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TECHNICAL MEMORANDUM

TO: **NYCDCP**

FROM: **Philip Habib & Associates**

DATE: **May 20, 2022**

PROJECT: **1160 Flushing Avenue Rezoning (PHA No. 1997)**

RE: **Transportation Planning Factors and Travel Demand Forecast**

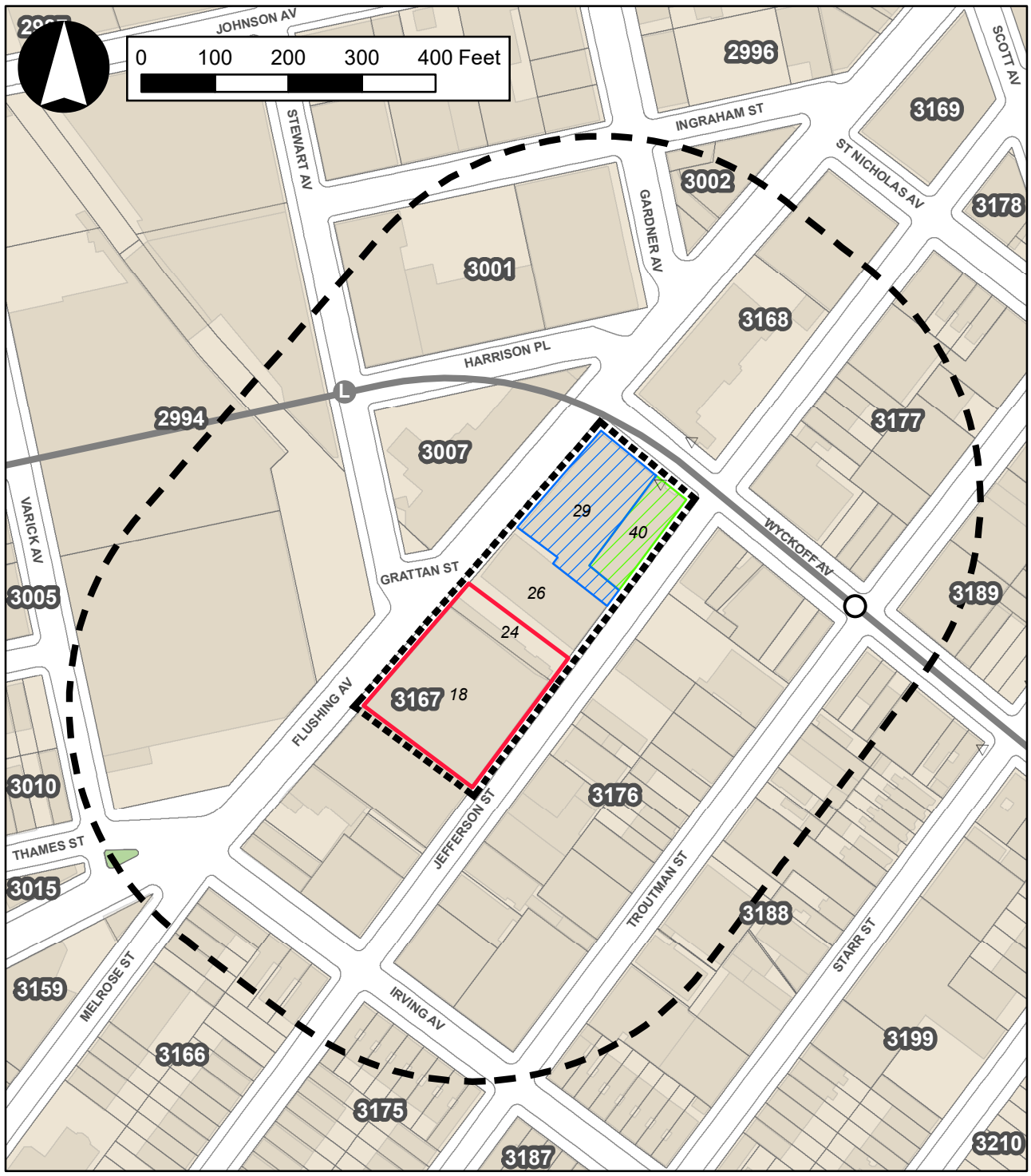
This memorandum summarizes the transportation planning factors to be used for the analyses of traffic, transit, pedestrian and parking conditions for the *1160 Flushing Avenue Rezoning EAS*. Estimates of the peak travel demand for the Proposed Actions' reasonable worst-case development scenario (RWCDS) are provided, along with a discussion of trip assignment methodologies and study area definitions.

THE PROPOSED ACTION

The Proposed Action is a zoning map amendment to rezone an existing M1-1 district to M1-5 to facilitate the development of approximately 121,786 gross square feet (gsf) of office uses, 75,586 gsf of local retail uses and 40,732 gsf of light industrial uses ("the Proposed Project'). As discussed below, for conservative analysis purposes the Proposed Action's Reasonable Worst Case Development Scenario (RWCDS) also assumes the development of an additional 59,973 gsf of community facility (medical office) uses. As shown in **Figure 1**, the "Proposed Rezoning Area" or "Project Area" encompasses Block 3167, Lots 12 (p/o), 18, 24, 26, 29 and 40 in the Bushwick neighborhood of Brooklyn Community District (CD) 4. Block 3167 is bordered by Flushing Avenue to the west, Wyckoff Avenue to the north, Jefferson Street to the east, and Irving Avenue to the south. Lots 18 and 24 are owned and controlled by the Applicant and comprise "Projected Development Site 1." They are currently occupied by a vacant building that contains approximately 30,388 sf of former light industrial (warehouse) space. Lot 24 also contains a small amount of vacant land on the northernmost portion of the lot, totaling approximately 3,750 sf. Projected Development Site 1 encompasses a total of approximately 37,928 sf of lot area while the Project Area as a whole encompasses approximately 79,108 sf of lot area.

The remaining non-Applicant-owned sites within the Project Area include Lots 12 (p/o), 26, 29 and 40. Lot 12 is currently occupied by a building containing approximately 19,874 gsf of industrial uses on a 19,265-sf lot. Lot 26 is currently occupied by a building containing approximately 45,780 gsf of

Project Site Location



Legend

- Projected Development Site 1
- Projected Development Site 2
- Projected Development Site 3
- Project Area
- 400-ft Radius
- Open Space
- L-Line
- Jefferson Street Subway Station (L)
- Subway Station Entrance
- 3167 Block
- 18 Lot

warehouse uses on a 15,200-sf lot. Lot 29 ("Projected Development Site 2") is occupied by a single-story building that, according to New York City Department of Buildings (DOB) records, is currently undergoing a conversion from industrial and commercial office uses to commercial retail uses.[1] This will result in a building containing approximately 20,475 gsf of commercial retail space on a 18,530-sf lot. Lot 40 ("Projected Development Site 3") is currently occupied by a single-story warehouse building containing approximately 7,613 gsf of light industrial uses on a 7,450-sf lot. In addition, a small, northeastern portion of Lot 40 is encumbered by a Real Estate of Utility Companies (REUC) easement to accommodate entrance stairs for New York City Transit's (NYCT) Jefferson Street subway station on the Canarsie Line. As it is considered unlikely that Lots 12 and 26 would be redeveloped under the Proposed Action, the existing 19,874 gsf of industrial uses and 45,780 gsf of warehouse uses on these lots, respectively, are expected to remain. Therefore, Lots 12 and 26 are not included as projected development sites.

