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TECHNICAL MEMORANDUM

TO: Files

FROM: Stuart Gewirtzman

DATE: February 14, 2008

PROJECT: Dutch Kills Rezoning (PHA No. 0696)

RE: Transportation Planning Factors

This memorandum summarizes the transportation planning factors to be used for the analyses of traffic, parking, transit and pedestrian conditions for the proposed Dutch Kills Rezoning EIS. Estimates of the proposed actions' peak hour travel demand are provided, along with a discussion of trip assignment methodologies.

PROJECTED DEVELOPMENT

The proposed actions would involve zoning map and text amendments for an area encompassing 36 whole and four partial blocks in the Dutch Kills neighborhood located in Long Island City, Queens. The rezoning area, which is adjacent to the Sunnyside Rail Yards and just north of Queens Plaza and the Long Island City central business district (CBD), is generally bounded by 36th Avenue on the north, 41st Avenue on the south, Northern Boulevard on the east, and 23rd Street on the west (see Figure 1).

The goals of the proposed rezoning and text changes are to encourage moderate and higher density development near public transportation, and to support continued economic growth in a mixed-use residential, commercial and light industrial community. Overall, the proposed zoning changes would result in an increase in permitted residential density on approximately 50 acres of land, representing 72 percent of the rezoning area, and a decrease in commercial and light industrial density on 39 acres of land representing approximately 53 percent of the rezoning area. Approximately 20 acres, or about 30 percent of the rezoning area would experience no change in permitted residential density, but residential development would be permitted as-of-right.

Dutch Kills Rezoning



Legend:
- ---- Rezoning Area Boundary
- → Street Direction
- ● Analyzed Intersection

Figure 1
Proposed Rezoning Area and Traffic Analysis Locations

A reasonable worst case development scenario (RWCDS) for both future "No Action" and future "With Action" conditions will be analyzed for an Analysis year of 2017. For area-wide rezonings not associated with a specific development, a ten-year period is typically believed to be the length of time over which developers would act on the change in zoning, and the effects of the proposed action would be felt. The future With Action scenario identifies the amount, type and location of development that is expected to occur by 2017 with the proposed actions. The future without the actions (or No Action) scenario identifies similar development projections for 2017 absent the proposed actions. The analysis of potential transportation impacts is based on the incremental difference in travel demand between the With Action and No Action scenarios.

A total of 40 "projected" development sites within the rezoning area have been identified as most likely to be developed by 2017 as a result of the proposed actions. (In addition, there are approximately 191 "potential" development sites considered less likely to be developed in the foreseeable future.) Table 1 shows the total incremental net change in development on the 40 projected development sites that would result from the proposed actions under the RWCDS. As shown in Table 1, compared to the No Action condition, the proposed rezoning would result in a net increase of approximately 1,555 dwelling units and a total of 131,698 square feet of new retail uses within the rezoning area, along with accessory parking for approximately 410 autos. A total of approximately 196,320 square feet of hotel uses, 132,848 square feet of office space, and 41,697 square feet of community facility space would be displaced by the proposed actions, as would approximately 180,536 square feet of light industrial space.

Table 1
Net Change in Land Uses on Projected Development Sites Under the RWCDS

Land Use	Incremental Net Change
Residential	1,591,319 gsf/1,555 D.U.
Local Retail	61,092 gsf
Destination Retail	70,606 gsf
Office	(132,848 gsf)
Light Industrial	(180,536 gsf)
Hotel	(196,320 gsf)
Community Facility	(41,697 gsf)
Accessory Parking	410 spaces

TRANSPORTATION PLANNING FACTORS

The new residential and retail uses that would result from the proposed actions are expected to generate their highest demand during the traditional weekday AM and PM commuter periods as well as the weekday PM midday (lunch time) period and Saturday midday period. The transportation planning factors used to forecast changes in travel demand resulting from the proposed actions during these periods are summarized in Table 2 and discussed below. The trip generation rates, temporal distributions and mode choice factors for community facility, residential, office, hotel, local retail and light industrial uses shown in Table 2 were based on accepted *CEQR Technical Manual* criteria, standard professional references, and studies that have been done for similar uses in the Long Island City area as well as other areas of the City. These sources were supplemented by data from the 2000 Census, and Employee Commute Options survey data from firms and governmental/educational institutions in Downtown Brooklyn.

Community Facility

For the purposes of the travel demand forecast, the community facility uses in both the No Action and With Action conditions were assumed to be medical offices. The trip generation rate, temporal distribution, mode choice and vehicle occupancy rates for this use were based on data for medical offices reported in the June 2007 *Jamaica Plan FEIS*.

Residential

The forecast of travel demand from projected residential development was based on trip rate and temporal distribution data cited in the 2001 *CEQR Technical Manual*, the *Jamaica Plan FEIS*, and the July 1997 *Coliseum Redevelopment FEIS*. The residential modal split reflects journey-to-work data from the 2000 Census. Although residential-based trips in the weekday and Saturday midday periods would likely be more local in nature than in the peak commuter hours (and therefore have a higher walk share, for example), the modal split based on census journey-to-work data is conservatively assumed for all analysis periods.

Office

The forecast of weekday travel demand from projected office development was based on the trip rate and temporal distribution cited in the 2001 *CEQR Technical Manual*, while similar factors for Saturday were derived based on data from *ITE Trip Generation, 7th Edition* and from the *Coliseum Redevelopment FEIS*. Saturday The weekday AM and PM and Satruday midday peak hour modal split for office uses reflects data from the May 2001 *Long Island City Zoning Changes and Related Actions FEIS*. Vehicle occupancy and midday modal split factors were based on data from the April 2004 *Downtown Brooklyn Development FEIS*.

