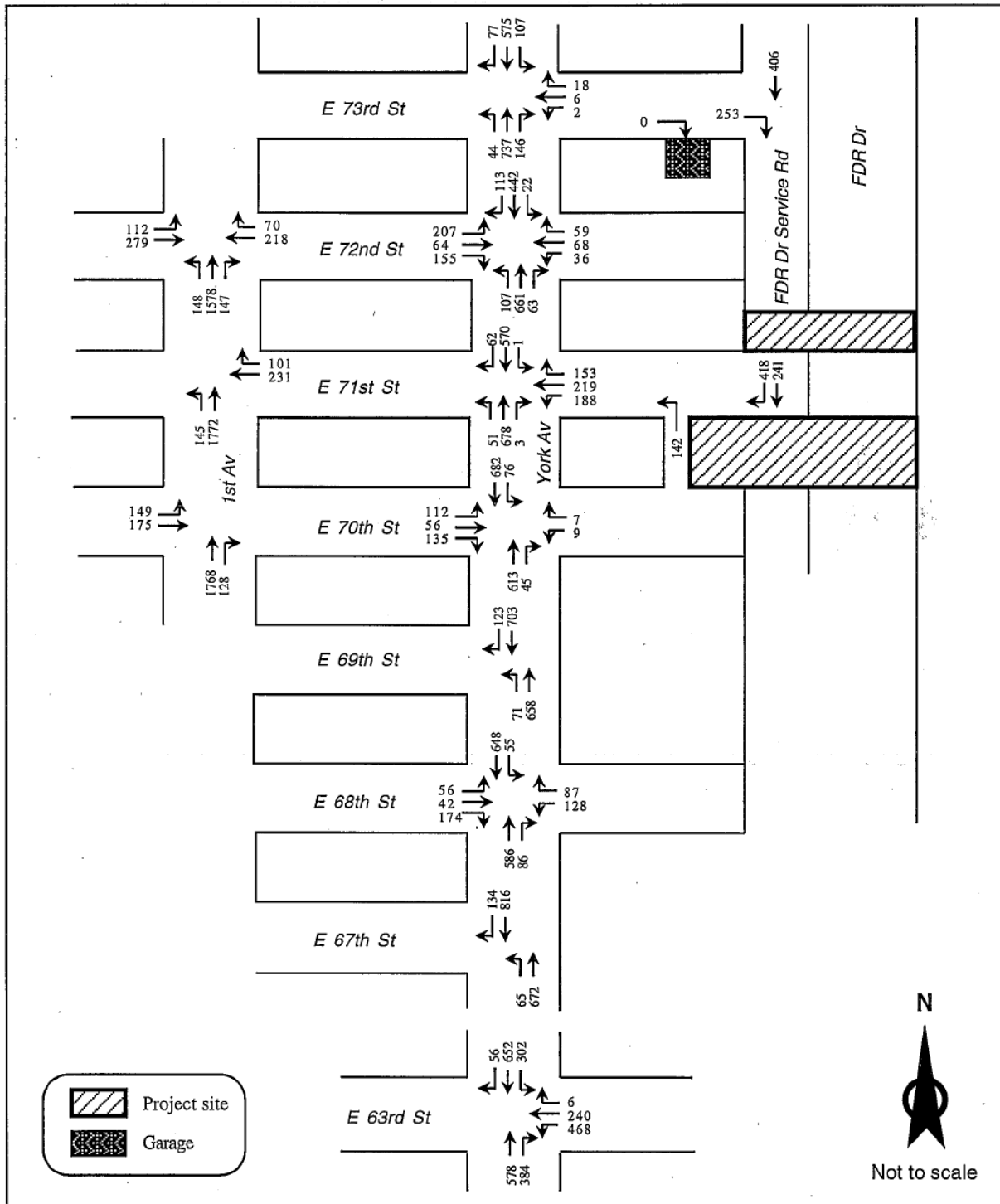


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Figure 16-2

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2007 Existing Condition Traffic Volumes-Midday Peak Hour

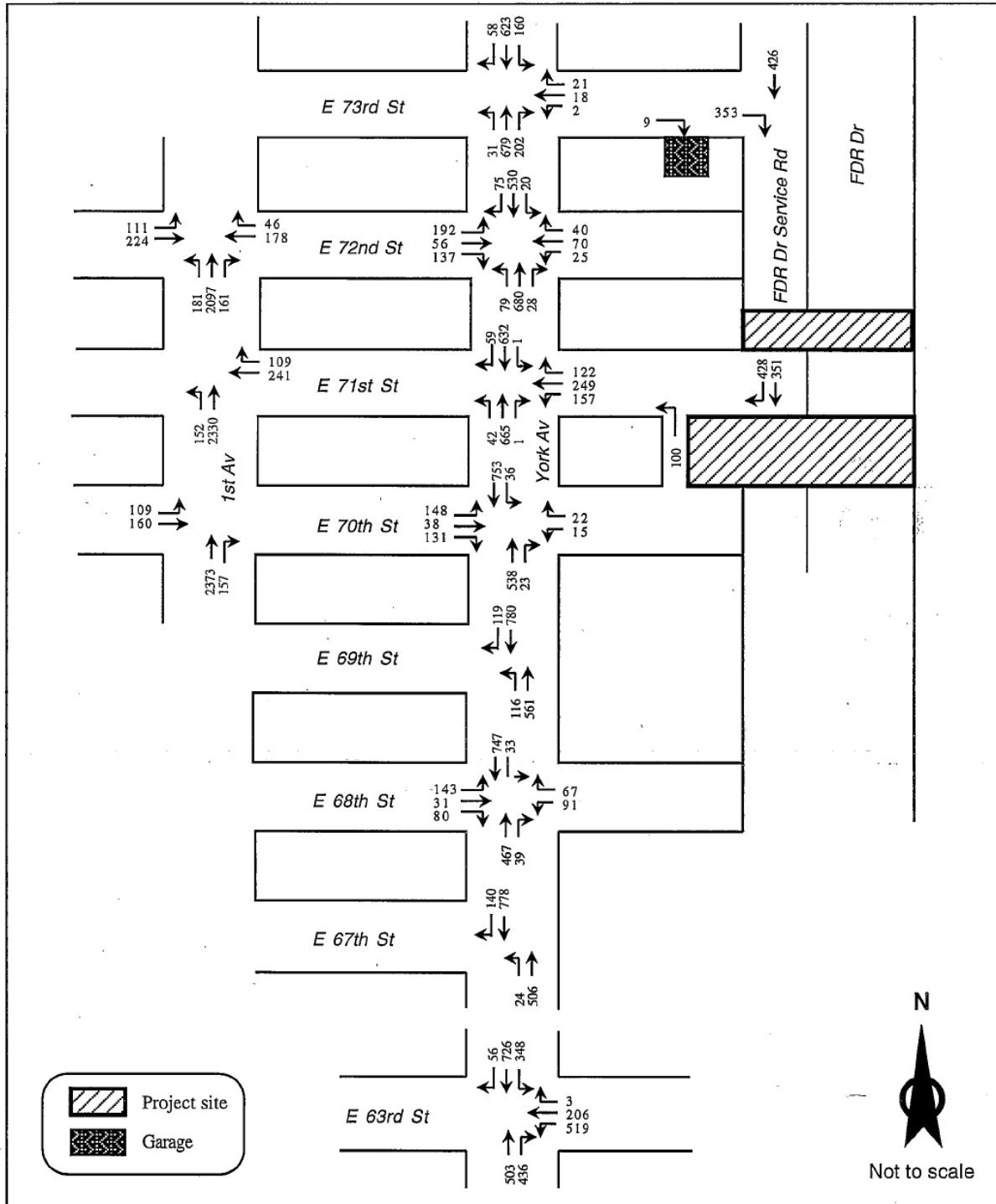


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Figure 16-3

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2007 Existing Condition Traffic Volumes-PM Peak Hour



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Figure 16-4

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The methodology for the TWSC intersections analyzes the specific approach of conflicting traffic through which each minor street movement, and the major street left turn, must cross. The capacity for a specific movement is determined by the volume and speed of conflicting traffic, the number of moving lanes of conflicting traffic, the type of intersection control (i.e., stop sign or yield sign) and the vehicle classification. The procedure analyzes all movements on the major street approaches. Generally the major street is not controlled, while the minor street is controlled by a stop or a yield sign. The average vehicle total delay for each particular minor movement is a function of the service rate of capacity of the approach and degree of saturation. The level of service is determined for each minor approach and for the intersection on the basis of the delay time.

The methodology for the AWSC intersections analyzes each intersection approach independently. The capacity of each approach is estimated as a function of the proportion of traffic on each approach, the number of lanes on each approach, and the proportion of turning movements on the opposing and conflicting approaches. The average vehicle total delay time on each approach is estimated as a function of the volume/capacity ratio on the approach. The level of service is determined for each approach and for the intersection on the basis of the delay time.

The delay time is the determining factor in assigning a level of service (LOS) to a lane group for the TWSC and AWSC intersections. There are six (6) classes of level of service for unsignalized intersections ranging from A (best) to F (worst). These six (6) classes are defined in Table 16-1.

16.2.5 Existing Condition Analysis Results

Using the methodology described above, the existing traffic capacities, V/C ratios, vehicle delay and level of service (LOS) for the key intersections were determined. The analysis results for these intersections are summarized in Table 16-2. Detailed capacity analysis worksheets for each of the study intersections are presented in Appendix A.

First Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

First Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

First Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

Classes of Level of Service

Classes of Level of Service - Signalized Intersection

Level of Service (LOS)	Control Delay sec. per vehicle	Description of Traffic Condition
A	≤10	Describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	>10-20	Describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A causing higher levels of average delay.
C	>20-35	Describes operations with control delay greater than 20 and up to 35 sec. per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failure may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	>35-55	Describes operations with control delay greater than 35 and up to 55 sec. per vehicle. At level D the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	>55-80	Describes operations with control delay greater than 55 and up to 80 sec. per vehicle. This level of service is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	>80	Describes operations with control delay in excess of 80 sec. per vehicle. This level considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factor to such delay levels.

Classes of Level of Service - Unsignalized Intersection

Level of Service (LOS)	Control Delay sec. per vehicle	Expected Delay
A	≤10	Little or no delay
B	>10-15	Short traffic delays
C	>15-25	Average traffic delays
D	>25-35	Long traffic delays
E	>35-50	Very long traffic delays
F	>50	Severe congestion

Level of Service Analyses - AM Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
1st Ave & E 72nd St			16.3	B		16.5	B		16.6	B
Eastbound	LT	0.58	24.8	C	0.59	25.1	C	0.61	25.3	C
Westbound	TR	0.33	20.1	C	0.33	20.2	C	0.34	20.2	C
Northbound	L	0.22	10.3	B	0.22	10.4	B	0.22	10.4	B
Northbound	TR	0.65	14.0	B	0.66	14.1	B	0.67	14.2	B
Intersection			16.3	B		16.5	B		16.6	B
1st Ave & 71st St										
Westbound	TR	0.59	29.3	C	0.59	29.5	C	0.60	29.6	C
Northbound	LT	0.53	9.6	A	0.53	9.6	A	0.53	9.6	A
Intersection			12.0	B		12.1	B		12.1	B
1st Ave & 70th St										
Eastbound	L	0.27	22.6	C	0.27	22.7	C	0.27	22.7	C
Eastbound	T	0.51	27.5	C	0.52	27.8	C	0.53	28.1	C
Northbound	TR	0.57	9.9	A	0.57	10.0	B	0.58	10.1	B
Intersection			12.2	B		12.3	B		12.4	B
York Ave & E 73rd St										
Westbound	LTR	0.03	31.2	C	0.03	31.2	C	0.03	31.2	C
Northbound	LTR	0.91	31.7	C	0.93	33.6	C	0.93	33.9	C
Southbound	DefL	0.77	32.1	C	0.79	34.9	C	0.79	35.0	C
Southbound	TR	0.81	16.8	B	0.82	17.6	B	0.84	18.5	B
Intersection			27.0	C		28.6	C		29.1	C
York Ave & E 72nd St										
Eastbound	DefL	0.70	44.6	D	0.71	45.2	D	0.71	45.2	D
Eastbound	T	0.11	26.1	C	0.12	26.2	C	0.12	26.2	C
Eastbound	R	0.44	33.1	C	0.44	33.2	C	0.45	33.4	C
Westbound	LTR	0.33	29.9	C	0.34	30.0	C	0.34	30.0	C
Northbound	LTR	0.83	21.0	C	0.85	21.8	C	0.85	22.3	C
Southbound	LTR	0.46	11.6	B	0.47	11.7	B	0.47	11.7	B
Intersection			22.5	C		23.0	C		23.2	C
York Ave & E 71st St										
Westbound	LTR	0.49	27.7	C	0.50	27.9	C	0.51	28.2	C
Northbound	LT	0.73	20.9	C	0.75	21.3	C	0.77	22.2	C
Northbound	R	0.00	11.0	B	0.00	11.0	B	0.01	11.0	B
Southbound	LTR	0.51	16.3	B	0.52	16.5	B	0.53	16.6	B
Intersection			21.3	C		21.6	C		22.2	C

Note:
Delay is in second per vehicle.