The proposed zoning map amendment is intended to facilitate the development of new office and retail space in the Project Area. Introducing additional commercial office space on Flushing Avenue would address a borough-wide need for more commercial office space, particularly for technology, advertising, media, and information ("TAMI") firms. The Proposed Action would result in new Class A office space that could accommodate a wide variety of tenants, including TAMI firms, generating new employment opportunities in the Project Area. The proposed M1-5 zoning would also help preserve essential light industrial uses within the Project Area, as the Applicant is committed to providing approximately 40,732 gsf of light industrial uses at Projected Development Site 1. The proposed retail uses that would be facilitated by the Proposed Action would serve to improve the pedestrian environment along this portion of Flushing Avenue and Jefferson Street, as well the accompanying project-generated pedestrian areas, with active ground floor uses, thus activating the streetscape surrounding and within the Project Area. Further, the proposed commercial office, retail, and light industrial development would align with the goals of the New York Works policy, which is a series of 25 initiatives to spur 100,000 jobs over the coming decade. Specifically, the plan calls for the need to bring jobs closer to where New Yorkers live to reduce commuting times and minimize the strain on the transit network.

The proposed M1-5 zoning district would also eliminate any requirements for accessory on-site parking within the Project Area. As the Project Area is within a transit zone and contains an entrance to the Brooklyn-bound platform at the Jefferson Street subway station (an entrance to the Manhattan-bound platform is located directly across Wyckoff Avenue from the Project Area), the Proposed Action would encourage and support transit-oriented development in an appropriate area of Brooklyn. It would therefore support the goals of PlaNYC and OneNYC in facilitating greater opportunities for transit-oriented growth throughout the NYC area. Additionally, with the onset of the COVID-19 pandemic, the Proposed Action and resultant RWCDS would further support the growing need to promote livable and walkable mixed-use neighborhoods with work spaces within close proximity to residential communities.

[1] DOB job no. 340525300.

THE REASONABLE WORST CASE DEVELOPMENT SCENARIO (RWCDS)

In order to assess the potential effects of the Proposed Action, a RWCDS for both "future without the proposed action" (No-Action) and "future with the proposed action" (With-Action) conditions is analyzed for an analysis year of 2027. As per the RWCDS, the No-Action scenario assumes that the currently existing M1-1 zoning would remain and that the Proposed Project would not be constructed. While no new construction is assumed for Projected Development Site 1 (lots 18 and 24), the currently vacant, approximately 31,907 sf building on these lots is assumed to be converted and re-occupied with commercial retail uses in the No-Action condition. It is also assumed that the existing 20,475 gsf of retail space on Projected Development Site 2 (Lot 29) would remain, and that the existing 7,613 gsf of light industrial space on Projected Development Site 3 (Lot 40) would remain.

In the future with the Proposed Action, the proposed zoning map amendment would be approved allowing the Applicant to construct the Proposed Project at Projected Development Site 1 at a floor area ratio (FAR) of 5.0. However, as the proposed M1-5 zoning district permits a maximum community facility FAR of 6.5, the RWCDS for the Applicant's development site (Lots 18 and 24) assumes an additional 1.5 FAR of community facility uses for conservative analysis purposes. As such, for analysis purposes, the With-Action RWCDS for Projected Development Site 1 conservatively assumes the development of approximately 121,786 gsf of office uses, 75,586 gsf of local retail uses, 40,732 gsf of light industrial uses and 59,973 gsf of community facility uses. (The travel demand forecast conservatively assumes medical office uses for the community facility space.) In addition, it is assumed that Projected Development Sites 2 and 3 would each be redeveloped in the future with the Proposed Action. It is anticipated that Projected Development Site 2 (Lot 29) would be redeveloped with a commercial office building with approximately 79,821 gsf of office space and 16,730 gsf of retail space, and that Projected Development Site 3 (Lot 40) would be redeveloped with a commercial office building with approximately 32,547 gsf of office space and 6,250 gsf of retail space. As a result, the total With-Action development scenario for the three development sites would include approximately 234,154 gsf of commercial office uses, 98,566 gsf of retail uses, 40,732 gsf of light industrial uses, and 59,973 gsf of community facility (medical office) uses. **Table 1** shows the total anticipated No-Action and With-Action land uses assumed under the RWCDS for each of the three projected development sites for the purposes of the transportation analyses, and the net incremental change that would result from the Proposed Action. As shown in **Table 1**, under the Proposed Action's RWCDS there would be a net incremental increase of 234,154 gsf of office uses, 46,184 gsf of retail uses, 33,119 gsf of light industrial uses and 59,973 gsf of community facility (medical office) uses.

TRANSPORTATION PLANNING FACTORS

The transportation planning factors used to forecast the travel demand that would be generated by the No-Action and With-Action land uses on projected development sites are summarized in **Table 2** and discussed below. The trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for each of the land uses were primarily based on those cited in the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, factors cited in the 2016 *East New York*

Rezoning FEIS and the 2016 *25 Kent Avenue EAS*, Census data for tracts encompassing the Project Area (Brooklyn tracts 427, 429, 445, 447, 453 and 539), and data provided by the New York City Department of Transportation (NYCDOT). Factors are shown for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday midday and Saturday peak hours (typical peak periods for retail demand).

Table 1
2027 Total No-Action and With-Action Land Uses
Assumed for the Transportation Analyses

Projected Development Site	No-Action Condition	With-Action Condition	Net Increment
Office			
Projected Development Site 1 (Lots 18 and 24)	0 gsf	121,786 gsf	121,786 gsf
Projected Development Site 2 (Lots 29)	0 gsf	79,821 gsf	79,821 gsf
Projected Development Site 3 (Lot 40)	0 gsf	32,547 gsf	32,547 gsf
Total Office	***0 gsf***	***234,154 gsf***	***234,154 gsf***
Local Retail			
Projected Development Site 1 (Lots 18 and 24)	31,907 gsf	75,586 gsf	43,679 gsf
Projected Development Site 2 (Lots 29)	20,475 gsf	16,730 gsf	(3,745 gsf)
Projected Development Site 3 (Lot 40)	0 gsf	6,250 gsf	6,250 gsf
Total Local Retail	***52,382 gsf***	***98,566 gsf***	***46,184 gsf***
Light Industrial			
Projected Development Site 1 (Lots 18 and 24)	0 gsf	40,732 gsf	40,732 gsf
Projected Development Site 2 (Lots 29)	0 gsf	0 gsf	0 gsf
Projected Development Site 3 (Lot 40)	7,613 gsf	0 gsf	(7,613 gsf)
Total Light Industrial	***7,613 gsf***	***40,732 gsf***	***33,119 gsf***
Medical Office			
Projected Development Site 1 (Lots 18 and 24)	0 gsf	59,973 gsf	59,973 gsf
Projected Development Site 2 (Lots 29)	0 gsf	0 gsf	0 gsf
Projected Development Site 3 (Lot 40)	0 gsf	0 gsf	0 gsf
Total Medical Office	***0 gsf***	***59,973 gsf***	***59,973 gsf***
Total Development	***59,995 gsf***	***433,425 gsf***	***373,430 gsf***