Table 2
Transportation Planning Factors

Land Use:		Community Facility		Residential	Office		Hotel	Local Retail	Destination Retail	Light Industrial
		(1)		(2,13)	(2,15)		(11)	(2)	(8)	(12,15)
		Staff	Visitors							
Trip Generation:	Weekday	10.0	33.6	8.075	18.00		5.82	205	130	11.50
	Saturday	4.3	14.5	7.678	3.87		8.61	205	131	2.18
(Person-trips)		(trips/1,000 gsf)		(trips/dwelling unit)	(trips/1,000 gsf)		(trips/room)	(trips/1,000 gsf)	(trips/1,000 gsf)	(trips/1,000 gsf)
		(1)		(2,5)	(2,5)		(11)	(14)	(8)	(14)
Temporal Distribution:	AM	24.0%	6.0%	9.1%	11.8%		6.6%	3.1%	3.7%	13.2%
	MD	17.0%	9.0%	4.7%	14.5%		8.3%	19.0%	6.4%	11.0%
	PM	24.0%	5.0%	10.7%	13.7%		7.7%	9.6%	6.8%	14.2%
	Sat MD	17.0%	9.0%	7.0%	15.0%		8.5%	9.5%	9.8%	10.7%
		(1)		(3)	(7,10)		(11)	(6)	(9)	(7,10)
Modal Split:		All Periods		All Periods	AM/PM/Sat	MD	All Periods	All Periods	All Periods	AM/PM/Sat MD
	Auto	20.0%	25.0%	20.0%	17.2%	2.0%	30.1%	2.0%	65.0%	17.2% 2.0%
	Taxi	10.0%	25.0%	1.0%	1.0%	1.0%	12.3%	3.0%	2.0%	1.0% 1.0%
	Subway	30.0%	29.0%	57.0%	68.0%	7.0%	18.8%	6.0%	10.0%	68.0% 7.0%
	Commuter Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0% 0.0%
	Bus	30.0%	11.0%	2.0%	4.0%	7.0%	5.5%	6.0%	5.0%	4.0% 7.0%
	Walk	10.0%	10.0%	20.0%	9.8%	83.0%	33.3%	83.0%	18.0%	9.8% 83.0%
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0% 100.0%
		(1)		(3,4)	(10)		(11)	(6)	(9)	(14)
Vehicle Occupancy:		All Periods		All Periods	All Periods		All Periods	All Periods	All Periods	All Periods
	Auto	1.00	1.65	1.35	1.42		1.60	2.00	2.60	1.30
	Taxi	1.40	1.20	1.50	1.42		1.40	2.00	2.60	1.30
		(1)		(5)	(5,10)		(5,11)	(6)	(14)	(12,13)
Directional		In	Out	In Out	In	Out	In	Out	In Out	In Out	In Out	In Out
Distribution:	AM	94%	6%	20% 80%	96%	4%	41%	59%	50% 50%	61% 39%	88% 12%
	MD	50%	50%	51% 49%	39%	61%	68%	32%	50% 50%	55% 45%	50% 50%
	PM	12%	88%	65% 35%	5%	95%	59%	41%	50% 50%	47% 53%	12% 88%
	Sat MD	50%	50%	50% 50%	60%	40%	35%	65%	50% 50%	55% 45%	47% 53%
		(1)		(5)	(5)		(11)	(5)	(5)	(12)
Daily Truck Trip Generation:		0.29 (trips/1,000 gsf)		0.03 (trips/dwelling unit)	0.15 (trips/1,000 gsf)		0.06 (trips/1,000 gsf)	0.35 (trips/1,000 gsf)	0.35 (trips/1,000 gsf)	0.52 (trips/1,000 gsf)
		(1)		(14)	(14)		(11)	(14)	(14)	(14)
Truck Trip Temporal Distribution:	AM	9.6%		12.2%	9.6%		12.2%	7.7%	7.7%	14.0%
	MD	11.0%		8.7%	11.0%		8.7%	11.0%	11.0%	8.6%
	PM	1.0%		1.0%	2.0%		0.0%	1.0%	1.0%	1.0%
	Sat MD	0.0%		0.0%	0.0%		0.0%	0.0%	0.0%	0.0%

Notes:

(1) Assumes medical office uses. Source: *Jamaica Plan FEIS*, June 2007.

(2) Source: *City Environmental Quality Review (CEQR) Technical Manual*, Appendix 3, 2001

(3) Based on 2000 Census journey-to-work data.

(4) Source: *Hunters Point Waterfront Development FEIS*, June 1990

(5) Source: *Coliseum Redevelopment FSEIS*, July 1997

(6) Source: *Hunters Point Subdistrict Rezoning EAS*, February 6, 2004.

(7) Source: Data from *Long Island City Zoning Changes and Related Actions FEIS*, May 2001

(8) Source: *Hunts Point Rezoning EAS*.

(9) Based on data from *Northern Boulevard Stores FTEIS*, September 1995.

(10) Source: *Downtown Brooklyn Development FEIS*, April 2004

(11) Source: *Renaissance Plaza Expansion EAS*, March 2003, and *Marriott Hotel Transportation Survey*, AKRF, August 1999

(12) Source: *Hudson Square Rezoning FEIS*, June 2003

(13) Saturday factors based on data from *Jamaica Plan FEIS*, June 2007

(14) Source: *Jamaica Plan FEIS*, June 2007

(15) Saturday factors based on ratio of weekday/Saturday trip rates for office and light industrial uses from *ITE Trip Generation*, 7th Edition

Hotel

The travel demand forecast for hotel uses that would be developed in the No Action condition was based on data from the *Renaissance Plaza Expansion EAS* (March 2003) and the *Marriott Hotel Transportation Survey* (AKRF, August 1999).