Level of Service Analyses - AM Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
York Ave & E 70th St										
Eastbound	LTR	0.44	30.5	C	0.44	30.6	C	0.45	30.6	C
Westbound	LR	0.14	27.0	C	0.14	27.0	C	0.14	27.0	C
Northbound	T	0.43	11.0	B	0.44	11.0	B	0.44	11.1	B
Northbound	R	0.11	8.7	A	0.11	8.7	A	0.12	8.8	A
Southbound	LT	0.64	14.7	B	0.65	15.0	B	0.67	15.4	B
Intersection			17.1	B		17.2	B		17.4	B
York Ave & E 69th St										
Northbound	LT	0.42	7.4	A	0.43	7.5	A	0.44	7.6	A
Southbound	T	0.40	7.4	A	0.40	7.4	A	0.41	7.4	A
Southbound	R	0.19	6.3	A	0.19	6.4	A	0.19	6.4	A
Intersection			7.3	A		7.4	A		7.4	A
York Ave & E 68th St										
Eastbound	LTR	0.43	34.9	C	0.44	35.0	D	0.44	35.0	D
Westbound	L	0.36	36.3	D	0.37	36.6	D	0.37	36.6	D
Westbound	R	0.15	30.9	C	0.16	31.0	C	0.16	31.0	C
Northbound	TR	0.51	8.4	A	0.52	8.5	A	0.53	8.7	A
Southbound	LT	0.46	8.1	A	0.47	8.2	A	0.47	8.2	A
Intersection			14.4	B		14.5	B		14.5	B
York Ave & E 67th St										
Northbound	LT	0.70	11.9	B	0.71	12.3	B	0.73	12.6	B
Southbound	TR	0.57	9.1	A	0.57	9.2	A	0.58	9.2	A
Intersection			10.4	B		10.7	B		10.9	B
York Ave & E 63rd St										
Westbound	L	0.43	34.4	C	0.43	34.5	C	0.43	34.5	C
Westbound	LTR	0.42	33.0	C	0.43	33.1	C	0.43	33.1	C
Northbound	T	0.81	43.5	D	0.82	44.1	D	0.84	45.4	D
Northbound	R	0.57	8.3	A	0.58	8.5	A	0.58	8.5	A
Southbound	DefL	0.82	57.3	E	0.84	59.8	E	0.85	61.8	E
Southbound	TR	0.39	14.4	B	0.40	14.5	B	0.40	14.5	B
Intersection			30.7	C		31.2	C		31.9	C
FDR Dr Service Rd & E 73rd St										
Eastbound	R	0.77	29.7	D	0.79	31.7	D	0.79	32.2	D
FDR Dr Service Rd & E 71ST St										
Southbound	TR	-	-	A	-	-	A	-	-	A
HSS Drop-Off & E 71ST St										
Northbound	L	0.12	10.2	B	0.12	10.3	B	0.13	10.4	B

Note:
Delay is in second per vehicle.

Level of Service Analyses - Midday Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
1st Ave & E 72nd St										
Eastbound	LT	0.52	23.4	C	0.53	23.6	C	0.53	23.7	C
Westbound	TR	0.31	19.9	B	0.32	20.0	B	0.32	20.0	C
Northbound	L	0.26	10.9	B	0.26	11.0	B	0.26	11.0	B
Northbound	TR	0.68	14.4	B	0.69	14.6	B	0.69	14.6	B
Intersection			16.3	B		16.5	B		16.5	B
1st Ave & 71st St										
Westbound	TR	0.67	31.8	C	0.68	32.2	C	0.69	32.7	C
Northbound	LT	0.52	9.5	A	0.53	9.6	A	0.53	9.6	A
Intersection			12.9	B		13.0	B		13.2	B
1st Ave & 70th St										
Eastbound	L	0.32	23.5	C	0.32	23.5	C	0.32	23.5	C
Eastbound	T	0.41	25.2	C	0.41	25.4	C	0.42	25.4	C
Northbound	TR	0.51	9.4	A	0.51	9.5	A	0.52	9.5	A
Intersection			12.2	B		11.7	B		11.7	B
York Ave & E 73rd St										
Westbound	LTR	0.04	31.3	C	0.04	31.3	C	0.04	31.3	C
Northbound	LTR	0.81	24.3	C	0.82	25.1	C	0.82	25.2	C
Southbound	LTR	0.71	11.0	B	0.73	11.5	B	0.73	11.6	B
Intersection			18.6	B		19.2	B		19.4	B
York Ave & E 72nd St										
Eastbound	DefL	0.72	46.2	D	0.73	47.1	D	0.73	47.1	D
Eastbound	T	0.12	26.3	C	0.13	26.3	C	0.13	26.3	C
Eastbound	R	0.40	31.8	C	0.41	32.0	C	0.41	32.0	C
Westbound	LTR	0.39	31.3	C	0.40	31.5	C	0.40	31.6	C
Northbound	LTR	0.66	15.1	B	0.67	15.3	B	0.68	15.4	B
Southbound	LTR	0.45	11.5	B	0.46	11.6	B	0.46	11.7	B
Intersection			20.5	C		20.7	C		20.8	C
York Ave & E 71st St										
Westbound	LTR	0.52	28.3	C	0.53	28.5	C	0.54	28.8	C
Northbound	LT	0.58	17.4	B	0.60	17.6	B	0.60	17.7	B
Northbound	R	0.01	11.0	B	0.01	11.0	B	0.01	11.0	B
Southbound	LTR	0.52	16.3	B	0.52	16.4	B	0.53	16.5	B
Intersection			20.2	B		20.3	C		20.5	C

Note:
Delay is in second per vehicle.

Level of Service Analyses - Midday Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
York Ave & E 70th St			16.6	B		16.9	B		17.0	B
Eastbound	LTR	0.29	28.2	C	0.29	28.2	C	0.29	28.3	C
Westbound	LR	0.09	26.1	C	0.09	26.1	C	0.09	26.1	C
Northbound	T	0.37	10.4	B	0.38	10.5	B	0.38	10.5	B
Northbound	R	0.09	8.5	A	0.09	8.5	A	0.10	8.6	A
Southbound	LT	0.73	17.2	B	0.75	17.8	B	0.76	18.1	B
Intersection			7.0	A		7.1	A		7.1	A
York Ave & E 69th St										
Northbound	LT	0.34	6.9	A	0.35	6.9	A	0.35	6.9	A
Southbound	T	0.39	7.3	A	0.40	7.4	A	0.40	7.4	A
Southbound	R	0.18	6.2	A	0.18	6.2	A	0.18	6.2	A
Intersection			15.2	B		15.3	B		15.3	B
York Ave & E 68th St										
Eastbound	LTR	0.37	33.8	C	0.38	33.9	C	0.38	33.9	C
Westbound	L	0.50	40.6	D	0.51	41.1	D	0.51	41.1	D
Westbound	R	0.22	32.0	C	0.22	32.1	C	0.22	32.1	C
Northbound	TR	0.40	7.4	A	0.41	7.5	A	0.41	7.5	A
Southbound	LT	0.48	8.3	A	0.49	8.4	A	0.49	8.4	A
Intersection			9.5	A		9.7	A		9.7	A
York Ave & E 67th St										
Northbound	LT	0.61	10.2	B	0.62	10.4	B	0.63	10.5	B
Southbound	TR	0.56	9.0	A	0.57	9.1	A	0.57	9.1	A
Intersection			24.6	C		24.9	C		25.0	C
York Ave & E 63rd St										
Westbound	L	0.53	39.8	D	0.53	40.0	D	0.53	40.0	D
Westbound	LTR	0.55	38.3	D	0.56	38.5	D	0.56	38.5	D
Northbound	T	0.51	29.0	C	0.51	29.1	C	0.52	29.2	C
Northbound	R	0.43	5.5	A	0.44	5.6	A	0.44	5.6	A
Southbound	DefL	0.65	35.9	D	0.66	36.9	D	0.67	37.5	D
Southbound	TR	0.44	12.4	B	0.45	12.5	B	0.45	12.5	B
Intersection			16.1	C		16.5	C		16.5	C
FDR Dr Service Rd & E 73rd St										
Eastbound	R	0.48	16.1	C	0.49	16.5	C	0.49	16.5	C
FDR Dr Service Rd & E 71ST St										
Southbound	TR	-	-	A	-	-	A	-	-	A
HSS Drop-Off & E 71ST St										
Northbound	L	0.21	10.9	B	0.21	11.0	B	0.22	11.1	B

Note:
Delay is in second per vehicle.

Level of Service Analyses - PM Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
1st Ave & E 72nd St										
Eastbound	LT	0.42	21.6	C	0.43	21.8	C	0.44	22.0	C
Westbound	TR	0.22	18.9	B	0.23	18.9	B	0.24	19.1	B
Northbound	L	0.24	10.5	B	0.24	10.5	B	0.24	10.5	B
Northbound	TR	0.78	16.2	B	0.79	16.5	B	0.79	16.5	B
Intersection			16.7	B		16.9	B		17.0	B
1st Ave & 71st St										
Westbound	TR	0.73	34.4	C	0.74	35.0	D	0.77	36.5	D
Northbound	LT	0.61	10.4	B	0.62	10.5	B	0.62	10.5	B
Intersection			13.6	B		13.7	B		14.1	B
1st Ave & 70th St										
Eastbound	L	0.23	22.0	C	0.23	22.1	C	0.23	22.1	C
Eastbound	T	0.36	24.2	C	0.37	24.3	C	0.37	24.4	C
Northbound	TR	0.63	10.6	B	0.64	10.7	B	0.64	10.7	B
Intersection			11.8	B		12.0	B		12.0	B
York Ave & E 73rd St										
Westbound	LTR	0.06	31.4	C	0.06	31.4	C	0.06	31.4	C
Northbound	LTR	0.78	22.7	C	0.79	23.3	C	0.80	23.7	C
Southbound	LTR	0.77	13.0	B	0.79	13.7	B	0.80	14.0	B
Intersection			18.5	B		19.1	B		19.4	B
York Ave & E 72nd St										
Eastbound	DefL	0.59	38.5	D	0.60	39.1	D	0.62	40.0	D
Eastbound	T	0.10	26.0	C	0.10	26.0	C	0.10	26.0	C
Eastbound	R	0.34	30.2	C	0.34	30.3	C	0.36	30.7	C
Westbound	LTR	0.30	29.2	C	0.30	29.3	C	0.32	29.6	C
Northbound	LTR	0.73	17.4	B	0.74	17.8	B	0.75	18.0	B
Southbound	LTR	0.46	11.6	B	0.47	11.7	B	0.47	11.7	B
Intersection			19.6	B		19.9	B		20.2	C
York Ave & E 71st St										
Westbound	LTR	0.46	27.2	C	0.47	27.3	C	0.50	28.0	C
Northbound	LT	0.53	16.4	B	0.54	16.5	B	0.56	16.8	B
Northbound	R	0.00	11.0	B	0.00	11.0	B	0.00	11.0	B
Southbound	LTR	0.56	16.9	B	0.57	17.1	B	0.58	17.3	B
Intersection			19.6	B		19.7	B		20.1	C

Note:
Delay is in second per vehicle.