Table 2
Transportation Planning Factors

Land Use:	Local Retail	Office		Light Industrial		Medical Office
Size/Units:	46,184 gsf	234,154 gsf		33,119 gsf		59,973 gsf
Trip Generation:	(1)	(1)		(4)		(1,5)
Weekday	329	18		14.7		See Note (5)
Saturday	358	3.9		2.2		37.0
	per 1,000 sf	per 1,000 sf		per 1,000 sf		per 1,000 sf
Temporal Distribution:	(1)	(1)		(4)		(1)
AM	4.8%	12.4%		13.2%		11.0%
MD	8.0%	11.0%		11.0%		12.6%
PM	10.9%	10.5%		14.2%		8.5%
Saturday	11.7%	14.1%		10.7%		16.6%
	(2)	(2)	(6)	(3)	(6)	(5)
Modal Splits:	All Periods	AM/PM/Sat	MD	AM/PM/Sat	MD	All Periods
Auto	11.0%	28.7%	2.0%	43.5%	2.0%	24.0%
Taxi	0.0%	4.9%	1.0%	1.6%	1.0%	6.0%
Subway	3.0%	32.1%	7.0%	24.5%	7.0%	59.0%
Bus	2.0%	12.7%	7.0%	6.5%	7.0%	9.0%
Walk/Other	84.0%	21.6%	83.0%	23.9%	83.0%	2.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	(1)	(1)		(4)		(1)
In/Out Splits:	In Out	In	Out	In	Out	In Out
AM	53% 47%	89.0%	11.0%	88%	12%	62% 38%
MD	50% 50%	48.0%	52.0%	50%	50%	47% 53%
PM	50% 50%	17.0%	83.0%	12%	88%	35% 65%
Saturday	50% 50%	50.0%	50.0%	47%	53%	49% 51%
Vehicle Occupancy:	(2)	(3,6)		(3,6)		(5)
Auto	1.20	1.13		1.13		1.50
Taxi	1.20	1.26		1.14		1.50
Truck Trip Generation:	(1)	(1)		(4)		(4)
Weekday	0.35	0.32		0.67		0.29
Saturday	0.04	0.01		0.67		0.29
	per 1,000 sf	per 1,000 sf		per 1,000 sf		per 1,000 sf
Truck Temporal Distribution:	(1)	(1)		(4)		(4)
AM	8.0%	10.0%		14.0%		3.0%
MD	11.0%	11.0%		9.0%		11.0%
PM	2.0%	2.0%		1.0%		1.0%
Saturday	11.0%	11.0%		0.0%		0.0%
Truck Directional Distribution:	In Out	In	Out	In	Out	In Out
All Periods	50.0% 50.0%	50.0%	50.0%	50.0%	50.0%	50.0% 50.0%

Notes :

(1) *2021 City Environmental Quality Review (CEQR) Technical Manual.*

(2) Based on data provided by NYCDOT.

(3) Based on AASHTO CTPP reverse journey-to-work 5-Year (2012-2016) data for Brooklyn Census Tracts 427, 429, 445, 447, 453 and 539.

(4) Based on data from the 2016 *East New York Rezoning Proposal FEIS.*

(5) Based on NYCDOT medical office trip generation and mode choice data. Weekday daily trip estimate based on following equation:141.77 + 66.626 x gross SF (in thousands).

(6) Based on data from the 2016 *25 Kent Avenue EAS.*

Local Retail

The trip generation rates, temporal distributions, and directional in/out splits for the local retail use were based on data from the *CEQR Technical Manual*. The modal splits and vehicle occupancies were based on NYCDOT data. Truck trip generation rates and temporal distributions were based on data from the *CEQR Technical Manual*. It is assumed for the purposes of the travel demand forecast that 40 percent of all local retail person-trips on weekdays and 20 percent of local retail person-trips on Saturday would be linked to other uses on Projected Development Site 1 drawn from existing pedestrian flows. On Projected Development Site 3, it was assumed that 20 percent of weekday and 5 percent of Saturday local retail person-trips would be linked to other uses or drawn from existing pedestrian flows, consistent with *CEQR Technical Manual* guidance. As there would be an incremental decrease in the amount of local retail space provided on Projected Development Site 2, no linked trip credit was assumed for this site.

Office

The trip generation rates, temporal distributions, and directional in/out splits for the office use were based on data from the *CEQR Technical Manual*. The modal splits were based on NYCDOT data and data cited in the *25 Kent Avenue EAS*. The vehicle occupancies were based on 2012-2016 American Association of State Highway Transportation Officials (AASHTO) Census Transportation Planning Products (CTPP) reverse journey-to-work data and data cited in the *25 Kent Avenue EAS.* Truck trip generation rates and temporal distributions were based on data from the *CEQR Technical Manual*.

Light Industrial

The trip generation rates, temporal distributions, directional in/out splits and truck factors for light industrial uses were based on data from the *East New York Rezoning Proposal FEIS.* The modal splits and vehicle occupancy were based on 2012-2016 American Association of State Highway Transportation Officials (AASHTO) Census Transportation Planning Products (CTPP) reverse journey-to-work data for workers in the census tracts encompassing the Project Area along with data from the *East New York Rezoning Proposal FEIS.*

Medical Office

Medical office trip generation and mode choice factors were based on data from the *CEQR Technical Manual* and NYCDOT data. Truck trip factors were based on data from the *East New York Rezoning Proposal FEIS*.

TRIP GENERATION

The net incremental change in person and vehicle trips expected to result from the Proposed Actions by the 2027 analysis year was derived based on the net change in land uses shown in **Table 1** and the transportation planning factors shown in **Table 2**.

Tables 3 and 4 show an estimate of the total net incremental change in peak hour person trips and vehicle trips (versus the No-Action condition) that would occur in 2027 with implementation of the Proposed Actions.[2]

As shown in **Table 3**, under the RWCDS, the Proposed Actions would generate a net increase of approximately 1,478 person trips in the weekday AM peak hour, 1,762 in the weekday midday, 1,852 in the weekday PM peak hour and 2,062 in the Saturday peak hour. As shown in **Table 4**, peak hour vehicle trips (including auto, truck, and taxi trips balanced to reflect that taxis would arrive or depart empty) would increase by a net total of approximately 360, 226, 352 and 280 (in and out combined) in the weekday AM, midday and PM peak hours, and the Saturday peak hour, respectively. Peak hour subway trips would increase by a net total of approximately 467, 363, 399 and 310 during these periods, respectively, while transit bus trips would increase by approximately 120, 97, 113 and 81, respectively. Lastly, walk-only trips would increase by 504, 1,050, 945 and 1,342 trips during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. As a result, the total pedestrian trips (including walk-only and trips to/from nearby off-street parking, subway stations, and bus stops) would increase by 1,425, 1,726, 1,808, and 2,034 trips during the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively.

LEVEL 1 SCREENING ASSESSMENT

The *CEQR Technical Manual* describes a two-level screening procedure for the preparation of a "preliminary analysis" to determine if quantified operational analyses of transportation conditions are warranted. As discussed in the following sections, the preliminary analysis begins with a trip generation (Level 1) analysis to estimate the numbers of person and vehicle trips attributable to the proposed action. According to the *CEQR Technical Manual*, if a proposed action is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (a Level 2 assessment) are to be performed to estimate the incremental trips that could occur at specific transportation elements and to identify potential locations for further analysis. If the trip assignments show that the proposed action would generate 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a sidewalk, corner area or crosswalk, then further quantified operational analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, vehicular and pedestrian safety, and parking.

[2] Separate demand forecasts for projected development sites 1, 2 and 3 are provided in **Appendix A**.