Local Retail

It is anticipated that the local (or "neighborhood") retail uses developed under both the No Action and With Action scenarios would attract trips primarily from the residential and worker populations on-site and in surrounding neighborhoods. It is therefore anticipated that the majority of these trips would be via the walk mode, and that many would be "linked" trips (e.g., a trip with multiple purposes, such as stopping at a retail store while commuting to or from work) and would therefore not represent the addition of new discrete trips to the study area transportation systems. For the purposes of the travel demand forecast, it is assumed that 70 percent of local retail trips would be such "linked" trips, consistent with the rate assumed in the *Jamaica Plan FEIS*. The forecast of travel demand from projected local retail development was based on a trip rate cited in the 2001 *CEQR Technical Manual*, while temporal distribution, modal split and vehicle occupancy factors reflect data from the *Jamaica Plan FEIS* and the February 2004 *Hunters Point Subdistrict Rezoning EAS*.

Destination Retail

It is anticipated that approximately 71,000 square feet of supermarket or other destination retail space would be developed on one site within the rezoning area with implementation of the proposed actions. The forecast of travel demand from the development of destination retail on this site was based on trip rates and a temporal distribution derived from survey data at an Edwards Supermarket and cited in the *Hunts Point Rezoning EAS*, and data on modal splits and vehicle occupancy from the *Northern Boulevard Stores FTEIS* (September 1995). A linked-trip rate of 25 percent was conservatively assumed for this destination retail use in consultation with NYCDOT.

Light Industrial

The forecast of travel demand generated by light industrial uses was based on trip rate and temporal distribution data from the *Hudson Square Rezoning FEIS*, *ITE Trip Generation, 7th Edition*, and the *Jamaica Plan FEIS*. As journey-to-work and midday (lunchtime) trips by office workers and by workers in light industry would likely have somewhat similar modal split characteristics, the modal split factors for light industrial uses were based on data for office uses from the *Long Island City Zoning Changes and Related Actions FEIS* and the *Downtown Brooklyn Development FEIS*.

Truck Trips

With the exception of hotel uses, truck trip generation rates and temporal distributions were derived from data reported in the *Jamaica Plan FEIS*, the *Coliseum Redevelopment FSEIS*, and the *Hudson Square Rezoning FEIS*. The truck trip generation rate and temporal

distribution for hotel uses were based on data from the *Renaissance Plaza Expansion EAS* and the *Marriott Hotel Transportation Survey*.

TRIP GENERATION

Table 3 shows an estimate of the incremental net increase in peak hour person trips (versus the No Action condition) that would occur in 2017 with implementation of the proposed actions. As shown in Table 3, the proposed actions would generate a net increase of approximately 663 person trips in the weekday AM peak hour, 834 in the midday, 1,251 in the PM peak hour and 1,459 during the Saturday midday peak hour. Person trips by auto and taxi would increase by a net total of 197 in the weekday AM peak hour, 295 in the midday, 381 in the PM peak hour and 502 in the Saturday midday peak hour. Peak hour subway trips would increase by a net total of 230, 299, 336 and 420 during these periods, respectively. There would be 25 fewer bus trips in the AM peak hour and six fewer in the midday com pared to the No Action condition, but an increase of two in the weekday PM and 41 in the Saturday midday peak hours.

Trips made solely by the walk mode would increase by 262 in the weekday AM peak hour, 247 in the midday, 532 in the PM and 496 in the Saturday midday peak hour. Given the rezoning area's distance from commuter rail stations in Long Island City (both existing and planned), most if not all project-generated commuter rail trips are expected to arrive or depart the area via other modes (primarily subway and bus).

Table 4 shows an estimate of the incremental net change in peak hour vehicle trips (auto, taxi and truck) that would occur in 2017 with implementation of the proposed actions. Overall, as shown in Table 4, vehicle trips en route to and from the rezoning area would increase by a net total of 50 in the weekday AM peak hour, 90 in the midday, 149 in the PM and 201 in the Saturday midday peak hour. There would be a net increase of 112 auto trips (inbound and outbound combined) in the weekday AM peak hour, 138 in the midday, 187 in the PM and 227 in the Saturday midday peak hour. By contrast, there would be fewer taxi trips in all periods compared to the No Action condition, with 52 fewer in the weekday AM peak hour, 42 fewer in the midday, 38 fewer in the PM and 26 fewer in the Saturday midday peak hour. The reduction in taxi trips compared to the No Action condition reflects, in part, the displacement of community facility and hotel uses which have higher taxi mode shares than the residential and retail uses that would replace them. All taxi trips have been balanced to reflect that a proportion of taxis dropping off inbound passengers would be available to accommodate outbound trips. Truck trips would decrease by 10 in the weekday AM peak hour and six in the midday, while there would be no net change in the number of truck trips in either the weekday PM or Saturday midday peak hours.

PARKING

Parking demand from commercial uses typically peaks in the midday period and declines during the afternoon and evening. By contrast, residential and hotel demand typically peaks in the overnight period. The analyses will document changes in off-street parking utilization in the No Action and With Action conditions within 1/4-mile of projected development sites

Table 3
Total With Action Increment Travel Demand (Person Trips)