Level of Service Analyses - PM Peak Hour

Intersection	Lane Group	Existing Condition			No-Build Condition			Build Condition		
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
York Ave & E 70th St			15.3	B		15.5	B		15.8	B
Eastbound	LTR	0.30	28.4	C	0.31	28.4	C	0.33	28.7	C
Westbound	LR	0.14	27.0	C	0.14	27.0	C	0.15	27.0	C
Northbound	T	0.32	10.0	A	0.33	10.0	B	0.33	10.1	B
Northbound	R	0.04	8.1	A	0.04	8.1	A	0.06	8.2	A
Southbound	LT	0.58	13.3	B	0.59	13.5	B	0.61	13.8	B
Intersection			7.6	A		7.7	A		7.8	A
York Ave & E 69th St			14.5	B		14.6	B		14.6	B
Northbound	DefL	0.37	14.9	B	0.38	15.3	B	0.39	15.8	B
Northbound	LT	0.30	6.6	A	0.30	6.7	A	0.31	6.7	A
Southbound	T	0.42	7.5	A	0.42	7.5	A	0.44	7.7	A
Southbound	R	0.16	6.1	A	0.16	6.1	A	0.16	6.1	A
Intersection			8.0	B		8.1	A		8.2	A
York Ave & E 68th St			24.8	C		25.0	C		25.2	C
Eastbound	LTR	0.36	33.5	C	0.36	33.6	C	0.36	33.6	C
Westbound	L	0.41	37.5	D	0.42	37.8	D	0.42	37.8	D
Westbound	R	0.20	31.6	C	0.20	31.7	C	0.20	31.7	C
Northbound	TR	0.32	6.8	A	0.32	6.8	A	0.33	6.9	A
Southbound	LT	0.48	8.2	A	0.49	8.3	A	0.51	8.5	A
Intersection			8.0	B		8.1	A		8.2	A
York Ave & E 67th St			24.8	C		25.0	C		25.2	C
Northbound	LT	0.34	7.0	A	0.35	7.1	A	0.36	7.1	A
Southbound	TR	0.52	8.5	A	0.53	8.6	A	0.55	8.8	A
Intersection			8.0	B		8.1	A		8.2	A
York Ave & E 63rd St			24.8	C		25.0	C		25.2	C
Westbound	L	0.63	43.1	D	0.64	43.6	D	0.64	43.6	D
Westbound	LTR	0.58	39.0	D	0.59	39.2	D	0.59	39.2	D
Northbound	T	0.44	27.7	C	0.44	27.8	C	0.45	28.0	C
Northbound	R	0.50	6.2	A	0.50	6.3	A	0.50	6.3	A
Southbound	DefL	0.68	35.3	D	0.69	36.3	D	0.71	37.7	D
Southbound	TR	0.46	12.5	B	0.46	12.6	B	0.47	12.7	B
Intersection			24.8	C		25.0	C		25.2	C
FDR Dr Service Rd & E 73rd St			24.8	C		25.0	C		25.2	C
Eastbound	R	0.65	21.0	C	0.66	21.7	C	0.66	21.9	C
FDR Dr Service Rd & E 71ST St			24.8	C		25.0	C		25.2	C
Southbound	TR	-	-	A	-	-	A	-	-	A
HSS Drop-Off & E 71ST St			24.8	C		25.0	C		25.2	C
Northbound	L	0.15	10.5	B	0.15	10.6	B	0.16	10.7	B

Note:
Delay is in second per vehicle.

York Avenue at East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound de facto left-turn approach at this intersection currently operates at LOS D in the AM, midday and PM peak hours. All other approaches at this intersection currently operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 69th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 68th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound left-turn movement approach at this intersection currently operates at LOS D in the AM, midday and PM peak hours. All other approaches at this intersection currently operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 67th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 63rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound approach at this intersection currently operates at LOS D in the midday and PM peak hours. The northbound approach at this intersection currently operates at LOS D in the AM peak hour. The southbound de facto left-turn approach at this intersection currently operates at LOS E in the AM peak hour and at LOS D in the midday and PM peak hours. All other approaches at this intersection currently operate at LOS C or better in the AM, midday and PM peak hours.

FDR Service Road and East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound right-turn movement approach at this intersection currently operates at LOS D in the AM peak hour. The southbound approach at this intersection has no traffic control device and thus currently operates at LOS A in the AM, midday and PM peak hours.

FDR Service Road and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS A in the AM, midday and PM peak hours, indicating effective intersection operation since there is no traffic control device and volumes are well below the capacity of the intersection.

HSS Drop-Off and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection currently operates at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

16.3 Future No-Build Condition

16.3.1 Description of No-Build Condition

The No-Build condition was analyzed for the year 2010. It is assumed that there would be no geometric or design changes at these intersections. A one and one-half percent (one-half percent annually) increase of existing traffic volumes, which includes a 0.5% annual increase as a result of the soft-site developments that are proposed to be completed by the year 2010, at the study intersections was applied to determine the background traffic growth for the No-Build condition.

According to the information provided by the NYC Department of City Planning (Manhattan Office), there are three (3) other developments (soft-sites) within a one-half mile area that are scheduled for completion by the project build year of 2010. Any projects scheduled to be completed after 2010 were not incorporated in the analysis. These developments are described below:

1. New York Presbyterian Hospital just recently modified their general large scale to build a 4-story 18,219 zoning square foot (ZSF) building (Technology Building); a 13-story, 102,184 ZSF building (the SMART Building), as well as 3,982 ZSF to the adjacent “N” Building, which connects to the SMART Building; a 1-story, 37,282 ZSF enlargement to the existing Greenberg Pavilion; and a 2-story, 174,004 ZSF addition to the YY Building. The soft-site is located between York Avenue and FDR Drive, and between East 68th and 70th Streets. The soft-site generated vehicular trips are below the CEQR threshold of 50.
2. New York Presbyterian Hospital has an As-of-Right dormitory building at the southeast corner of 72nd Street and First Avenue.
3. 125 residential units are planned for 400 East 67th Street. The soft-site is located on the southeast corner of First Avenue and East 67th Street. The development is a 125-unit apartment building which is below the CEQR threshold of 200.

The three (3) soft-site locations are approximately 1,000 feet apart. The soft-site generated vehicular trips have been included in the background growth (0.5% annually). It is unlikely that the three (3) soft-sites would have significant accumulative effect on the traffic.

16.3.2 Traffic Volumes

The future No-Build condition traffic volumes for each of the study intersections are increased by 1.5% (0.5% annually). Figures 16-5, 16-6 and 16-7 provide the No-Build condition traffic volumes for the AM, midday and PM peak hours, respectively.

16.3.3 No-Build Condition Analysis Results

The fourteen (14) key intersections were analyzed for the No-Build condition using the previously described methodology for signalized intersections. The resulting V/C ratios, vehicle delays and levels of service for the intersections studied are presented, in summary form, in Table 16-2 and, in detail, in Appendix A.

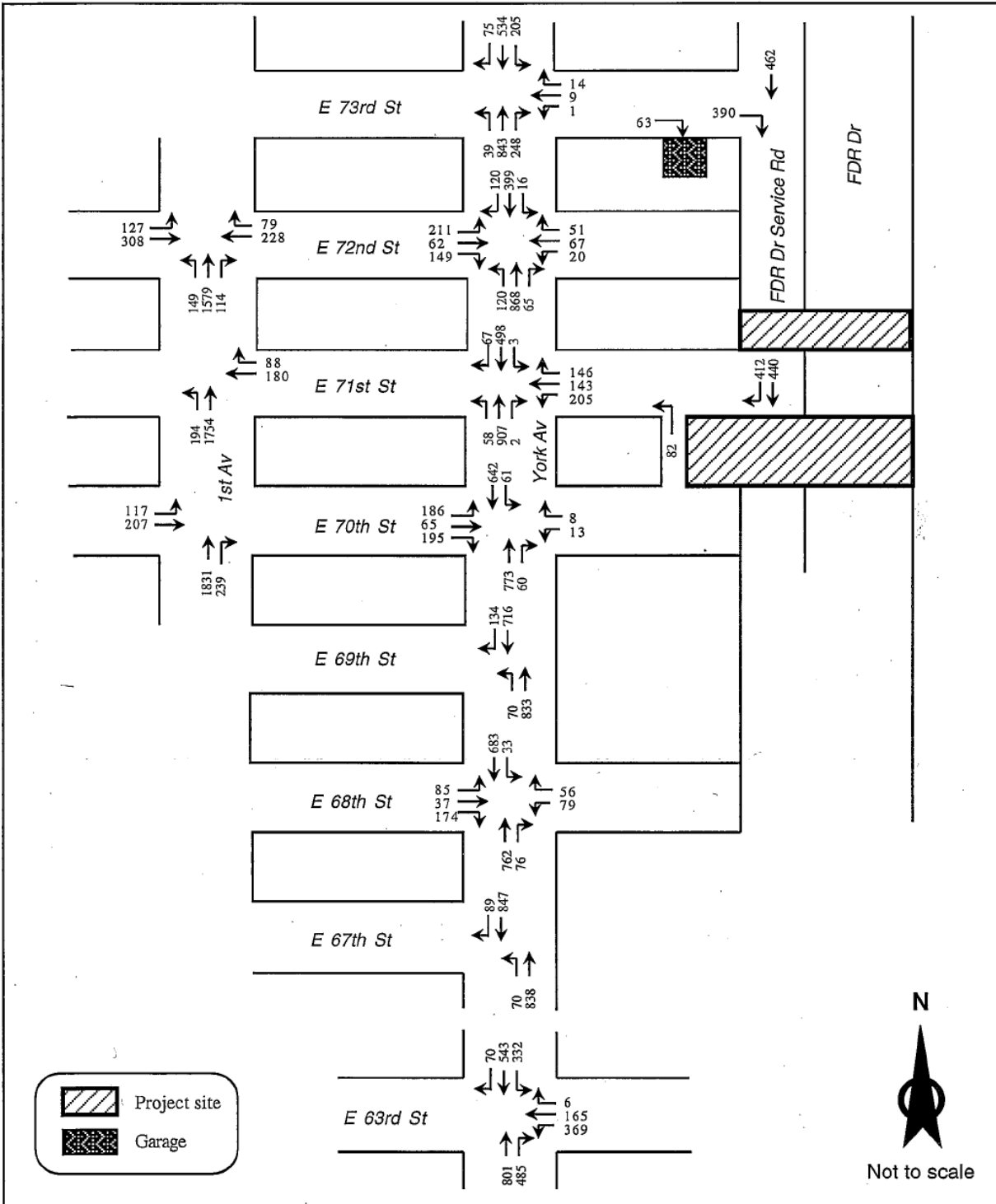
First Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

First Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound approach at this intersection would operate at LOS D in the PM peak hour. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