Table 3
RWCDS Travel Demand Forecast by Land Use

Land Use:		Local Retail [a,b]		Office		Light Industrial		Medical Office		Total	
Size/Units:		46,184 gsf		234,154 gsf		33,119 gsf		59,973 gsf			
Peak Hour Trips:											
	AM	434		524		64		456		1,478	
	MD	722		464		54		522		1,762	
	PM	986		444		70		352		1,852	
	Saturday	1,556		130		8		368		2,062	
Person Trips:											
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
AM	Auto	26	22	133	17	23	3	68	42	250	84
	Taxi	0	0	23	2	1	0	17	10	41	12
	Subway	7	6	150	19	14	2	167	102	338	129
	Bus	4	4	59	7	4	1	25	16	92	28
	Walk/Other	193	172	102	12	14	2	6	3	315	189
	Total	230	204	467	57	56	8	283	173	1,036	442
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
MD	Auto	39	39	5	6	1	1	59	66	104	112
	Taxi	0	0	2	2	0	0	15	17	17	19
	Subway	10	10	15	17	2	2	145	162	172	191
	Bus	7	7	15	17	2	2	22	25	46	51
	Walk/Other	305	305	184	201	22	22	5	6	516	534
	Total	361	361	221	243	27	27	246	276	855	907
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
PM	Auto	55	55	21	107	3	25	30	55	109	242
	Taxi	0	0	4	18	0	1	7	14	11	33
	Subway	15	15	24	119	3	16	73	134	115	284
	Bus	10	10	9	47	1	4	11	21	31	82
	Walk/Other	413	413	16	79	2	15	2	5	433	512
	Total	493	493	74	370	9	61	123	229	699	1,153
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Saturday	Auto	86	86	19	19	1	2	43	45	149	152
	Taxi	0	0	3	3	0	0	11	11	14	14
	Subway	24	24	21	21	2	1	106	111	153	157
	Bus	16	16	8	8	0	0	16	17	40	41
	Walk/Other	652	652	14	14	1	1	4	4	671	671
	Total	778	778	65	65	4	4	180	188	1,027	1,035
Vehicle Trips :											
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
AM	Auto	21	18	118	15	20	3	45	28	204	64
	Taxi	0	0	18	2	1	0	11	7	30	9
	Taxi (Balanced)	0	0	20	20	1	1	18	18	39	39
	Truck	1	1	4	4	2	2	0	0	7	7
	Total	22	19	142	39	23	6	63	46	250	110
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
MD	Auto	33	33	5	6	1	1	39	44	78	84
	Taxi	0	0	2	2	0	0	10	11	12	13
	Taxi (Balanced)	0	0	4	4	0	0	21	21	25	25
	Truck	1	1	4	4	1	1	1	1	7	7
	Total	34	34	13	14	2	2	61	66	110	116
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
PM	Auto	45	45	19	95	3	22	20	37	87	199
	Taxi	0	0	4	14	0	1	5	9	9	24
	Taxi (Balanced)	0	0	18	18	1	1	14	14	33	33
	Truck	0	0	0	0	0	0	0	0	0	0
	Total	45	45	37	113	4	23	34	51	120	232
		In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Saturday	Auto	72	72	17	17	1	2	29	30	119	121
	Taxi	0	0	3	3	0	0	7	7	10	10
	Taxi (Balanced)	0	0	6	6	0	0	14	14	20	20
	Truck	0	0	0	0	0	0	0	0	0	0
	Total	72	72	23	23	1	2	43	44	139	141

Notes:

[a] 40% linked-trip credit applied to weekday local retail trips on Projected Development Site 1.
20% linked-trip credit applied to weekday local retail trips on Projected Development Site 3.

[b] 20% linked-trip credit applied to Saturday local retail trips on Projected Development Site 1.
5% linked-trip credit applied to Saturday local retail trips on Projected Development Site 3.

Table 4
Travel Demand Forecast Summary

Peak Hour	Vehicle Trips			Pedestrian Trips[1]														
				Auto			Subway			Bus			Walk/Other			Total		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM	250	110	360	250	84	334	338	129	467	92	28	120	315	189	504	995	430	1,425
MD	110	116	226	104	112	216	172	191	363	46	51	97	516	534	1,050	838	888	1,726
PM	120	232	352	109	242	351	115	284	399	31	82	113	433	512	945	688	1,120	1,808
Saturday	139	141	280	149	152	301	153	157	310	40	41	81	671	671	1,342	1,013	1,021	2,034

Notes:
[1]Includes walk-only trips and pedestrians en route to/from nearby off-street parking spaces, subway stations, and bus stops.

Traffic

Based on *CEQR Technical Manual* guidelines, a quantified traffic analysis is typically required if a proposed action would result in 50 or more vehicle trip ends in a peak hour at one or more intersections. As shown in **Table 4**, under the Proposed Action's RWCDS, the net number of incremental vehicle trips—360, 226, 352 and 280 in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively—would exceed the 50-trip threshold in all four peak hours, and a Level 2 screening analysis is therefore warranted for these periods to determine which if any intersections would require quantified analysis.

Transit

According to the general thresholds used by the Metropolitan Transportation Authority (MTA) and cited in the *CEQR Technical Manual*, detailed transit analyses are generally not required if a proposed action is projected to result in fewer than 200 peak hour rail or bus transit riders. If a proposed action would result in 50 or more bus passengers being assigned to a single bus route in one direction, or if it would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus and/or subway analysis would be warranted. Transit analyses typically focus on the weekday AM and PM commuter peak hours, as it is during these periods that overall demand on the subway and bus systems is usually highest.

As shown in **Table 4**, the Proposed Action is expected to generate approximately 467 and 399 incremental subway trips in the weekday AM and PM peak hours, respectively. As these numbers of trips would exceed the 200-trip *CEQR Technical Manual* analysis threshold, a Level 2 screening analysis is warranted to determine which if any subway stations and routes would require quantified analysis. As also shown in **Table 4,** the Proposed Action is expected to generate 120 and 113 incremental bus trips in the weekday AM and PM peak hours, respectively. As these numbers of trips could potentially exceed the 50-trips per direction *CEQR Technical Manual* analysis threshold on one or more routes, a Level 2 screening analysis is also warranted for the bus mode to determine which if any bus routes would require quantified analysis.

Pedestrians

According to *CEQR Technical Manual* guidelines, a quantified analysis of pedestrian conditions is typically required if a proposed action would result in 200 or more peak hour pedestrian trips at any pedestrian element (sidewalk, corner area or crosswalk). As shown in **Table 4**, the Proposed Action's RWCDS would generate an incremental demand of approximately 1,425, 1,726, 1,808, and 2,034 total pedestrian trips (including walk-only trips and pedestrians en route to and from nearby subway stations and bus stops) in the weekday AM, midday and PM peak hours, and Saturday peak hour, respectively. As the numbers of trips in each of these periods would exceed the 200-trip threshold, a Level 2 screening analysis is warranted to determine which if any pedestrian elements would require quantified analysis.

LEVEL 2 SCREENING ASSESSMENT

Traffic

Area Street Network

As shown in **Figure 2**, the street network in proximity to the Project Area is comprised of an irregular grid pattern of collector and local streets. Intersections are a mix of stop-controlled and signalized.

The Project Area itself is bounded by Flushing Avenue on the west, Jefferson Street on the east, Wyckoff Avenue on the north and Irving Avenue on the south. **Flushing Avenue** extends in a northeast-southwest direction from Maspeth, Queens, where it provides access to/from the Queens-Midtown Expressway (I-495) via Grand Avenue, to Flatbush Avenue in Brooklyn's Dumbo neighborhood where it provides access to the Manhattan Bridge and the Brooklyn-Queens Expressway (I-278). In proximity to the Project Area, it is approximately 44 feet wide and typically operates with one moving lane plus curbside parking in each direction. It is traversed by NYCT B57 local buses and is a designated Local Truck Route. **Jefferson Street** is a one-way northbound local street that typically operates with one moving lane and parking along both curbs. **Wyckoff Avenue** is an approximately 35-foot-wide two-way street that begins at Flushing Avenue and extends to the southeast. It operates with one moving lane plus curbside parking in each direction. The final street bounding the Project Area is **Irving Avenue**, a one-way eastbound local street that operates with one moving lane, parking along each curb, and a striped bicycle lane outboard of the parking lane along the north curb. Like Wyckoff Avenue, which it parallels, Irving Avenue begins at Flushing Avenue and extends in a generally southeast direction.