Land Use:		Community Facility -41,697 gsf						Residential 1,591,320 gsf 1,554 D.U.			Office -132,848 gsf			Hotel -196,320 gsf -285 Rooms			Local Retail[1] 61,091 gsf			Destination Retail[2] 70,606 gsf			Light Industrial -180,536 gsf			Total Trips		
		Staff			Visitors																						
Total Weekday Trips				-417			-1,401			12,549			-2,391			-1,659			3,757			6,884			-2,076			15,246
Total Saturday Trips				-179			-605			11,932			-514			-2,454			3,757			6,937			-394			18,480
Peak Hour Trips by Mode:		**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
AM	Auto	-19	-1	-20	-20	-1	-21	46	183	228	-47	-2	-49	-14	-19	-33	1	1	2	101	65	166	-41	-6	-47	8	219	227
	Taxi	-9	-1	-10	-20	-1	-21	2	9	11	-3	0	-3	-6	-8	-13	2	2	3	3	2	5	-2	0	-3	-33	3	-30
	Subway	-28	-2	-30	-23	-1	-24	130	521	651	-184	-8	-192	-8	-12	-21	3	3	7	16	10	25	-164	-22	-186	-259	489	230
	Commuter Rail	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
	Bus	-28	-2	-30	-9	-1	-9	5	18	23	-11	0	-11	-2	-4	-6	3	3	7	8	5	13	-10	-1	-11	-44	19	-25
	Walk	-9	-1	-10	-8	-1	-8	46	183	228	-27	-1	-28	-15	-22	-36	48	48	97	28	18	46	-24	-3	-27	40	222	262
	Total	-94	-6	-100	-79	-5	-84	228	914	1,142	-271	-11	-282	-45	-65	-109	58	58	116	155	99	255	-241	-33	-274	-288	951	663
MD	Auto	-7	-7	-14	-16	-16	-32	60	58	118	-3	-4	-7	-28	-13	-41	7	7	14	158	129	286	-2	-2	-5	169	151	320
	Taxi	-4	-4	-7	-15	-16	-32	3	3	6	-1	-2	-3	-12	-5	-17	11	11	21	5	4	9	-1	-1	-2	-15	-10	-25
	Subway	-11	-11	-21	-18	-18	-37	171	165	336	-9	-15	-24	-18	-8	-26	21	21	43	24	20	44	-8	-8	-16	153	146	299
	Commuter Rail	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
	Bus	-11	-11	-21	-7	-7	-14	6	6	12	-9	-15	-24	-5	-2	-8	21	21	43	12	10	22	-8	-8	-16	-1	-6	-6
	Walk	-4	-4	-7	-6	-6	-13	60	58	118	-112	-176	-288	-31	-15	-46	296	296	592	44	36	79	-95	-95	-190	152	95	247
	Total	-35	-35	-71	-63	-63	-126	301	289	590	-135	-212	-347	-94	-44	-138	357	357	714	242	198	441	-114	-114	-228	459	376	834
PM	Auto	-2	-18	-20	-2	-15	-18	175	94	269	-3	-54	-56	-23	-16	-38	4	4	7	143	161	304	-6	-45	-51	285	112	397
	Taxi	-1	-9	-10	-2	-15	-18	9	5	13	0	-3	-3	-9	-6	-16	5	5	11	4	5	9	0	-3	-3	5	-21	-16
	Subway	-4	-26	-30	-2	-18	-20	497	268	765	-11	-212	-223	-14	-10	-24	11	11	22	22	25	47	-24	-176	-200	475	-139	336
	Commuter Rail	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
	Bus	-4	-26	-30	-1	-7	-8	17	9	27	-1	-12	-13	-4	-3	-7	11	11	22	11	12	23	-1	-10	-12	29	-26	2
	Walk	-1	-9	-10	-1	-6	-7	175	94	269	-2	-30	-32	-25	-17	-43	150	150	299	40	45	84	-3	-25	-29	332	200	532
	Total	-12	-88	-100	-8	-62	-70	873	470	1,343	-16	-311	-328	-75	-52	-128	180	180	361	220	248	468	-35	-259	-295	1,126	126	1,251
Sat MD	Auto	-3	-3	-6	-7	-7	-14	84	84	167	-8	-5	-13	-22	-41	-63	4	4	7	243	199	442	-3	-4	-7	287	226	513
	Taxi	-2	-2	-3	-7	-7	-14	4	4	8	0	0	-1	-9	-17	-26	5	5	11	7	6	14	0	0	0	-1	-10	-11
	Subway	-5	-5	-9	-8	-8	-16	238	238	476	-31	-21	-52	-14	-25	-39	11	11	21	37	31	68	-13	-15	-29	215	205	420
	Commuter Rail	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
	Bus	-5	-5	-9	-3	-3	-6	8	8	17	-2	-1	-3	-4	-7	-11	11	11	21	19	15	34	-1	-1	-2	24	17	41
	Walk	-2	-2	-3	-3	-3	-5	84	84	167	-5	-3	-8	-24	-45	-69	148	148	296	67	55	122	-2	-2	-4	264	232	496
	Total	-15	-15	-30	-27	-27	-54	418	418	835	-46	-31	-77	-73	-136	-209	178	178	357	374	306	680	-20	-22	-42	788	671	1,459

Notes:

[1] Local retail travel demand assumes that 70% of trips are not linked trips and are new to the study area.

[2] Destination retail travel demand assumes that 25% of trips are not linked trips and are new to the study area.

Table 4
Total With Action Increment Travel Demand
(Vehicle Trips)