2010 No-Build Condition Traffic Volumes-AM Peak Hour

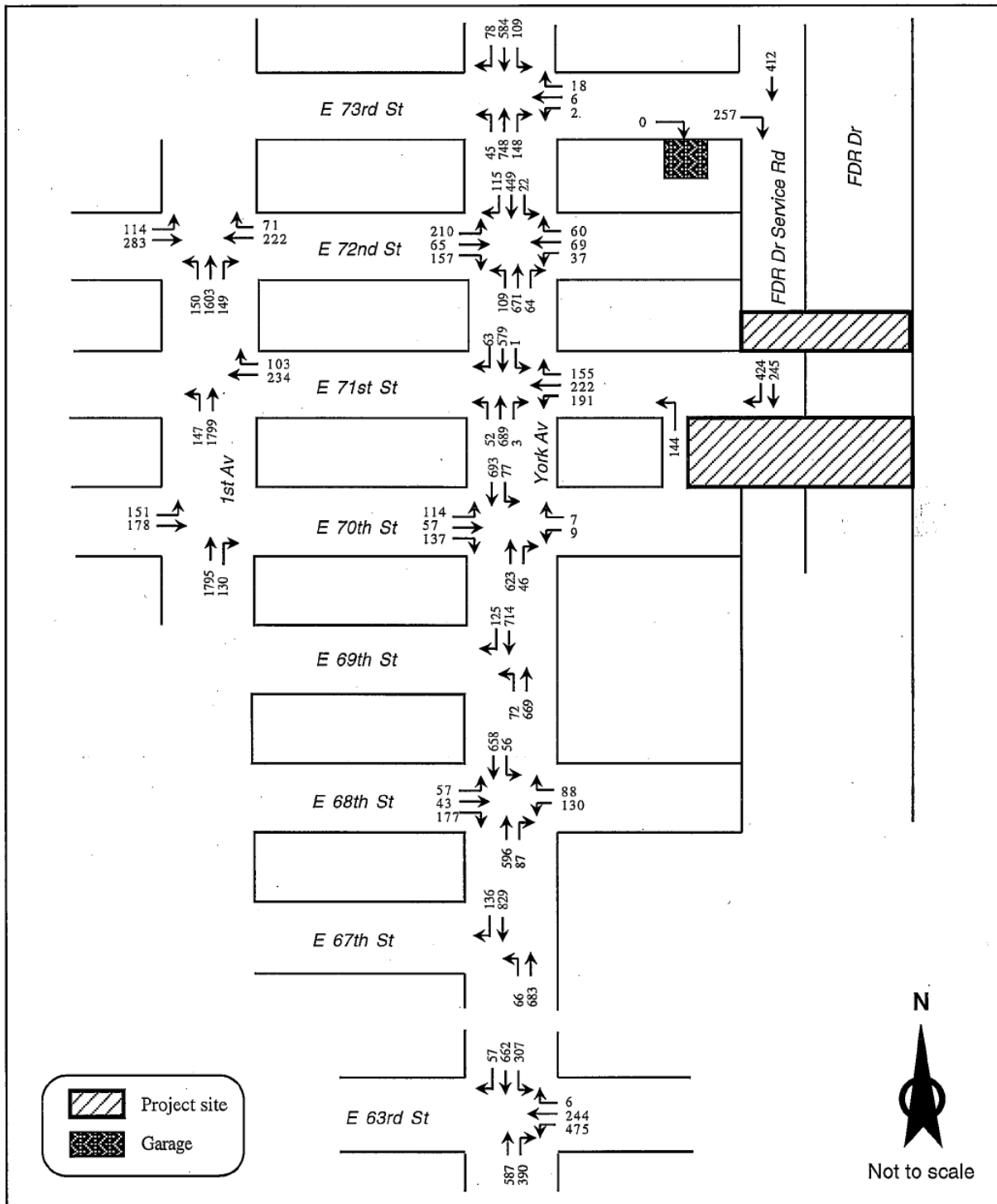


Hospital for Special Surgery

Figure 16-5

Ethan C. Eldon Associates, Inc.

2010 No-Build Condition Traffic Volumes-Midday Peak Hour

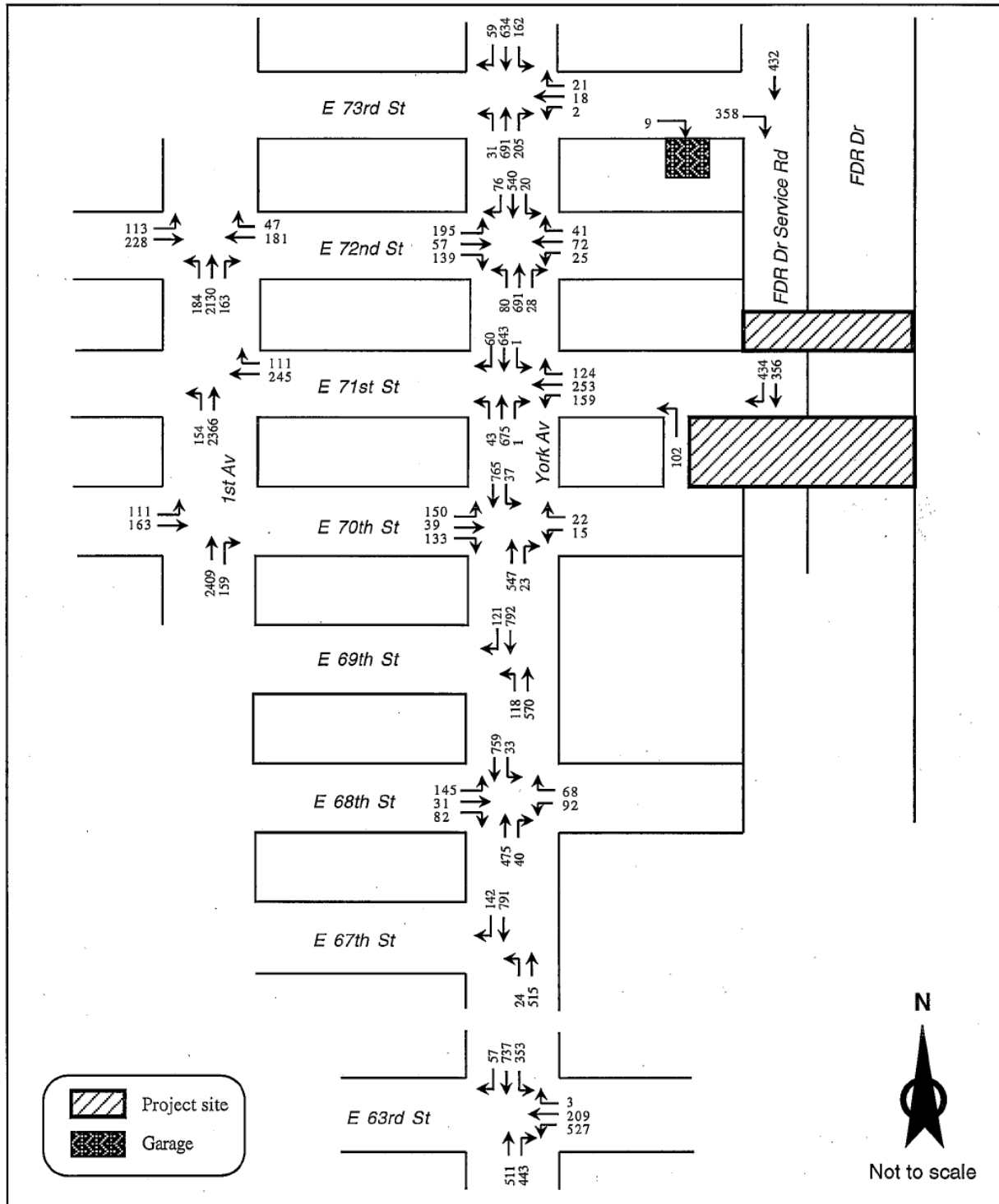


Hospital for Special Surgery

Figure 16-6

Ethan C. Eldon Associates, Inc.

2010 No-Build Condition Traffic Volumes-PM Peak Hour



Hospital for Special Surgery

Figure 16-7

Ethan C. Eldon Associates, Inc.

First Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound de facto left-turn approach at this intersection would operate at LOS D in the AM, midday and PM peak hours. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 69th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 68th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound approach at this intersection would operate at LOS D in the AM peak hour. The westbound left-turn movement approach at this intersection would operate at LOS D in the AM, midday and PM peak hours. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 67th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 63rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound approach at this intersection would operate at LOS D in the midday and PM peak hours. The northbound approach at this intersection would operate at LOS D in the AM peak hour. The southbound de facto left-turn approach at this intersection would operate at LOS E in the AM peak hour and at LOS D in the midday and PM peak hours. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

FDR Service Road and East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound right-turn movement approach at this intersection would operate at LOS D in the AM peak hour. The southbound approach at this intersection would have no traffic control device and thus would operate at LOS A in the AM, midday and PM peak hours.

FDR Service Road and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS A in the AM, midday and PM peak hours, indicating effective intersection operation since there would be no traffic control device and volumes would be well below the capacity of the intersection.

HSS Drop-Off and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

16.4 Future Build Condition

16.4.1 Description of Build Design Condition

The fourteen (14) key intersections were analyzed for the Build year of 2010, utilizing the project-generated vehicle volumes for the AM, midday and PM peak hours indicated in the Trip Generation Analysis Tables 16-3, 16-4 and 16-5.

16.4.2 Project-Generated Traffic Volumes

Trip Generation

The proposed project consists of 137,869 square feet of floor area. The project would generate 464 employees. The temporal distribution, modal split, and vehicle occupancy factors for the employees were based on the Memorial Sloan-Kettering Cancer Center Rezoning FEIS, 2001 (see Table 16-3) as were the trip generation rates for outpatients and visitors. The proposed project would generate nine (9) inpatients per day and 510 outpatients/visitors per day. The total project-generated inpatients, outpatients and visitors would be 519 per day (1,038 person trips per day). The trip generation analysis is presented in Table 16-4. The project generated person trips would be 279, 242 and 352 for the AM, midday and PM peak hours, respectively.

Modal Split

The modal split is an estimate of the proportion of trips made by auto, taxi, bus, subway, walk and other modes of transportation. The modal split for the employees is based on the 2000 census data. The modal split for inpatients/outpatients/visitors is based on the Memorial Sloan-Kettering Cancer Center Rezoning FEIS, 2001. The modal split for the employees is: 26.3% auto, 3.1% taxi, 34.3% subway, 12.0% bus and 24.3% walk/other for the AM and PM peak hours and 100.0% walk/other for the midday peak hour. The modal split for the outpatients/visitors is: 32.0% auto, 11.0% taxi, 20.0% subway, 17.0% bus and 20.0% walk/other. Vehicle occupancy factor (VOF) for the employees is 1.27 for auto and 1.35 for taxis. The VOF for outpatients/visitors is 1.60 for auto and 1.40 for taxi.

Deliveries

The number of truck trips per day generated by the 137,869 SF by the proposed project is based on sources such as USDOT, Curbside Pickup and Delivery, Operation and Arterial Traffic, and Motor Trucks in the Metropolis by Wilbur Smith & Associates (1969). The project-generated truck trips were calculated using an average rate of 0.2 truck trips per 1,000 square feet of floor area per day, as seen in Table 16-5. The additional 137,869 square feet of space that will be added as a result of the proposed project would result in a maximum of twenty-eight (28) additional truck trips per day (fourteen (14) trucks total consisting of one (1) “in” trip and one (1) “out” trip). Of these twenty-eight (28) truck trips for deliveries, six (6) of them would be during the peak hours, based on the temporal distribution of approximately 10% of the daily truck trips for the AM, 9% for the midday, and 5% for the PM peak hours. Therefore, the proposed project would generate 2 truck trips for each of the AM, midday and PM peak hours. This is a highly conservative analysis of the number of truck trips that could be generated by the proposed project. The Hospital conducted a survey of the actual number of truck trips to the Hospital. It indicates that there are significantly fewer trips than were assumed for CEQR analysis purposes (by nearly a factor of two.) Moreover, the number of truck trips generated by the proposed project is not expected to increase significantly since the same type of goods would be delivered to the Hospital. However, the quantity of materials on the trucks would be increased.