Other streets of note in proximity to the Project Area include St. Nicholas Avenue and Cypress Avenue, which both run parallel to, and to the north of, Wyckoff Avenue; Knickerbocker Avenue and Wilson Avenue, which both run parallel to, and to the south of, Irving Avenue; and DeKalb Avenue. **St. Nicholas Avenue** is a two-way local street that extends southeast from its intersection with Flushing Avenue and Ingraham Street. It typically operates with one moving lane in each direction plus parking along both curbs. **Cypress Avenue** is a two-way street that is typically 35 to 40 feet in width and extends from Flushing Avenue to the Jackie Robinson Parkway. It typically operates with one moving lane plus curbside parking in each direction. **Knickerbocker Avenue** to the south of the Project Area is a one-way

westbound local street that typically operates with one moving lane and parking along both curbs. It is one of the few streets in proximity to the Project Area that extends across Flushing Avenue. To the south of Knickerbocker Avenue is **Wilson Avenue**, an approximately 35-foot-wide two-way street that extends to the southeast from its intersection with Flushing Avenue. It typically operates with one moving lane in each direction with parking along one or both curbs, and it is traversed by NYCT B60 buses. To the west of Flushing Avenue, the street continues as Morgan Avenue. Other streets in proximity to the Project Area are typically one-way local streets that operate with one moving lane plus parking along one or both curbs.

Traffic Assignment and Analyzed Intersections

As shown in **Table 4** and discussed above, the Proposed Action's RWCDS is expected to result in a net incremental increase of approximately 360, 226, 352 and 280 vehicle trips during the weekday AM, midday, and PM peak hours, and Saturday peak hour, respectively. As these traffic volumes would exceed 50 trips in each peak hour (the *CEQR Technical Manual* Level 1 screening threshold for a detailed analysis), an assignment of net increment traffic volumes was prepared for each period to help identify individual intersections for analysis (a Level 2 screening assessment).

The assignments of auto and taxi trips to the street network in proximity to the Project Area were based on the anticipated origins and destinations of vehicle trips associated with the different land uses projected under the RWCDS (i.e., local retail, office/light industrial and medical office). The origins/destinations of office/light industrial uses were based on 2012-2016 American Community Survey (ACS) five-year reverse journey-to-work data. Origins/destinations for local retail and medical office uses that generate mostly local trips were based on population density in proximity to the Project Area and surrounding neighborhoods within a 0.5-mile radius and a two-mile radius, respectively. **Tables 5 and 6** show the directional distributions of auto and taxi trips by land use based on the origin/destination data. Using these distributions, auto and taxi trips were first assigned to various portals on the periphery of East Williamsburg/Bushwick, and from there via the most direct route to the Project Area. Although the Proposed Action's RWCDS does not include on-site accessory parking and it is expected that drivers would park in nearby off-street public parking facilities or on-street, all auto trips were assigned directly to the building frontages on Jefferson Street and Flushing and Wyckoff avenues. This can be considered a conservative approach with respect to the traffic impact analysis as it concentrates project traffic at intersections in proximity to the Project Area rather than dispersing it to outlying streets.

Table 5
Directional Distributions of Auto/Taxi Trips by Land Use

Land Use	Brooklyn				Manhattan	Bronx	Queens	Long Island	Staten Island/N.J.	Upstate NY
	N	S	E	W						
Office/Lt. Industrial[1]	0.3%	19.9%	5.9%	3.4%	0.0%	3.4%	32.3%	22.5%	10.6%	1.8%

Notes:
[1] Based on AASHTO CTPP reverse journey-to-work 5-Year (2012-2016) data for Brooklyn Census Tracts 427, 429, 445, 447, 453 and 539.

Table 6
Directional Distributions of Auto/Taxi Trips
for Local Retail and Medical Office Uses

Land Use	North	South	East	West
Local Retail[1]	13.5%	51.6%	26.2%	8.7%
Medical Office[2]	16.5%	34.2%	24.9%	24.4%

Notes:
[1] Based on population density within 0.5-mile of the Project Area.
[2] Based on population density within two miles of the Project Area.

Taxis were generally assigned to the building frontages on Jefferson Street and Flushing and Wyckoff avenues. Trucks were assigned to Flushing Avenue, as it is the primary DOT-designated Local Truck Route in proximity to the Project Area.

The assignment of net incremental peak hour vehicle trips at intersections in proximity to the Project Area are shown in **Figures 2 and 3**. As shown in **Figures 2 and 3**, a total of 10 intersections (seven signalized and three unsignalized) were selected for detailed analysis as they would exceed the 50-trip *CEQR Technical Manual* analysis threshold in one or more peak hours. These intersections are listed below:

Signalized Intersections

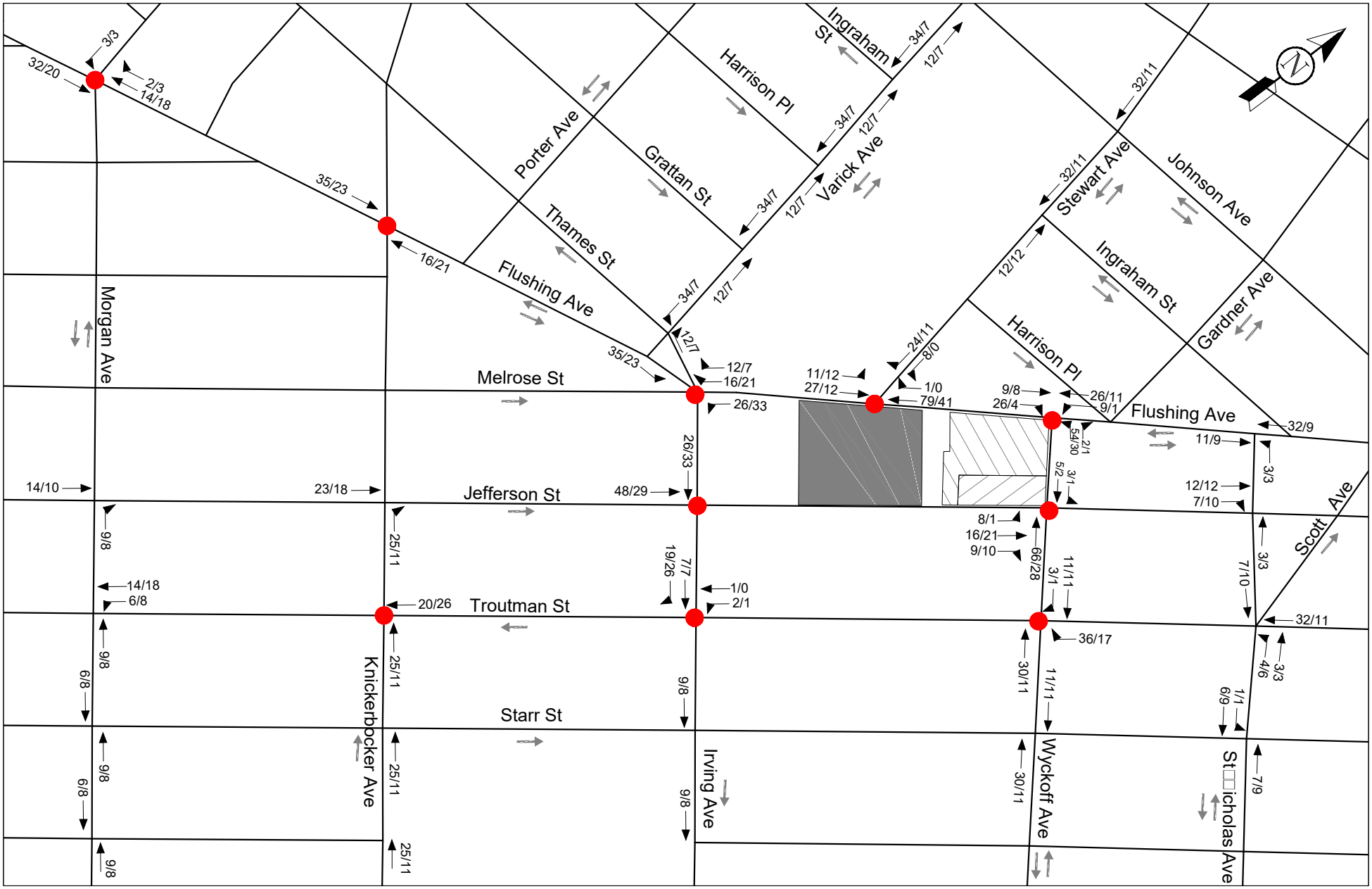
1. Flushing Avenue @ Morgan Avenue
2. Flushing Avenue @ Knickerbocker Avenue
3. Flushing Avenue @ Irving Avenue
4. Flushing Avenue @ Wyckoff Avenue
5. Troutman Avenue @ Knickerbocker Avenue
6. Troutman Street @ Irving Avenue
7. Troutman Street @Wyckoff Ave