Component:		Community Facility -41,697 gsf						Residential 1,591,320 gsf 1,554 D.U.			Office -132,848 gsf			Hotel -196,320 gsf -285 Rooms			Local Retail [2] 61,091 gsf			Destination Retail [3] 70,606 gsf			Light Industrial -180,536 gsf			Total Trips		
		Staff			Visitors																						
Peak Hour Vehicle Trips		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM	Auto	-19	-1	-20	-12	-1	-13	34	135	169	-33	-1	-34	-8	-12	-20	1	1	2	39	25	64	-32	-4	-36	-30	142	112
	Taxi	-7	0	-7	-16	-1	-17	2	6	8	-2	0	-2	-4	-6	-10	1	1	2	1	1	2	-2	0	-2	-27	1	-26
	Balanced Taxi [1]	-7	-7	-14	-16	-16	-32	7	7	14	-2	-2	-4	-10	-10	-20	2	2	4	2	2	4	-2	-2	-4	-26	-26	-52
	Truck	-1	-1	-2	0	0	0	3	3	6	-1	-1	-2	-1	-1	-2	1	1	2	1	1	2	-7	-7	-14	-5	-5	-10
	Total																									**-61**	**111**	**50**
MD	Auto	-7	-7	-14	-10	-10	-20	45	43	88	-2	-3	-5	-18	-8	-26	4	4	8	61	50	111	-2	-2	-4	71	67	138
	Taxi	-3	-3	-6	-13	-13	-26	2	2	4	-1	-1	-2	-8	-4	-12	5	5	10	2	2	4	-1	-1	-2	-17	-13	-30
	Balanced Taxi [1]	-5	-5	-10	-20	-20	-40	4	4	8	-2	-2	-4	-8	-8	-16	9	9	18	3	3	6	-2	-2	-4	-21	-21	-42
	Truck	-1	-1	-2	0	0	0	2	2	4	-1	-1	-2	-1	-1	-2	1	1	2	1	1	2	-4	-4	-8	-3	-3	-6
	Total																									**47**	**43**	**90**
PM	Auto	-2	-18	-20	-1	-9	-10	129	70	199	-2	-38	-40	-14	-10	-24	2	2	4	55	62	117	-5	-34	-39	162	25	187
	Taxi	-1	-6	-7	-2	-13	-15	6	3	9	0	-2	-2	-7	-5	-12	3	3	6	2	2	4	0	-2	-2	1	-20	-19
	Balanced Taxi [1]	-6	-6	-12	-14	-14	-28	6	6	12	-2	-2	-4	-8	-8	-16	4	4	8	3	3	6	-2	-2	-4	-19	-19	-38
	Truck	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
	Total																									**143**	**6**	**149**
Sat MD	Auto	-3	-3	-6	-4	-4	-8	62	62	124	-6	-4	-10	-14	-26	-40	2	2	4	93	76	169	-3	-3	-6	127	100	227
	Taxi	-1	-1	-2	-6	-6	-12	3	3	6	0	0	0	-6	-12	-18	3	3	6	3	2	5	0	0	0	-4	-11	-15
	Balanced Taxi [1]	-2	-2	-4	-10	-10	-20	5	5	10	0	0	0	-15	-15	-30	5	5	10	4	4	8	0	0	0	-13	-13	-26
	Truck	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
	Total																									**114**	**87**	**201**

Note:

(1) Balanced taxi trips assume that 50% of taxis arriving with passengers site are available to accommodate outbound riders. Taxis are balanced on a site-by-site basis.

(2) Local retail travel demand assumes that 70% of trips are linked trips and are not new to the study area.

(3) Destination retail travel demand assumes 25% of trips are linked trips and are not new to the study area.

during the weekday midday and overnight periods (see Figure 2). On-street parking conditions (existing curbside regulations and parking utilization) within the rezoning area will also be documented for these periods.

Parking demand generated by new residential development will be forecast based on auto ownership data for the proposed rezoning area from the 2000 Census. A rate of 0.20 spaces per room overnight will be assumed for parking demand from hotel uses based on data from the *Renaissance Plaza Expansion EAS*. Parking demand from office and retail uses will be derived from the forecasts of daily auto trips for these uses. The forecast of new parking supply will assume a net increase of 410 accessory spaces on projected development sites, consistent with the RWCDS.

SELECTION OF PEAK HOURS FOR ANALYSIS

As discussed above, the proposed actions would result in a net increase of 50 vehicle trips in the weekday AM peak hour, 90 in the midday, 149 in the PM and 201 in the Saturday midday peak hour. Under *CEQR Technical Manual* criteria, if a proposed action in any area of the City would generate greater than 50 peak hour vehicle trip ends, there is likely a need for further traffic analysis. The EIS traffic analyses will therefore quantitatively examine conditions in the weekday AM, midday and PM peak hours and in the Saturday midday peak hour. Based on existing peak traffic volumes along major corridors in the study area, the peak hours for the weekday analyses will be 7:30 - 8:30 AM, 12-1 PM and 4:30 - 5:30 PM. The Saturday analysis will focus on the 12:30 - 1:30 PM peak hour.

Transit (subway and bus) analyses generally examine conditions during the weekday 8-9 AM and 5-6 PM peak commuter periods, as it is during these times that overall transit demand (and the potential for significant adverse impacts) is typically greatest. The analyses of transit conditions will therefore focus on these two periods.

Walk-only trips from projected development sites (i.e., walk trips not associated with other modes) would be widely dispersed among pedestrian facilities throughout the proposed rezoning area. However, concentrations of new pedestrian trips are expected during peak commuter periods along corridors connecting projected development sites to area subway stations. The pedestrian analyses will therefore focus on the weekday 8-9 AM and 5-6 PM peak hours when commuter walk trips en route to and from transit facilities is typically highest. Pedestrian conditions in the weekday 12-1 midday peak hour will also be analyzed to assess the effects of midday (lunch time) pedestrian demand from commercial uses.

VEHICLE TRIP ASSIGNMENT

Auto/Taxi

The rezoning area street network is a grid system of north-south streets and east-west avenues (see Figure 1). Most are one-way, although 36th, 37th and 38th Avenues are all bi-directional. Principal arterials include Northern Boulevard bordering the rezoning area on the east, 21st Street two blocks to the west of the rezoning area, and 31st Street which

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Figure 2
Parking Study Area

traverses the rezoning area. Immediately to the south is Queens Plaza which provides access to the Queensboro Bridge.