Trip Assignment

The directional distribution of the auto and taxi trips was based on the travel pattern presented in the Memorial Sloan-Kettering Cancer Center Rezoning FEIS, 2001. According to the data 48% of the trips would be within Manhattan. The remainder of the trips would originate as follows: 15% from Queens, 11% from Brooklyn, 7% from Bronx, 2% from Staten Island, 4% from Long Island, 5% from Westchester, 7% from New Jersey and 1% from other parts of New York. Auto trips were assigned to garages with available capacity (based on ECEA survey for the off-street parking). Taxi trips are assigned to proximity of the intersection of York Avenue and East 71st Street. Based on the site location, trip assignments are provided in Figures 16-8, 16-9 and 16-10 for the AM, midday and PM peak hours, respectively.

Trip Generation - Employees

Total Employees: 464

Temporal Distribution (1):

AM Peak Hour 52.0%
 Midday Peak Hour 27.0%
 PM Peak Hour 55.0%

Modal Split and Vehicle Occupancy (2)

Mode	AM/PM	Midday
Auto	26.3%	0.0%
Taxi	3.1%	0.0%
Subway	34.3%	0.0%
Bus	12.0%	0.0%
Walk/other	24.3%	100.0%
Total	100.0%	100.0%

Auto Occupancy (1) 1.27
 Taxi Occupancy (1) 1.35

Hourly In & Out Distribution (1)

	In	Out
AM Peak Hour	95.0%	5.0%
Midday Peak Hour	35.0%	65.0%
PM Peak Hour	15.0%	85.0%

Peak Hour Person Trips by Mode

	Auto		Taxi		Subway		Bus		Walk/other		Total		In+Out
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	
AM Peak Hour	60	3	7	0	79	4	28	1	56	3	229	12	241
Midday Peak Hour	0	0	0	0	0	0	0	0	44	81	44	81	125
PM Peak Hour	10	57	1	7	13	74	5	26	9	53	38	217	255

Peak Hour Vehicle Trips

	Auto		Taxi		Total		In+Out
	In	Out	In	Out	In	Out	
AM Peak Hour	47	2	5	5	52	7	59
Midday Peak Hour	0	0	0	0	0	0	0
PM Peak Hour	8	45	5	5	13	50	63

Note:

- (1) Memorial Sloan-Kettering Cancer Center Rezoning FEIS, 2001
- (2) 2000 Census Data (Tract #124 in Manhattan): reverse journey to work

Trip Generation - Inpatients/Outpatients/Visitors

Total Patient/Visitor Trips 1038

Temporal Distribution (1):

AM Peak Hour 3.7%
 Midday Peak Hour 11.3%
 PM Peak Hour 9.3%

Modal Split and Vehicle Occupancy (1)

Mode	
Auto	32.0%
Taxi	11.0%
Subway	20.0%
Bus	17.0%
Walk/other	20.0%
Total	100.0%

Auto Occupancy (1) 1.60
 Taxi Occupancy (1) 1.40

Hourly In & Out Distribution (1)

	In	Out
AM Peak Hour	85.0%	15.0%
Midday Peak Hour	65.0%	35.0%
PM Peak Hour	60.0%	40.0%

Peak Hour Person Trips by Mode

	<u>Auto</u>		<u>Taxi</u>		<u>Subway</u>		<u>Bus</u>		<u>Walk/other</u>		<u>Total</u>		
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	
AM Peak Hour	10	2	4	1	7	1	6	1	7	1	33	6	39
Midday Peak Hour	24	13	8	5	15	8	13	7	15	8	76	41	117
PM Peak Hour	19	12	6	4	12	8	10	7	12	8	58	39	97

Peak Hour Vehicle Trips

	<u>Auto</u>		<u>Taxi</u>		<u>Total</u>	
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>
AM Peak Hour	7	1	3	3	10	4
Midday Peak Hour	15	8	6	6	21	14
PM Peak Hour	12	8	5	5	17	13

Note:

(1) Memorial Sloan-Kettering Cancer Center Rezoning FEIS, 2001

Trip Generation - Deliveries

Floor Area: **137.869** square feet

Delivery Trip Rate 0.2 trips per 1,000 square feet

Temporal Distribution:

AM Peak Hour 10.0%

Midday Peak Hour 9.0%

PM Peak Hour 5.0%

Hourly In & Out Distribution

	<u>In</u>	<u>Out</u>
AM Peak Hour	50.0%	50.0%
Midday Peak Hour	50.0%	50.0%
PM Peak Hour	50.0%	50.0%

Total Delivery Trips

	<u>In</u>	<u>Out</u>	Total
AM Peak Hour	1	1	2
Midday Peak Hour	1	1	2
PM Peak Hour	1	1	2

Source: US DOT

16.4.3 Traffic Volumes

Based upon the trip generation and trip assignment procedures for the proposed project, estimates were made for the volume of project-generated traffic that would pass through the key intersections during the peak hours.

The 2010 Build year condition volumes were estimated by adding the project-generated traffic volumes to the year 2010 No-Build condition traffic volumes. Figures 16-11, 16-12 and 16-13 provide the intersection peak hour traffic volumes for the AM, midday and PM peak hours, respectively.

16.4.4 Build Condition Analysis Results

The key intersections were analyzed for the Build condition using the previously described Highway Capacity Manual methodologies. The resulting V/C ratios, delay time and levels of service for the key intersections are presented in Table 16-2. Back-up data for these analyses can be found in Appendix A.

First Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

First Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound approach at this intersection would operate at LOS D in the PM peak hour. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

First Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

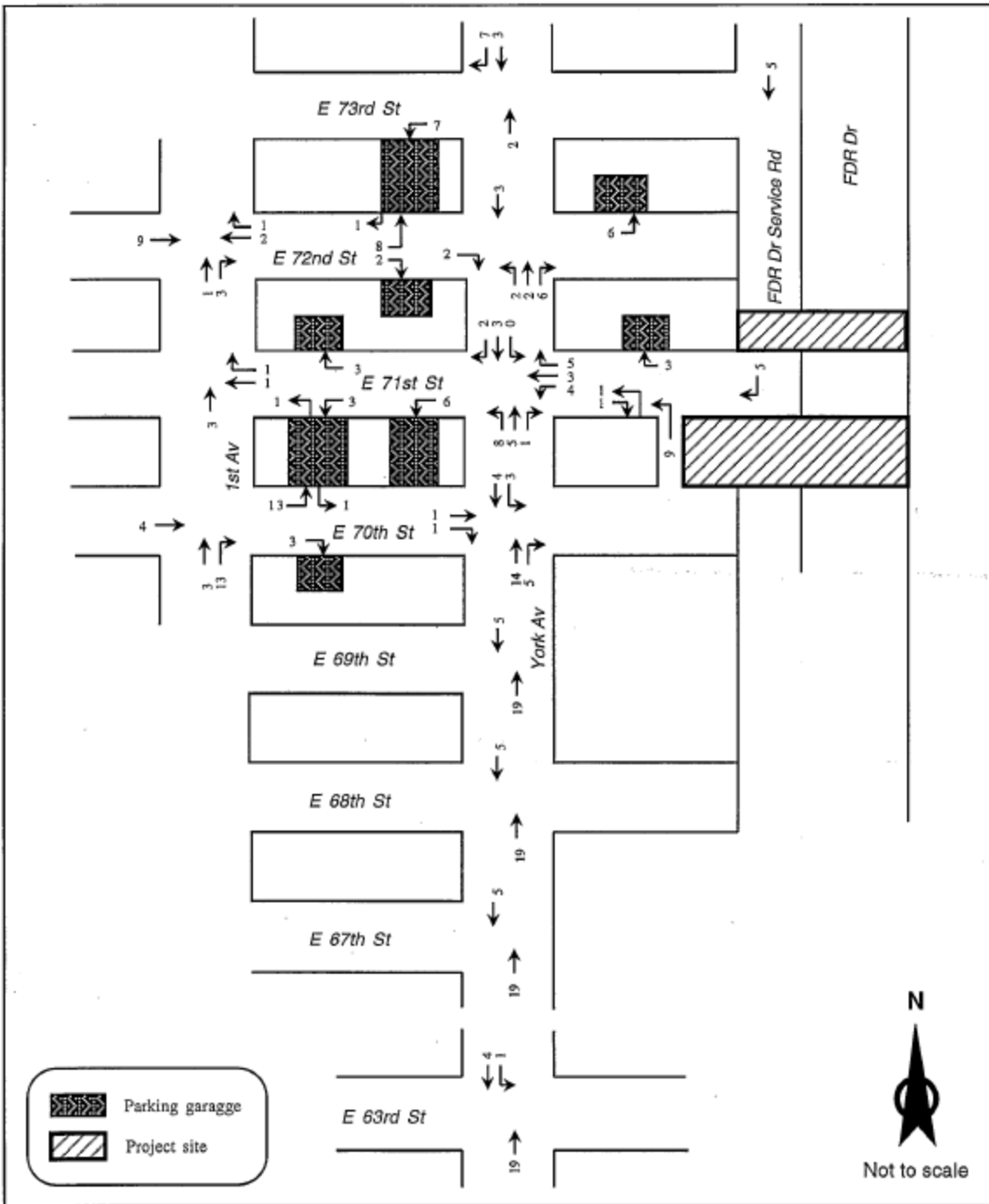
York Avenue at East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 72nd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound de facto left-turn approach at this intersection would operate at LOS D in the AM, midday and PM peak hours. All other