Unsignalized Intersections

8. Flushing Avenue @ Stewart Avenue
9. Jefferson Street @ Irving Avenue
10. Jefferson Street @ Wyckoff Avenue

Traffic Analysis Peak Hours

As discussed above, incremental demand from the Proposed Actions would exceed the 50-trip *CEQR Technical Manual* analysis threshold at one or more intersections during the weekday AM, midday and PM peak hours, and Saturday peak hour. The traffic impact analysis will therefore focus on all four of these periods. The specific peak hours for analysis will determined based on automatic traffic recorder (ATR) count data that will be collected in proximity to the Project Area as part of the data collection program for the EIS transportation analyses.



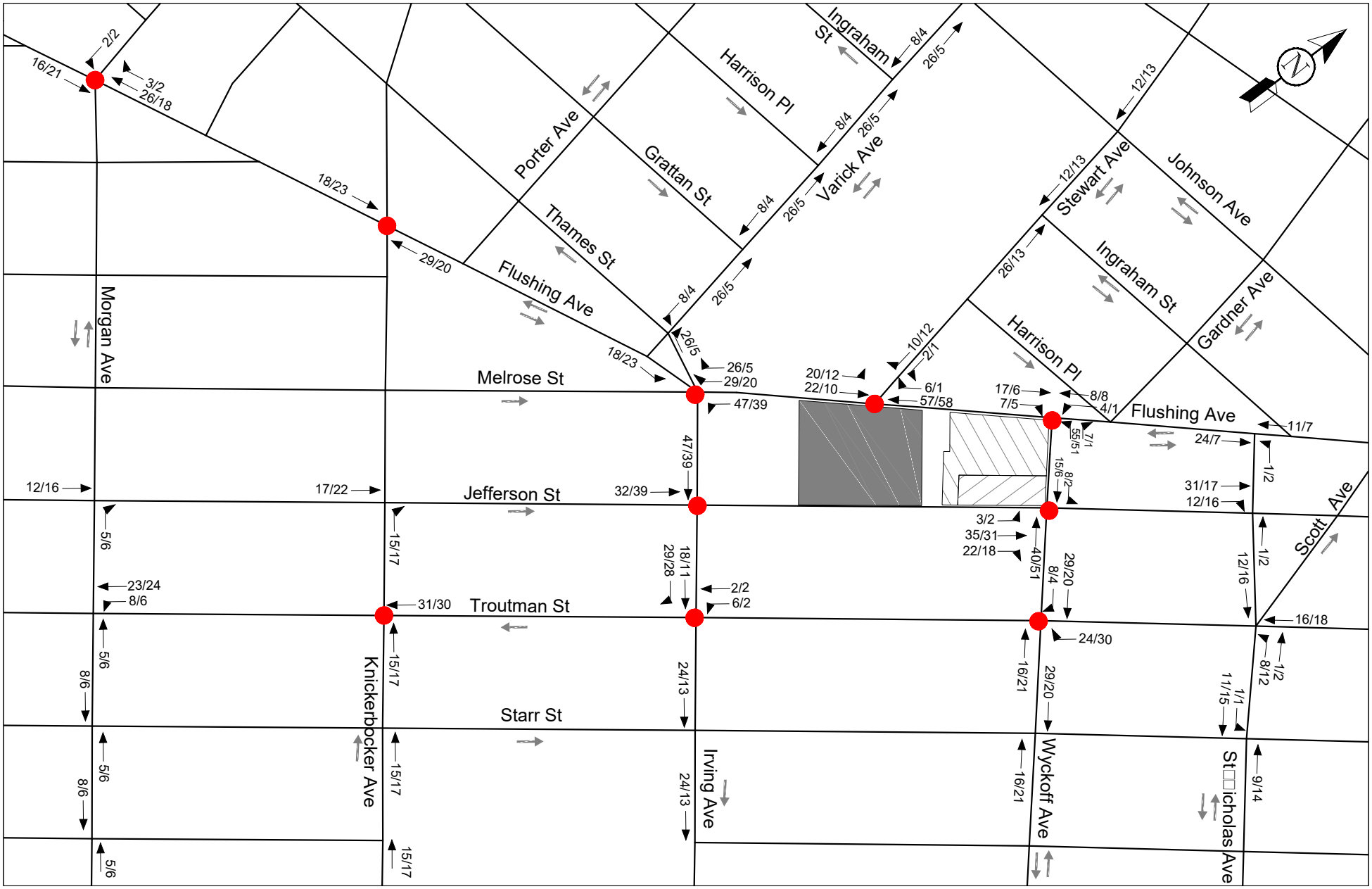
Legend = Projected Development Site 1 = Projected Development Site 2 = Projected Development Site 3

□/□ = Weekday AM/MD Peak Hour Volumes = Analyzed Intersection

1160 Flushing Ave Rezoning

Figure 2

Weekday AM/MD Peak Hour Traffic Volumes



1160 Flushing Ave Rezoning

Figure 3 Weekday PM/Saturday Peak Hour Traffic Volumes

Transit

Subway Stations

As discussed previously, according to the general thresholds used by the MTA and specified in the *CEQR Technical Manual*, if a proposed action would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed subway analysis would be warranted. As shown in **Table 4**, the Proposed Action is expected to generate a net total of approximately 467 and 399 incremental subway trips in the weekday AM and PM peak hours, respectively. Most, if not all, of these trips are expected to utilize the Jefferson Street subway station, which is served by L trains operating on the Canarsie Line. This station is located beneath Wyckoff Avenue immediately adjacent to the Project Area, and as noted previously, entrance stairs to the station's Brooklyn-bound platform are located on the northeastern portion of Lot 40 (see **Figure 4**).

As the number of subway trips that would be generated by the Proposed Action is expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold in both the AM and PM peak hours at the Jefferson Street (L) station, this station was selected for detailed analysis. Key circulation elements (e.g., stairs and fare arrays) expected to be used by concentrations of new demand from the Proposed Action will be analyzed.

Subway Line Haul

As discussed above, the vicinity of the Project Area is served by one NYCT subway route – the L train. The peak direction of travel along the L route is typically Manhattan-bound (northbound) in the AM and Brooklyn-bound (southbound) in the PM. **Table 7** provides the assignment of project-generated subway trips for the weekday AM and PM peak hours, by direction. As shown below in **Table 7**, the Proposed Actions would generate approximately 150 Manhattan-bound trips along the L subway route during the weekday AM peak hour, and approximately 131 Brooklyn-bound trips during the weekday PM peak hour. Therefore, it is anticipated that the Proposed Actions would not generate 200 or more incremental subway trips along the L route in the peak direction during the AM and PM peak hours. As such, the Proposed Actions are not expected to result in significant adverse impacts to the subway line haul conditions. However, as the Proposed Action would generate more than 200 incremental subway trips along the L route in the non-peak direction during the AM and PM peak hours (i.e., 317 Brooklyn-bound trips during the weekday AM peak hour and 268 Manhattan-bound trips during the PM peak hour), further line haul analyses will be conducted and presented in the EIS if or as needed pursuant to *CEQR Technical Manual* guidance.