As discussed above, with implementation of the RWCDS, vehicle trips (auto, taxi and truck trips combined) en route to and from the rezoning area would increase by 50 in the weekday AM peak hour, 90 in the midday peak hour, 149 in the PM peak hour and 201 in the Saturday midday peak hour. Within the rezoning area, these trips would be dispersed among the 40 projected development sites. Project-generated traffic is therefore expected to be most concentrated at intersections along the principal arterials providing access to and from the rezoning area, primarily Northern Boulevard 31st Street and 38th Avenue. Based on existing traffic conditions and the anticipated distribution of project increment vehicle trips, a total of nine intersections along these corridors have been selected for analysis. These intersections, shown in Figure 1, include four along Northern Boulevard (at 31st Street, 39th Avenue, 38th Avenue and Steinway Street), three along 31st Street (at 37th, 38th and 39th Avenues), and two along 38th Avenue (at 29th and Crescent Streets). Figure 3 shows the assignment of project increment vehicle trips at these nine intersections in the weekday AM, midday, PM and Saturday midday peak hours. The assignments of auto and taxi trips were based on the locations of individual projected development sites (or groups of projected development sites), and the anticipated origins and destinations of vehicle trips associated with the different uses projected for each site (e.g., residential, retail, office, etc.). The origins/destinations of residential trips were determined based upon 2000 Census journey-to-work data, while data from the *Long Island City Rezoning and Related Actions FEIS* were used to assign trips generated by office, light industrial and other commercial uses. The assignment of retail-based auto and taxi trips was based on trip assignment patterns from the *Northern Boulevard Stores FTEIS*. Truck trips were assigned separately from auto and taxi trips (see below).

Truck

Truck trips en route to and from individual projected development sites (or groups of development sites) were assigned based on the most direct paths to and from designated local and through truck routes. These routes include Northern Boulevard, 21st Street, Queens Plaza and portions of Crescent Street and 41st Avenue.

SELECTION OF TRANSIT FACILITIES FOR ANALYSIS

As shown in Figure 4, six subway stations are located in proximity to the proposed rezoning area. These include Queens Plaza (E, G, R, V), Queensboro Plaza (N, W, 7), 39th Avenue (N, W), 36th Avenue (N, W), 36th Street (G, R, V) and 21st Street-Queensbridge (F). Based on the travel demand forecast, the proposed actions would result in a net increase of 230 trips at subway stations serving the rezoning area in the AM peak hour and 336 trips in the PM peak hour (see Table 3). Trips from projected development sites were assigned to individual subway stations based on proximity to station entrances and existing ridership patterns for the subway routes serving each station. As shown in Table 5, the greatest incremental increase in subway trips as a result of the proposed actions would occur at the 39th Avenue (N, W) station and the Queens Plaza (E, G, R, V) station. The proposed actions

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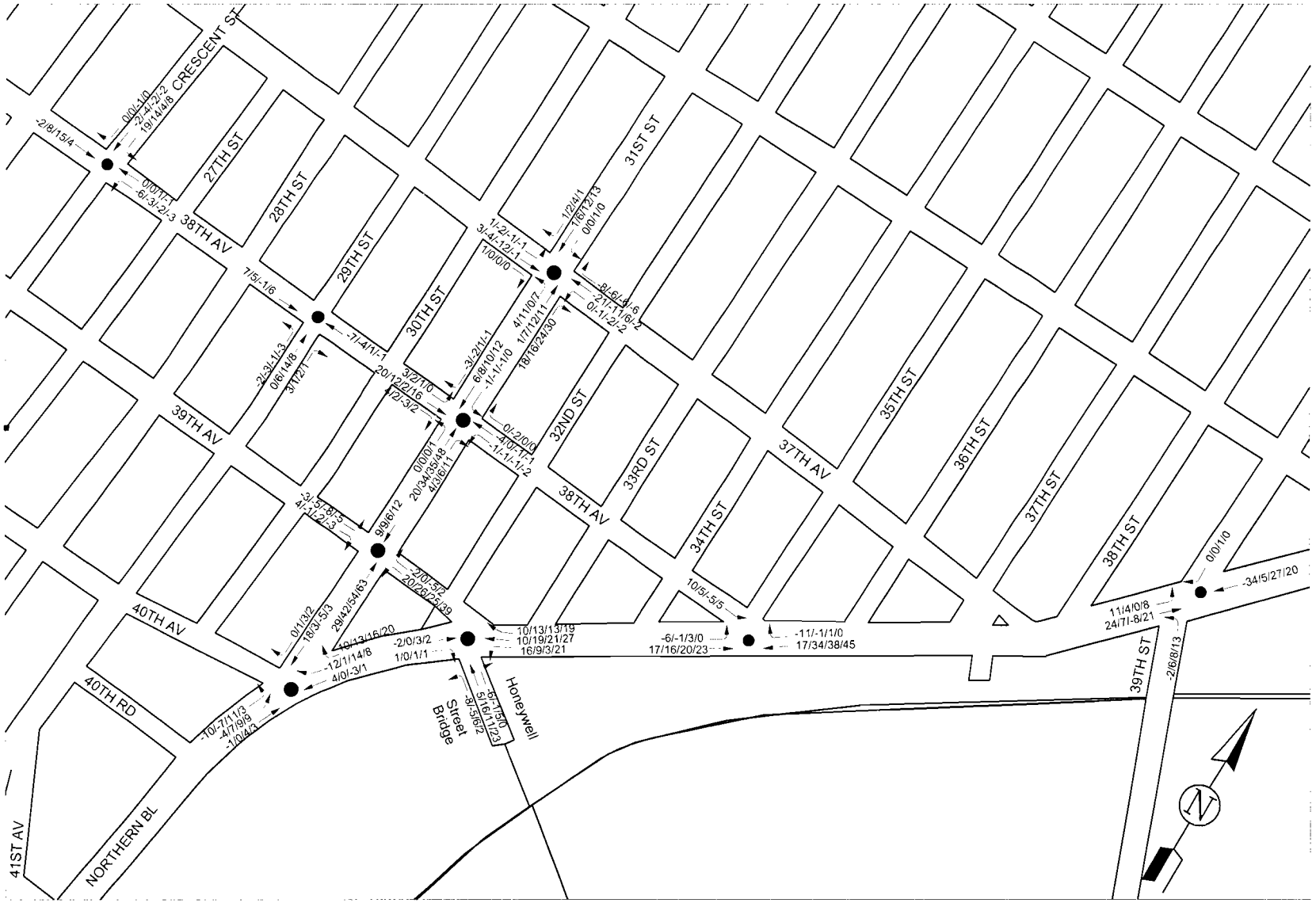