Project Generated Traffic Volumes - AM Peak Hour

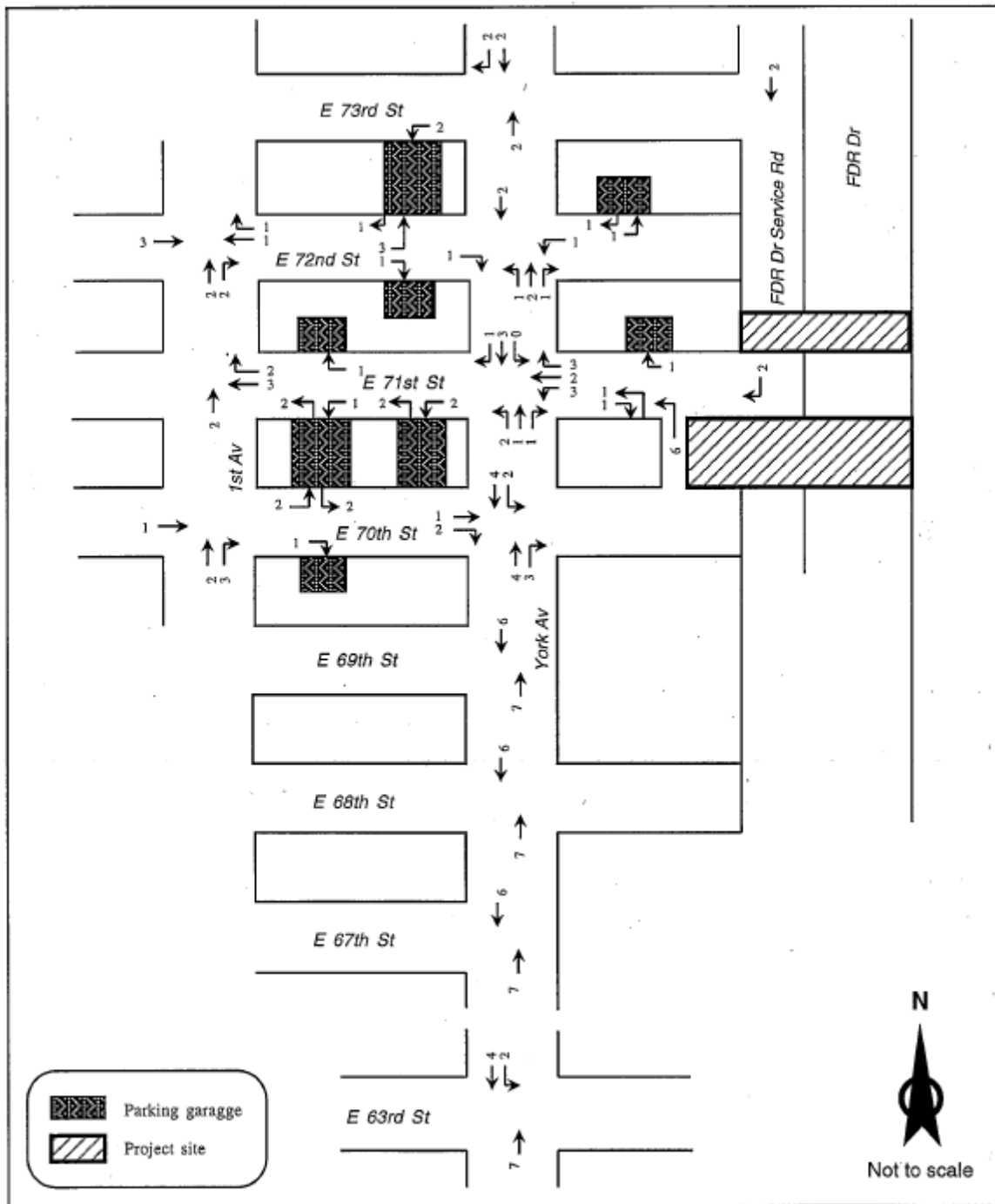


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Figure 16-8

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Project Generated Traffic Volumes - Midday Peak Hour

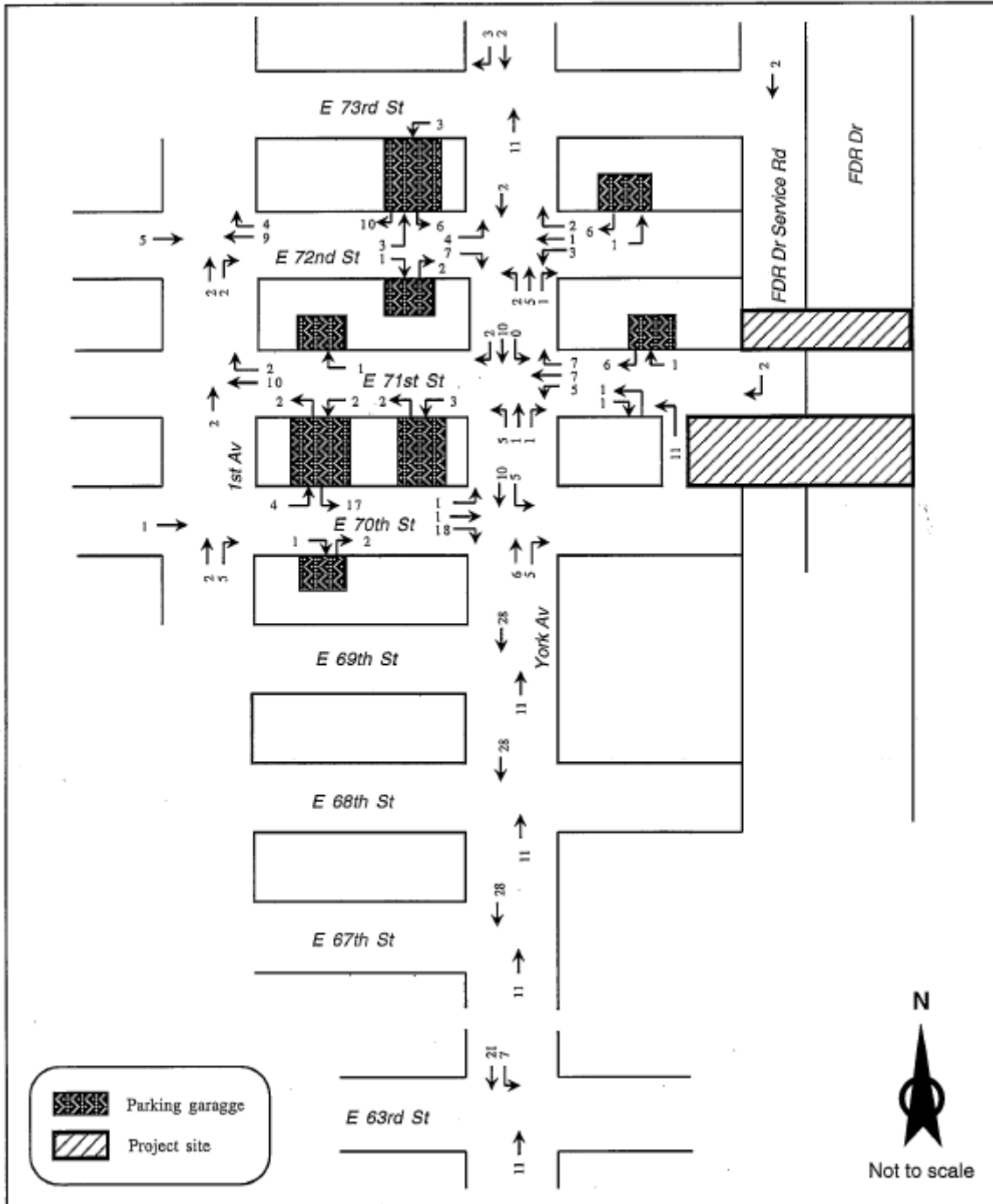


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Figure 16-9

Ethan C. Eldon Associates, Inc.

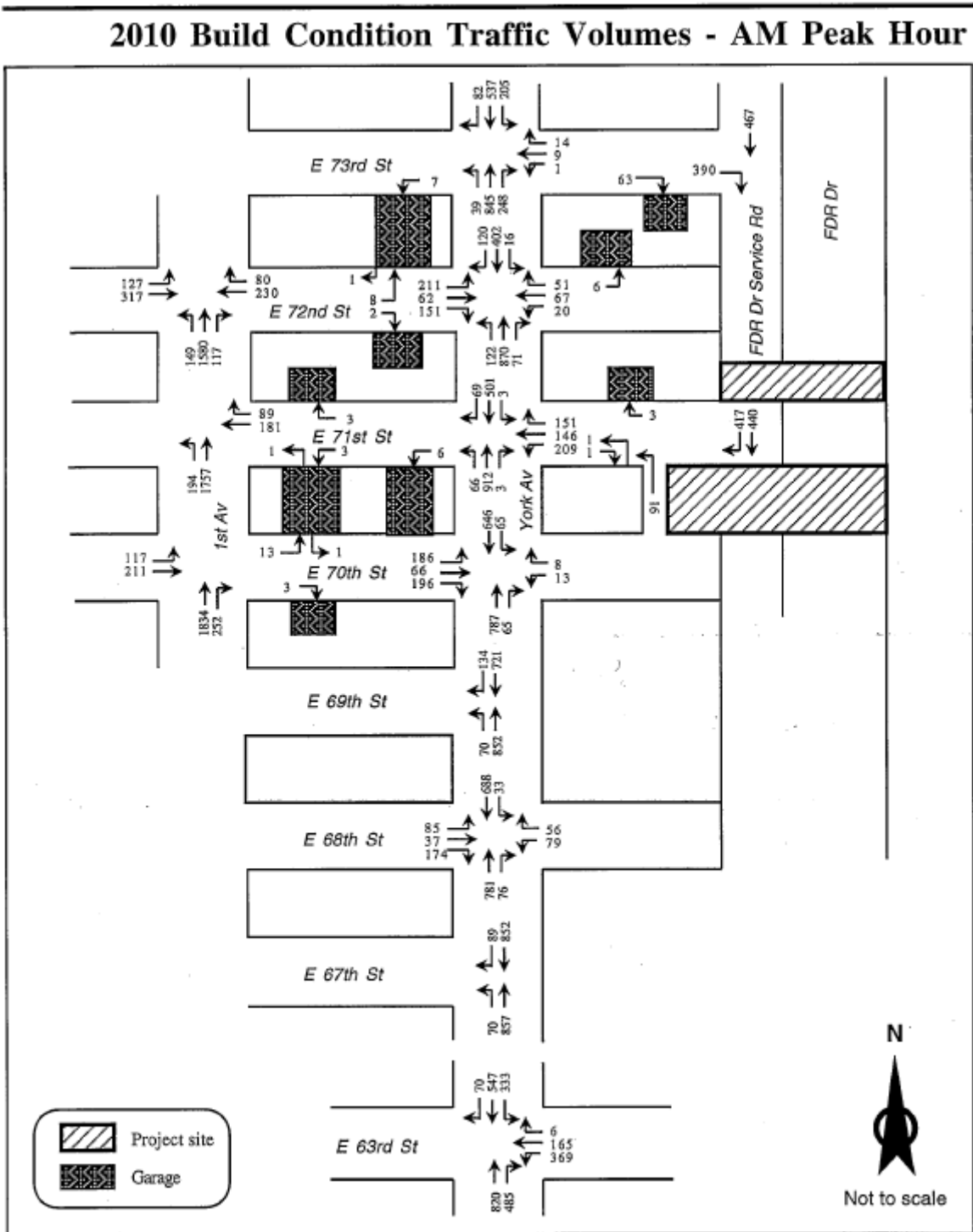
Project Generated Traffic Volumes - PM Peak Hour