Transit Services



Legend

Project Area

LIRR

Subway

L-Line

Subway Station (L-Line)

Subway Station Entrance

Bus

B57

B13

B38

B60

Table 7
Subway Assignments by Direction – L Train

Direction	AM			PM		
	In	Out	Total	In	Out	Total
Brooklyn Bound	304	13	317	103	28	131
Manhattan Bound	34	116	150	12	256	268
Total	**338**	**129**	**467**	**115**	**284**	**399**

Bus

As shown in **Figure 4**, four NYCT local bus services operate within approximately ¼-mile of the Project Area—the B38, B38 Limited (LTD), B57 and B60. These services and the principal corridors on which they operate in proximity to the Project Area are listed in **Table 8**.

Table 8
Bus Routes Serving the Project Area

Route	Operating Agency	Route Endpoints	Corridors Served in Proximity to the Rezoning Area
B38/B38 LTD	NYCT	Ridgewood – Downtown Brooklyn	DeKalb Ave
B57	NYCT	Red Hook – Maspeth, Queens	Flushing Ave
B60	NYCT	Williamsburg -- Canarsie	Wilson Ave

Bus Assignment and Analyzed Routes

As shown in **Table 4**, the Proposed Action's RWCDS is expected to generate a net total of approximately 120 and 113 incremental trips by local bus during the weekday AM and PM peak hours, respectively. These bus trips were assigned to each route based on proximity to individual projected development sites and current ridership patterns. **Table 9** shows the anticipated numbers of new riders expected on each local bus route in the AM and PM peak hours. According to the general thresholds used by the MTA and specified in the *CEQR Technical Manual*, a detailed analysis of bus conditions is generally not required if a proposed action is projected to result in fewer than 50 peak hour trips being assigned to a single bus route (in one direction), as this level of new demand is considered unlikely to result in significant adverse impacts. As shown in **Table 9**, all four routes are expected to experience fewer than 50 new trips per direction in each peak hour. Therefore, based on *CEQR Technical Manual* guidance, significant adverse impacts to local bus service are not anticipated, and a detailed analysis of local bus conditions is not warranted in the EAS.

Table 9
Net Incremental Bus Trips by Route

Route	Direction	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
B38	EB	23	1	24	7	1	8
	WB	1	7	8	1	20	21
B38 LTD	EB	23	0	23	8	1	9
	WB	1	7	8	1	21	22
B57	EB	11	2	13	5	7	12
	WB	9	4	13	2	11	13
B60	NB	14	3	17	4	9	13
	SB	10	4	14	3	12	15
Total		**92**	**28**	**120**	**31**	**82**	**113**

PEDESTRIANS

Under *CEQR Technical Manual* guidelines, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more new peak hour pedestrians at any sidewalk, corner reservoir area or crosswalk. As shown in **Table 4**, the Proposed Actions are expected to generate approximately 504 walk-only trips in the weekday AM peak hour, 1,050 in the weekday midday peak hour, 945 in the weekday PM peak hour, and 1,342 in the Saturday peak hour. Persons en route to and from nearby parking facilities, subway station entrances, and bus stops would add approximately 921, 676, 863, and 692 additional pedestrian trips to sidewalks and crosswalks in proximity to the Project Area during these same periods, respectively. In the weekday AM and PM peak hours, new pedestrian trips would be most concentrated on sidewalks and crosswalks adjacent to the projected development sites and nearby subway station entrances and bus stops. In the weekday midday and Saturday peak hours, pedestrian trips would tend to be more dispersed, as people travel throughout the area for lunch, shopping and/or errands.

Given the numbers of incremental pedestrian trips that would be generated, a detailed analysis of pedestrian conditions under the Proposed Action is warranted. The analysis of pedestrian conditions will therefore focus on the weekday AM, midday, PM, and Saturday peak hours. The specific peak hours for analysis will determined based on pedestrian counts that will be conducted in proximity to the Project Area as part of the data collection program for the EIS transportation analyses.

Based on a preliminary assignment of incremental peak hour pedestrian trips, a total of 14 pedestrian elements (five sidewalks, four crosswalks and five corner areas) expected to experience a net increase of 200 or more trips in one or more peak hours were selected for analysis. As shown in **Figures 5 and 6,** these elements are primarily located in the immediate proximity of the Project Area and along Flushing Avenue.

SIDEWALKS

1. North sidewalk on Flushing Avenue between Stewart Avenue and Harrison Place
2. South sidewalk on Flushing Avenue between Irving Avenue and Wyckoff Avenue
3. North sidewalk on Jefferson Street between Irving Avenue and Wyckoff Avenue
4. East sidewalk on Wyckoff Avenue and Flushing Avenue and Jefferson Street
5. West sidewalk on Wyckoff Avenue and Flushing Avenue and Jefferson Street

CORNER AREAS

1. Flushing Avenue and Irving Avenue – Northeast Corner
2. Flushing Avenue and Irving Avenue – Southeast Corner
3. Flushing Avenue and Irving Avenue – Southwest Corner
4. Flushing Avenue and Wyckoff Avenue – Southeast Corner
5. Flushing Avenue and Wyckoff Avenue – Southwest Corner

CROSSWALKS

1. Flushing Avenue and Irving Avenue – East Crosswalk
2. Flushing Avenue and Irving Avenue – South Crosswalk
3. Flushing Avenue and Wyckoff Avenue – West Crosswalk
4. Flushing Avenue and Wyckoff Avenue – South Crosswalk

Street User Safety

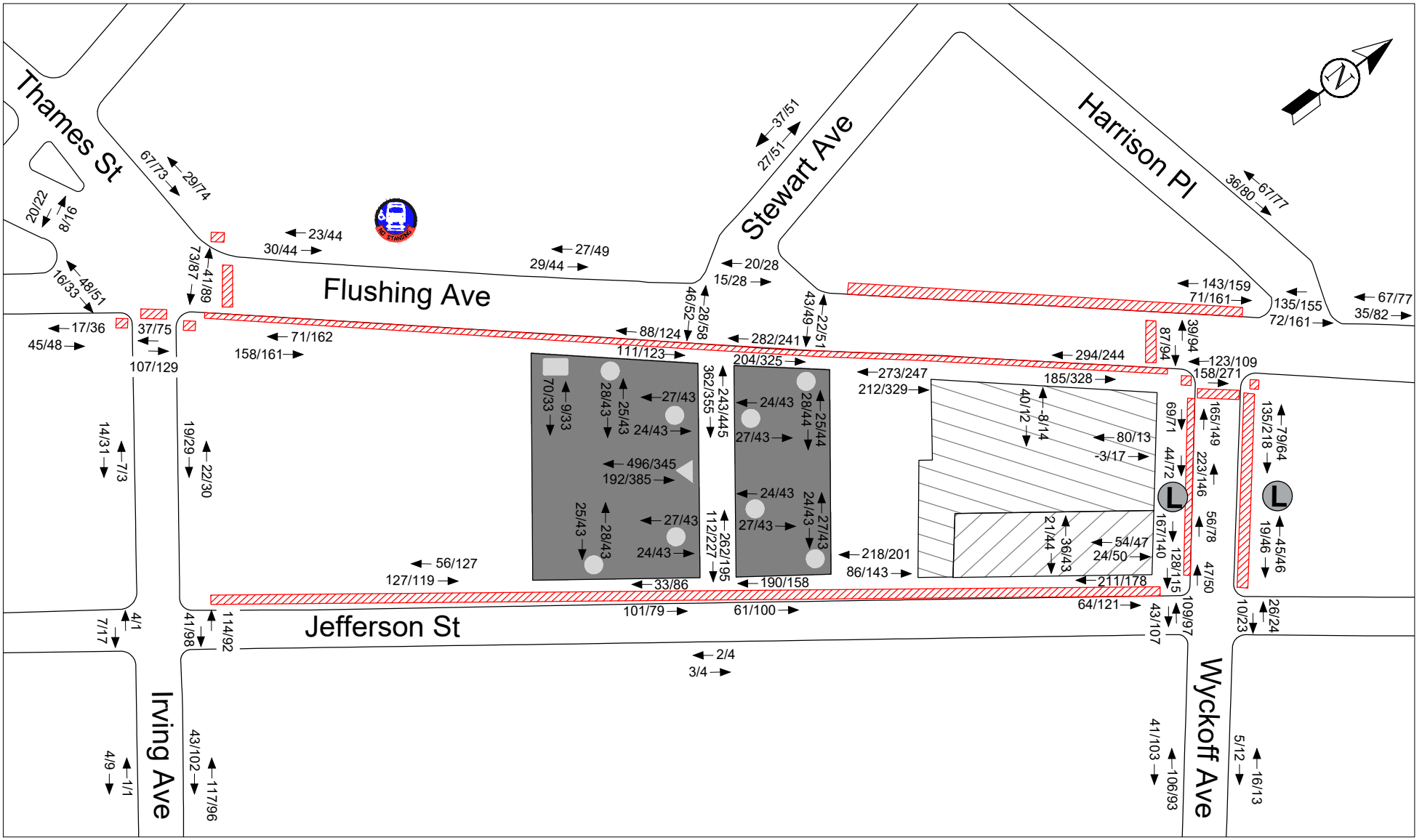
Under *CEQR Technical Manual* guidance, an evaluation of street user safety is needed for locations within the traffic and pedestrian study areas that have been identified as high-crash locations. These are defined as a location identified along a Vision Zero corridor/intersection or where five or more pedestrian/bicyclist injury crashes have occurred in any consecutive 12 months of the most recent three-year period for which data are available.[3] Within the traffic and pedestrian study areas, Flushing Avenue, to the north of the Project Area, is a Vision Zero Priority Corridor.