Legend:

-2/8/15/4 = AM/MD/PM/Sat MD Peak Hour Volumes

● Analyzed Intersection

Figure 3
Net Project Increment Peak Hour Traffic Volumes at Analyzed Intersections

Table 5
With Action Increment
Subway Trip Assignment by Station

Subway Station	AM Peak Hour Trips	PM Peak Hour Trips
39th Avenue Station (N, W)	159	203
Queens Plaza Station (E, G, R, V)	106	153
Queensboro Plaza Station (N, W, 7)	10	22
21st Street - Queensbridge Station (F)	7	9
36th Avenue Station (N, W)	10	19
36th Street Station (G, R, V)	-62	-70
Total	230	336

would generate an estimated 159 and 203 new subway trips in the AM and PM peak hours, respectively, at the 39th Avenue station, and an estimated 106 and 153 new trips during these periods, respectively, at the Queens Plaza station. All other subway stations serving the rezoning area would experience a net increase of 22 or fewer trips in each peak hour or, in the case of the 36th Street station, a net decrease in peak hour trips.

Under *CEQR Technical Manual* criteria, if a proposed action in any area of the City would generate fewer than 200 peak hour subway or bus trips, it is unlikely that there would be a need for further analysis. As shown in Table 5, it is anticipated that new demand from the proposed actions would exceed this threshold in the PM peak hour at the 39th Avenue (N, W) station. Peak hour conditions at the two street stairs and the fare array at this station will therefore be analyzed quantitatively in the EIS (see Figure 4). Conditions at the remaining five stations serving the proposed rezoning area will be discussed qualitatively in the EIS.

The Queens Plaza area immediately to the south of the proposed rezoning area is a major nexus of local bus service in Queens. Approximately 11 MTA NYC Transit local bus routes are located within 1/4-mile of one or more projected development sites. These routes include the Q19A, Q32, Q39, Q60, Q61, Q66, Q67, Q101, Q101R, Q102, and Q103. As shown in Table 3, based on the travel demand forecast, the proposed actions would generate a net decrease of 25 bus trips in the weekday AM peak hour and a net increase of only two bus trips in the PM peak hour. As the proposed actions would result in fewer than 200 new bus trips in either the AM or PM peak hours, conditions on the various routes serving the proposed rezoning area will be discussed qualitatively in the EIS.

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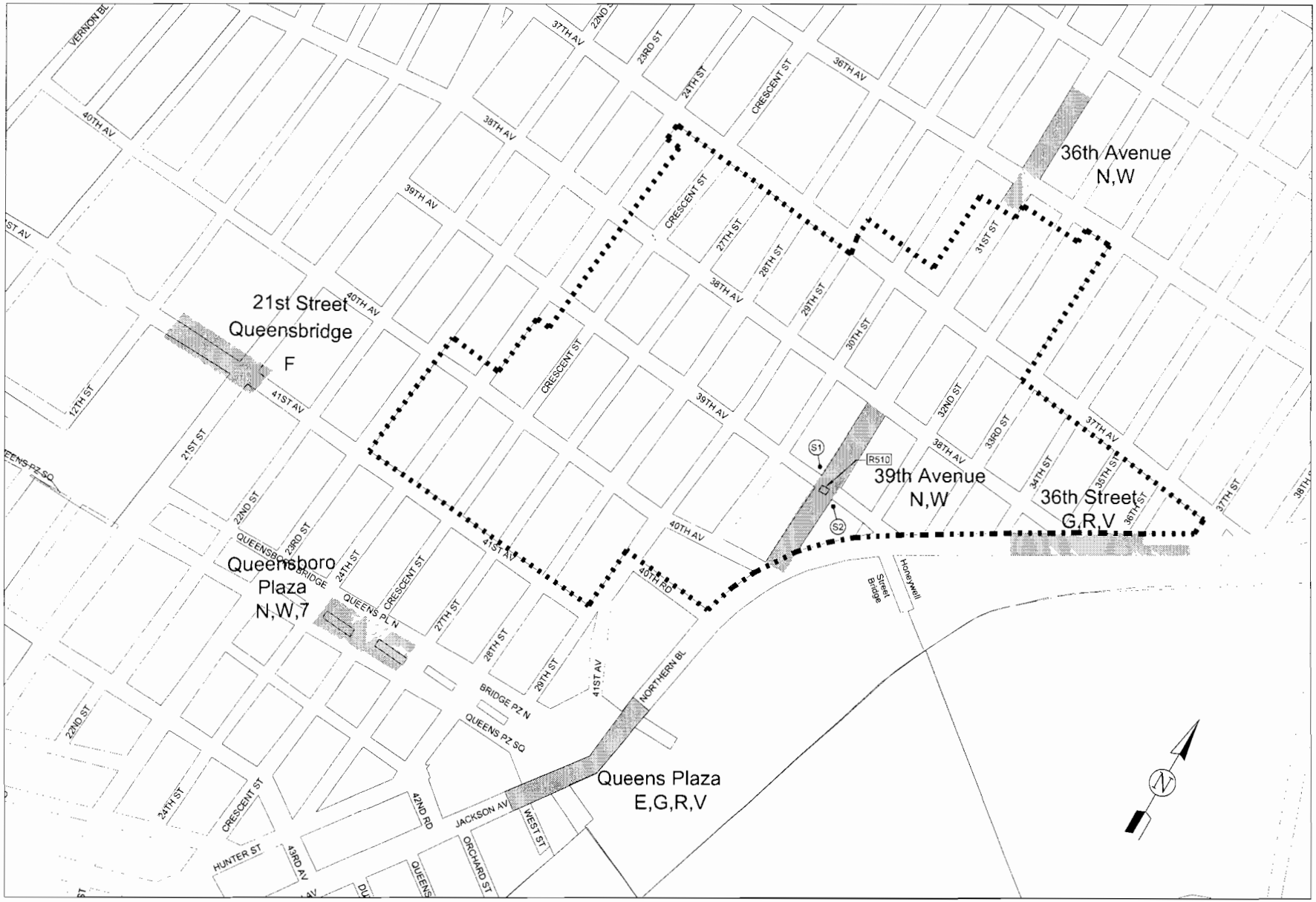