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Figure 16-10

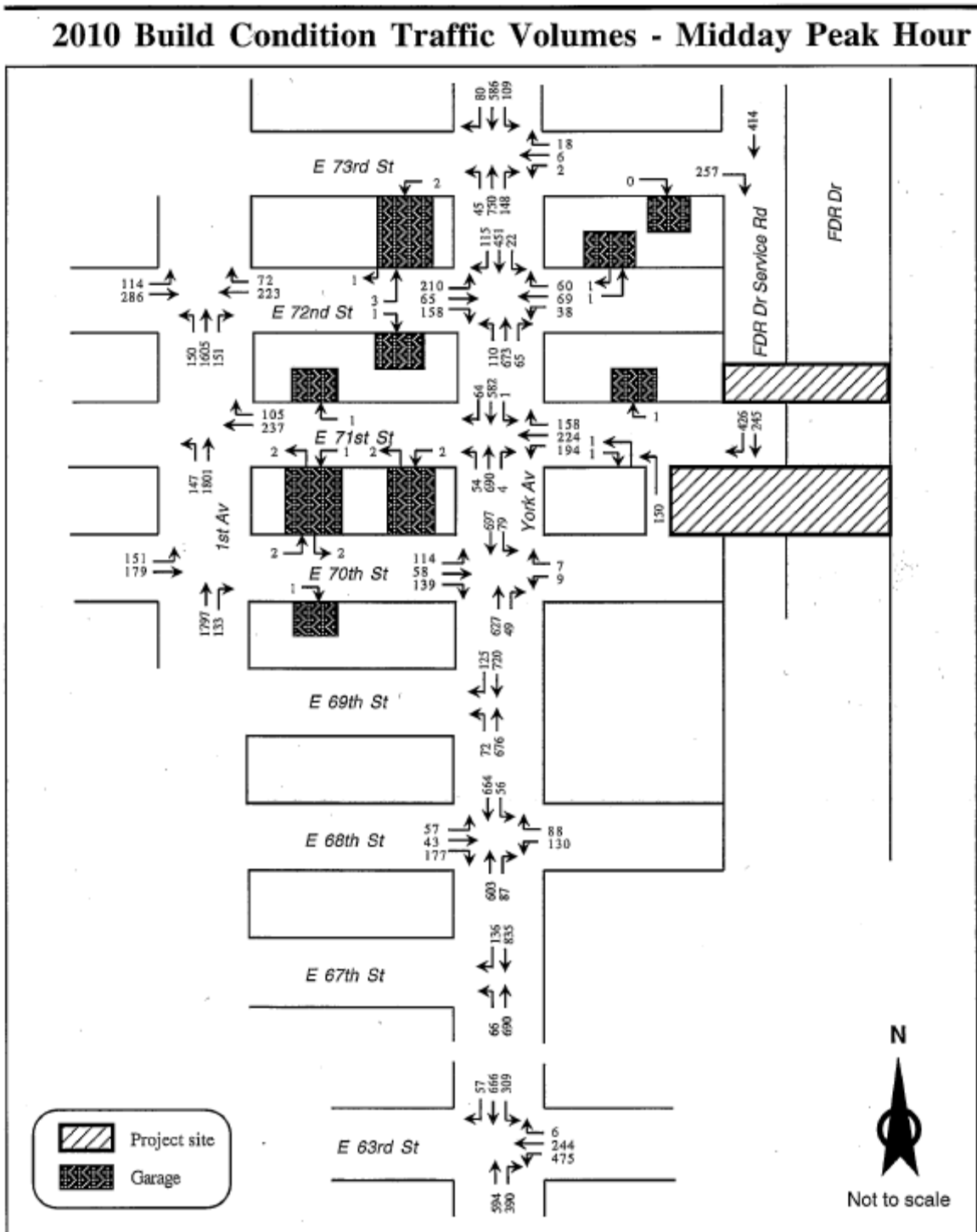
Ethan C. Eldon Associates, Inc.



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Figure 16-11

Ethan C. Eldon Associates, Inc.

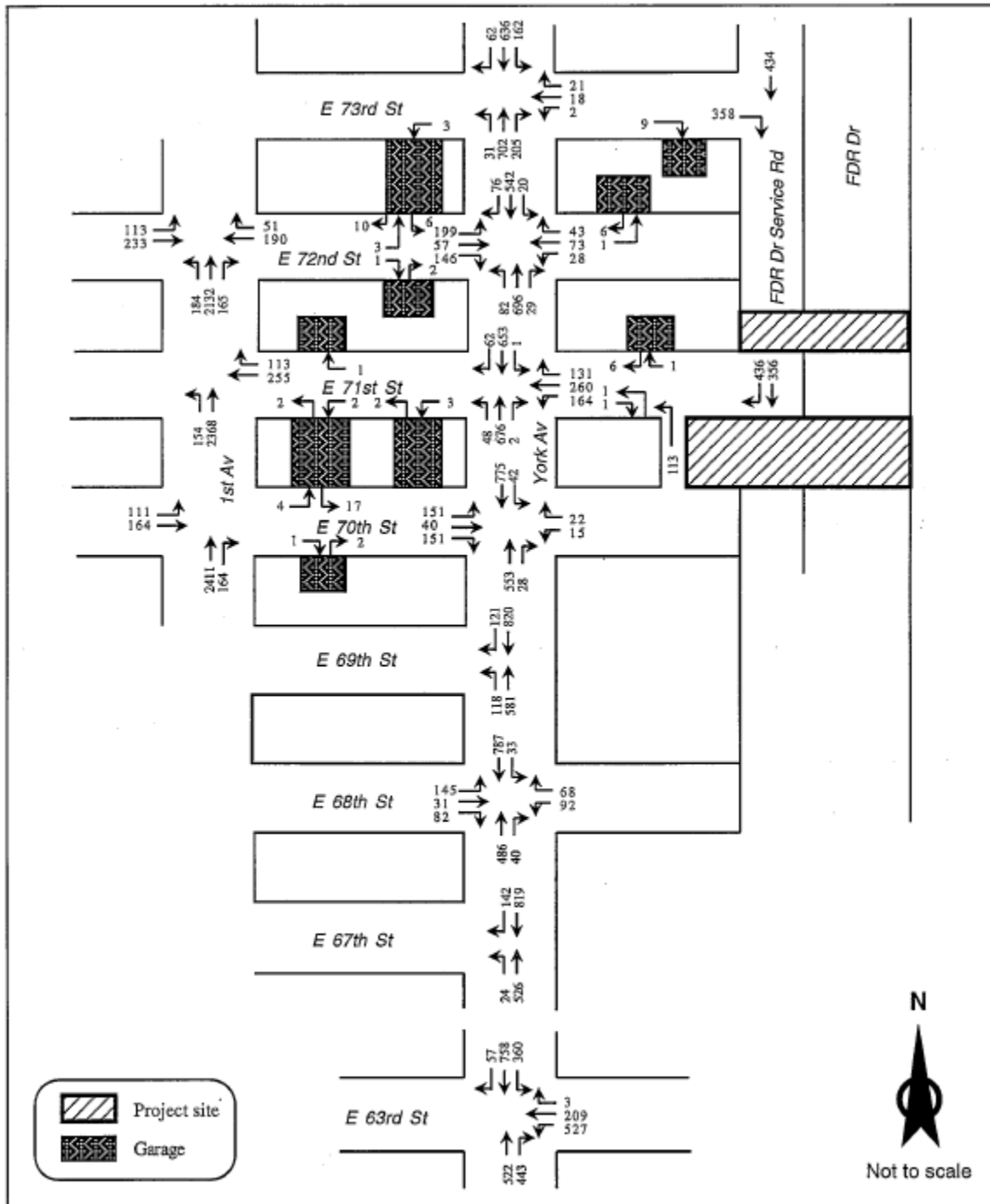


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Figure 16-12

Ethan C. Eldon Associates, Inc.

2010 Build Condition Traffic Volumes - PM Peak Hour



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Figure 16-13

Ethan C. Eldon Associates, Inc.

approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 70th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 69th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 68th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound approach at this intersection would operate at LOS D in the AM peak hour. The westbound left-turn movement approach at this intersection would operate at LOS D in the AM, midday and PM peak hours. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

York Avenue at East 67th Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

York Avenue at East 63rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the westbound approach at this intersection would operate at LOS D in the midday and PM peak hours. The northbound approach at this intersection would operate at LOS D in the AM peak hour. The southbound de facto left-turn approach at this intersection would operate at LOS E in the AM peak hour and at LOS D in the midday and PM peak hours. All other approaches at this intersection would operate at LOS C or better in the AM, midday and PM peak hours.

FDR Service Road and East 73rd Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, the eastbound right-turn movement approach at this intersection would operate at LOS D in the AM peak hour. The southbound approach at this intersection would have no traffic control device and thus would operate at LOS A in the AM, midday and PM peak hours.

FDR Service Road and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS A in the AM, midday and PM peak hours, indicating effective intersection operation since there would be no traffic control device and volumes would be well below the capacity of the intersection.

HSS Drop-Off and East 71st Street

As indicated in the intersection analysis summary in Table 16-2, and capacity analysis worksheets presented in Appendix A, this intersection would operate at LOS C or better in the AM, midday and PM peak hours, indicating effective intersection operation.

16.5 Determination of Impact Significance

The City Environmental Quality Review (CEQR) Technical Manual's current standard for determining significant traffic impacts employs change of delay time.

“For signalized intersection lane group with future no action levels of service of D, an increase in projected delays of five or more seconds in a lane group should be considered significant. For no action LOS E, 4 seconds of delay should be considered significant. For no action LOS F, 3 seconds of delay should be considered significant. However, if the no action LOS F condition already has delays in excess of 120 seconds, more than 1.0 second of delay should be considered significant, unless the proposed action would generate fewer than five vehicles through that lane group in the peak hour. These significant impacts would require mitigation.

For unsignalized intersections the same criteria as for signalized intersections would apply. For the minor street to trigger significant impacts, 90 passenger car equivalents must be identified in the future build condition in any peak hour.”

The purpose for providing traffic mitigation measures is to reduce V/C ratios and delay times to be equal or below the corresponding No-Build levels. In addition, a proposed mitigation measure for a particular approach should not cause a significant impact on another approach.

As discussed above, the capacity analysis of the fourteen (14) intersections finds that the delay times at all approaches would be below the impact criteria outlined above. There would be no significant traffic impacts and therefore, no mitigation measures are warranted as a result of the proposed action. Additionally, HSS assures that it would meet all its inspection obligations regarding its structures which span the roadway.

16.6 Parking Analysis

16.6.1 Existing Condition On- and Off-Street Parking

ECEA conducted a survey of on-street parking regulations and off-street parking capacities and utilization in the study area. The study area is an approximately 1,000 foot radius which is bounded by East 74th Street to the north, Second Avenue to the west, East 67th Street to the south and FDR Drive to the east.

The on-street parking regulations and off-street parking capacity are presented in Figure 16-14. The 2007 on-street parking survey for the AM and midday is summarized in Table 16-6. As shown in Table 16-6, the on-street parking capacity is 702 spaces in the study area and the available spaces are 130 and eleven (11) for the AM and midday.

There are twenty-five (25) public parking garages with a capacity of 2,660 spaces in the study area (see Table 16-7). The average garage utilization for the 2007 existing condition is approximately 76.8%, 80.6% and 79.7% for the AM, midday and PM peak hours, respectively. The available spaces are 618, 517 and 541 for the AM, midday and PM peak hours, respectively. The following utilization analyses for the No-Build and Build conditions are based on the midday, the worst case scenario (517 available spaces for the Existing condition).