For high-crash locations, crash trends will be identified to determine whether projected vehicular and pedestrian traffic would further impact safety, or whether existing unsafe conditions could adversely impact the flow of the projected new trips.

PARKING

Parking demand from commercial, retail and community facility uses typically peaks in the weekday midday period and declines during the afternoon and evening. As no accessory parking would be provided on-site under the Proposed Action's RWCDS, detailed existing on-street and off-street parking inventories will be provided in the EAS to document the existing supply and demand during the weekday

[3] Vision Zero seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside of a motor vehicle. Vision Zero corridors and intersections are identified as locations that disproportionately account for pedestrian fatalities and severe injuries, thus prioritizing them for safety interventions.

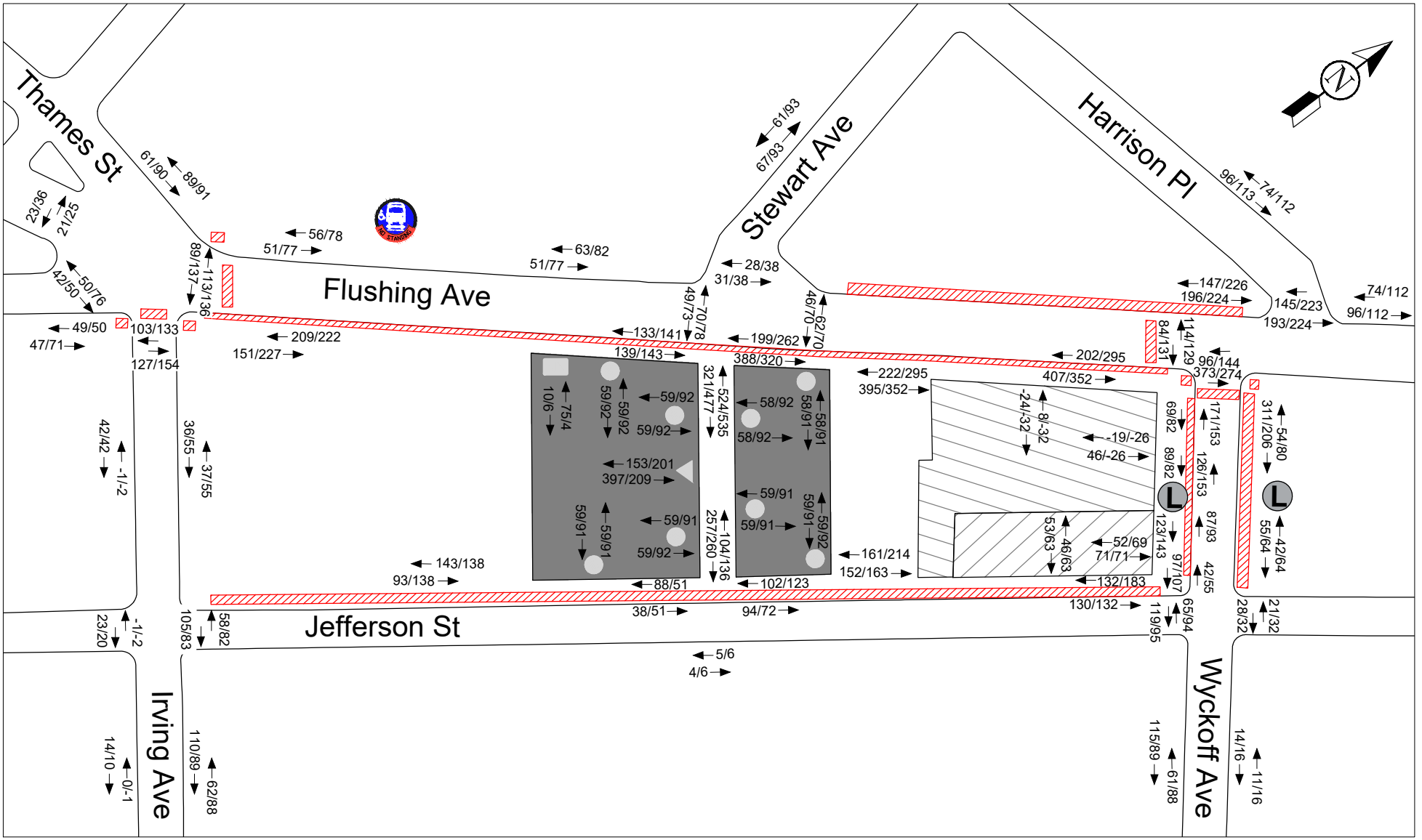


Legend
= Projected Development Site 1
= Projected Development Site 2
= Projected Development Site 3
2/2 = Weekday AM/MD Peak Hour Volume
= Pedestrian Element Analysis Locations
= Light Industrial Entrance
= Office/Community Facility Entrance
= Retail Entrance
L = Jefferson Street Subway Station
= Bus Stop

1160 Flushing Ave Rezoning

Figure 5

Weekday AM/MD Peak Hour Pedestrian Volumes



Legend
= Projected Development Site 1
= Projected Development Site 2
= Projected Development Site 3
2/2 = Weekday PM/SAT Peak Hour Volume
= Pedestrian Element Analysis Locations
= Light Industrial Entrance
= Office/Community Facility Entrance
= Retail Entrance
L = Jefferson Street Subway Station
= Bus Stop

1160 Flushing Ave Rezoning

Figure 6

Weekday PM/Saturday Peak Hour Pedestrian Volumes

midday period. The parking analyses will document changes in the parking supply and utilization within a ¼-mile radius of the Project Area under both No-Action and With-Action conditions.

Parking demands from the uses included in the Proposed Action's RWCDS will be derived from the forecasts of daily auto trips from these uses. Estimates of future parking utilization will account for net reductions in demand associated with No-Action land uses displaced from the Project Area under the RWCDS.