Legend

- Rezoning Area Boundary
- Subway Station
- (5A) Analyzed Subway Stair
- R510 Analyzed Fare Array

Figure 4
Rezoning Area Subway Stations
and Analyzed Station Facilities

SELECTION OF PEDESTRIAN ANALYSIS LOCATIONS

Walk-only trips from projected development sites (i.e., walk trips not associated with other modes) would be widely dispersed among pedestrian facilities (sidewalks, corner areas and crosswalks) throughout the proposed rezoning area. However, concentrations of new pedestrian trips are expected during peak periods along corridors connecting projected development sites to area subway stations. The analysis of pedestrian conditions will therefore focus on pedestrian facilities in the vicinity of the entrances to the two subway stations where the majority of project-generated subway demand is expected to occur – the 39th Avenue station and the Queens Plaza station. As shown in Figure 5, analyzed pedestrian facilities include all sidewalks, corner areas and crosswalks at the intersection of 31st Street and 39th Avenue; the southwest corner and adjacent sidewalks and crosswalks at the intersection of Northern Boulevard and 40th Road; and the north sidewalk on 41st Avenue east of Northern Boulevard.

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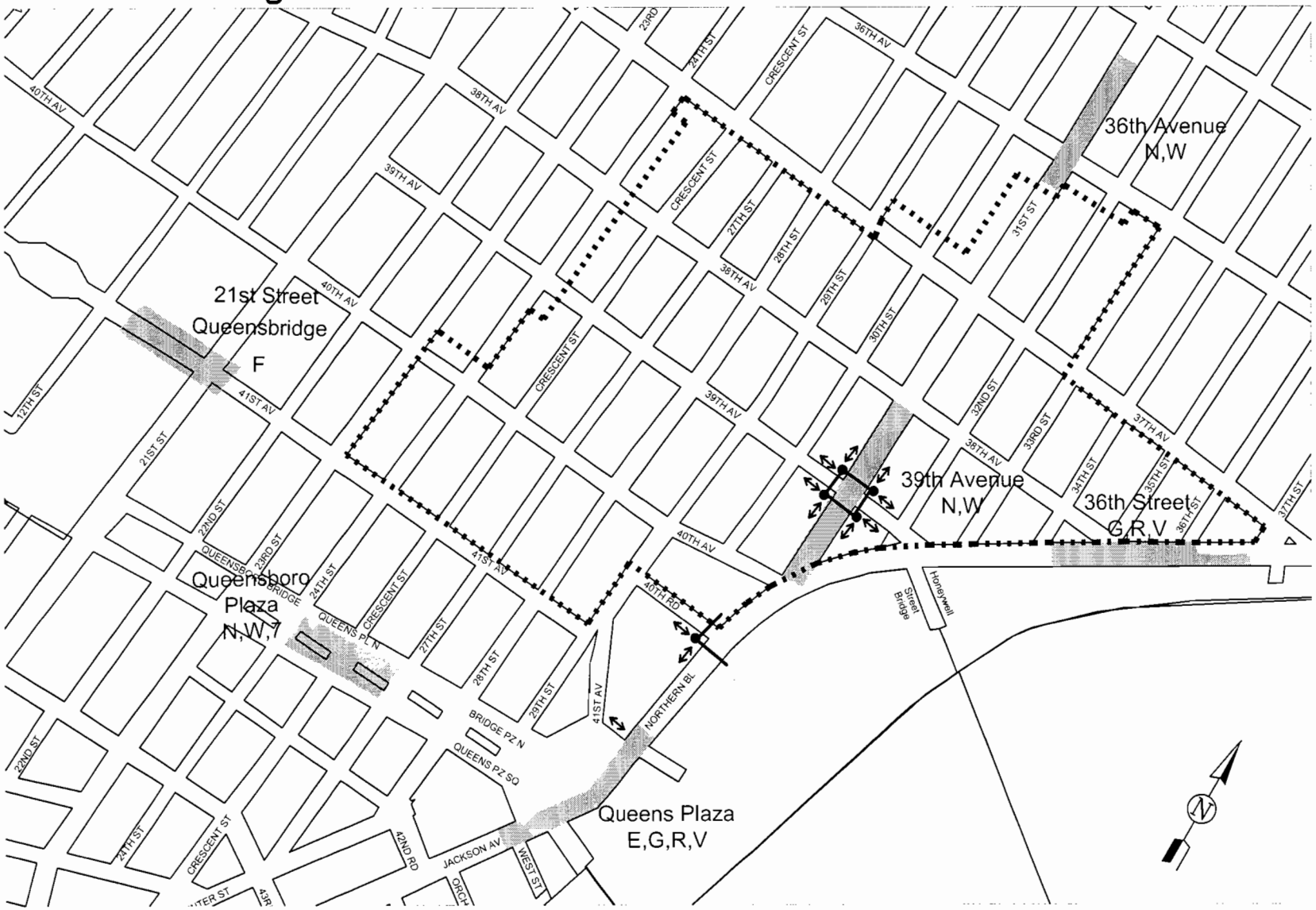

Legend:
- Analyzed corner and crosswalks
- Analyzed sidewalk
- Subway station
- Rezoning Area

Figure 5
Pedestrian Analysis Locations