16.6.2 No-Build Condition

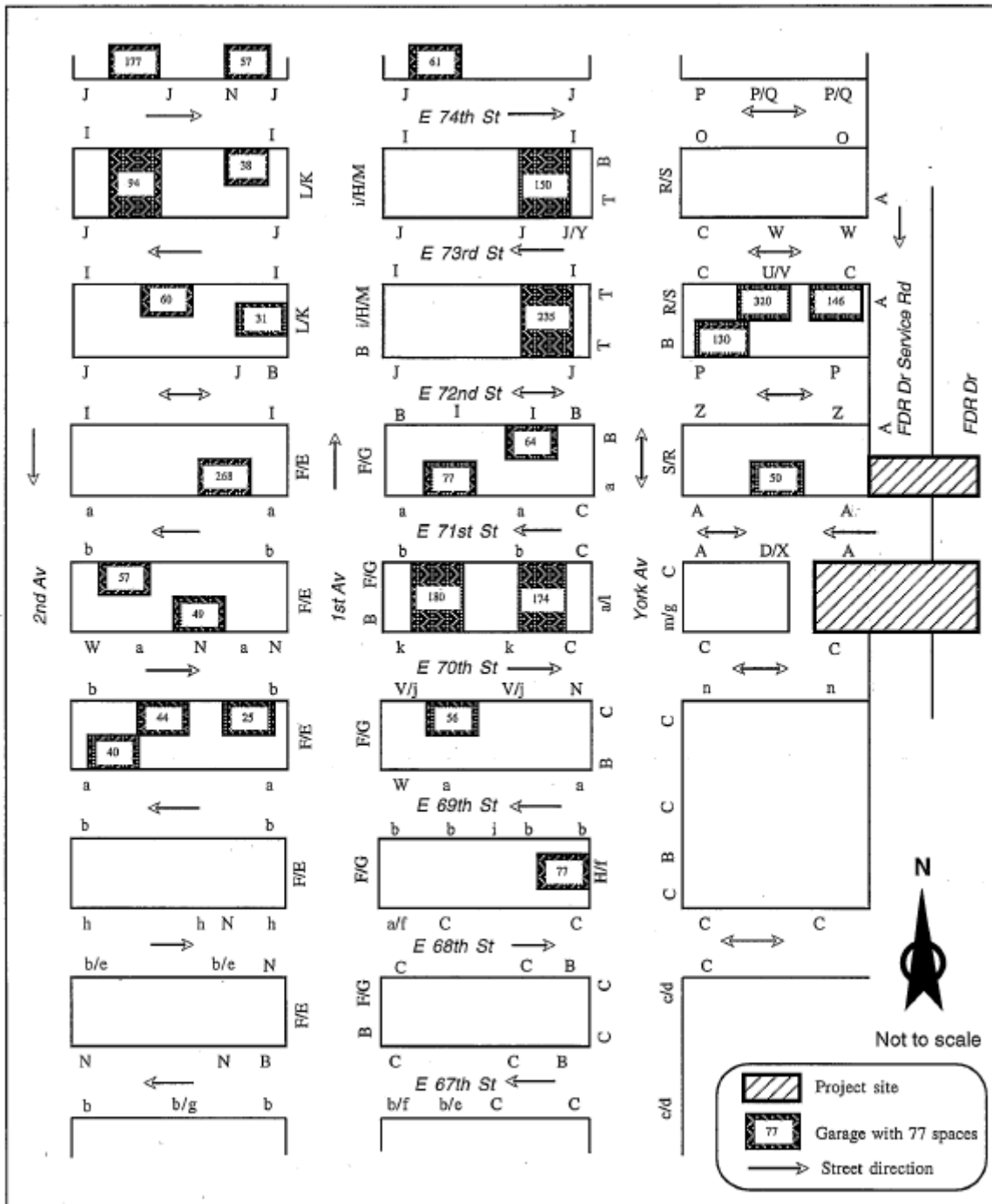
The No-Build condition was analyzed for the year of 2010. It is assumed that there would be no capacity changes to the existing garages. A one and one-half percent (one-half percent annually) increase of existing parking demand in the study area was applied to determine the background parking demand growth for the No-Build condition. The background growth parking demand with a 1.5% growth rate would be thirty-two (32) off-street parking spaces (see Table 16-8).

The No-Build condition off-street parking demand is approximately 2,175 spaces and 485 spaces available with utilization of 81.8% in the study area.

16.6.3 Build Condition

Under the Build condition it is assumed that all the project generated vehicles would use the garages in the study area. The proposed project would demand approximately 108 spaces. Total parking demand would be 2,283 spaces, which is below the study area's capacity of 2,660 spaces. Therefore, no significant parking impact is anticipated from the proposed project.

On-Street Parking Regulations and Off-Street Parking Capacity



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Figure 16-14

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On-Street Parking Regulation Index

A: No Stopping
B: Bus Stop
C: No Stading anytime
D: No Standing 7-10 AM 4-7 PM Mon-Fri
E: No Parking 7-10 AM 4-7 PM Mon-Fri
F: 1-hour Parking 10 AM-4 PM Mon-Fri 9 AM-7 PM Saturday
G: No Stopping 7-10 AM 4-7 PM Mon-Fri
H: No Parking 8:30-9 AM Mon Tue Thurs Fri
I: No Parking 9-10:30 AM Tue & Fri
J: No Parking 9-10:30 AM Mon & Thurs
K: No parking 8-8:30 AM except Sunday
L: 1-hour Parking 8:30 AM-7 PM except Sunday
M: 1-hour Parking 9 AM-4 PM Mon-Fri 9 AM-7 PM Saturday
N: No Parking anytime
O: No Parking 2 AM-6 AM Tue Thur Saturday
P: No Standing 8 AM-6 PM Mon-Fri except truck loading & unloading
Q: No Parking 2 AM-6 AM Mon Wed Fri
R: 1-hour 8 AM-7 PM except Sunday
S: No Parking 7:30-8:00 AM except Sunday
T: No Parking 8-8:30 AM Mon & Thurs
U: No Standing 7-10 AM Mon-Fri
V: No Standing 10 AM-7 PM Mon-Fri except truck loading & unloading
W: No Parking 8 AM-6 PM Mon-Fri
X: No Standing 10 AM-4 PM Mon-Fri except truck loading & unloading
Y: No Standing Tue & Fri except truck loading & unloading
Z: No Standing 7 AM-7 PM Mon-Fri except truck loading & unloading
a: No Parking 11 AM-12:30 PM Mon & Thurs
b: No Parking 11 AM-12:30 PM Tue & Fri
c: 1-hour Parking 8 AM-10 PM except Sunday
d: No Parking 7:30-8 AM Mon Tue Thur Fri
e: No Parking 7 AM-4 PM school days
f: 1-hour Parking 9 AM-10 PM except Sunday
g: No Standing anytime except authorized vehicles
h: No Parking 7 AM-7 PM except Sunday
i: No Standing 4-7 PM Mon-Fri
j: No Standing 8 AM-10 PM Mon-Fri
k: No Standing 8 AM-7 PM Mon-Fri except truck loading & unloading
l: 1-hour Parking 9 AM-7 PM except Sunday
m: No Standing 7-10 AM Mon-Fri except taxi
n: Cornell loading zone

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Figure 16-14a

Ethan C. Eldon Associates, Inc.

2007 Existing Condition On-Street Parking Utilization

Street Name	Side of St	Capacity	2006 Available Space		2007 Available Space	
			8-9am	12-2pm	8-9am	12-2pm
East 74th Street between 2nd and 1st Ave	North Side	23	20**	0	20	0
	South side	29	0	0	0	0
East 74th Street between 1st and York Ave	North Side	24	23**	0	23	0
	South side	26	0	1	0	1
East 74th St between York Ave and FDR	South side	9	0	0	0	0
East 73rd St between 2nd and 1st Ave	North Side	23	8**	0	8	0
	South side	29	0	0	0	0
East 73rd Street between 1st and York Ave	North Side	24	4	1	4	1
	South side	31	0	0	0	0
East 72nd Street between 2nd and 1st Ave	North Side	20	3	0	3	0
	South side	28	0	0	0	0
East 72nd Street between 1st and York Ave	North Side	24	10	0	10	0
	South side	17	0	0	0	0
East 71st Street between 2nd and 1st Ave	North Side	31	1	0	1	0
	South side	30	1	0	1	0
East 71st Street between 1st and York Ave	North Side	14	0	1	0	1
	South side	23	0	0	0	0
East 70th Street between 2nd and 1st Ave	North Side	22	0	0	0	0
	South side	32	0	0	0	0
East 69th Street between 2nd and 1st Ave	North Side	30	0	0	0	0
	South side	34	0	0	0	0
East 69th Street between 1st and York Ave	North Side	5	1	0	1	0
	South side	17	0	0	0	0
East 68th Street between 1st and York Ave	North Side	6 meters	2	0	2	0
East 67th Street between 2nd and 1st Ave	South side	27	0	0	0	0
Second Avenue between 67th and 68th St	West Side	8 meters	5	0	5	0
	East Side	2 meters	1	1	1	1
First Avenue between 68th and 69th St	West Side	7 meters	7 *	0	7	0
	East Side	6 meters	6 *	0	6	0
First Avenue between 69th and 70th St	West Side	7 meters	7 *	0	7	0
	East Side	9 meters	9 *	2	9	2
First Avenue between 70th and 71st St	West Side	7 meters	7 *	0	7	0
	East Side	4 meters	4 *	0	4	0
First Avenue between 71st and 72nd St	West Side	7 meters	7 *	2	7	2
First Avenue between 72nd and 73rd St	West Side	7 meters	1	0	1	0
	East Side	2 meters	1	1	1	1
First Avenue between 73rd and 74th St	West Side	8 meters	0	0	0	0
	East Side	6 meters	2	1	2	1
York Avenue between 66th and 68th St	East Side	5 meters	0	0	0	0
York Avenue between 70th and 71st St	West Side	9 meters	0	1	0	1
York Avenue between 71st and 72nd St	West Side	3	0	0	0	0
	East Side	8 meters	0	0	0	0
York Avenue between 72nd and 73rd St	West Side	6 meters	0	0	0	0
	East Side	4 meters	0	0	0	0
York Avenue between 73rd and 74th St	West Side	2	0	0	0	0
	East Side	7 meters	0	0	0	0
TOTAL		702	130	11	130	11

* All spaces were available since meter parkign is not allowed until after 10am

** The large number of available spaces is due to the alternate side parking regulation (No Parking 9-10:30am).

The 2006 readings were taken from 8am-9am and 12-1:15pm on November 9, 2006

The 2007 available spaces are calculated with a growth factor of 0.5% per year.

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Table 16-6

Ethan C. Eldon Associates, Inc.

2007 Existing Condition Off-Street Parking Utilization

No	Street address	License No.	Capacity	Utilization Rate (%)			Utilized Spaces			Available Spaces		
				AM	Midday	PM	AM	Midday	PM	AM	Midday	PM
1	300 E 75th St	10704383	177	80	80	85	142	142	150	35	35	27
2	319-345 E 74th St	1024898	57	75	80	80	43	46	46	14	11	11
3	401 E 74th St	887267	61	80	85	85	49	52	52	12	9	9
4	340 E 74th St	1126177	38	80	85	85	30	32	32	8	6	6
5	1377-1391 York Ave	1070442	150	75	75	85	113	113	128	38	38	23
6	300 E 74th St	1076826	94	80	85	85	75	80	80	19	14	14
7	315 E 72nd St	469761	60	75	80	90	45	48	54	15	12	6
8	1353-1367 York Ave	1070441	235	70	75	70	165	176	165	71	59	71
9	524 E 73rd St	1147301	320	75	80	75	240	256	240	80	64	80
10	501-525 E 72nd St	1097603	146	75	75	80	110	110	117	37	37	29
11	355 E 72nd st	913723	31	90	90	95	28	28	29	3	3	2
12	420 E 72nd St	367579	64	90	95	90	58	61	58	6	3	6
13	515 E 72nd St	813280	130	85	80	80	111	104	104	20	26	26
14	355-361 E 71st St	888159	268	75	80	75	201	214	201	67	54	67
15	422 E 72nd St	897040	77	70	80	85	54	62	65	23	15	12
16	517 E 71st St	1152232	50	75	80	95	38	40	48	13	10	3
17	300 E 71st St	367503	57	80	80	60	46	46	34	11	11	23
18	400 E 71st St	913826	180	75	75	70	135	135	126	45	45	54
19	4260E 71st St	369314	174	70	85	80	122	148	139	52	26	35
20	309-319 E 70th St	367154	49	75	75	80	37	37	39	12	12	10
21	302-312 E 70th St	976027	44	95	100	100	42	44	44	2	0	0
22	330 E 70th St	957148	25	70	75	60	18	19	15	8	6	10
23	400 E 70th St	806790	56	85	85	90	48	48	50	8	8	6
24	301 E 69th St	918066	40	90	90	95	36	36	38	4	4	2
25	1285 York Ave	957484	77	80	90	85	62	69	65	15	8	12
Total			2660	76.8	80.6	79.7	2042	2143	2119	618	517	541

2010 Midday Off-Street Parking Utilization

2007 Existing Conditions

Capacity (spaces)	2660
Demand (spaces)	2143
Available (spaces)	517
Utilization	80.6%

2010 No-Build Condition

Capacity (spaces)	2660
2007 Existing Condition	2143
0.5% per year growth	32
Parking Demand	
Total Demand	2175
Available Spaces	485
Utilization	81.8%

2010 Build Condition

Capacity (spaces)	2660
2010 No-Build Condition Demand	2175
Parking Demand	
2010 Proposed Project	108
Total Demand	2283
Available Spaces	377
Utilization	85.8%